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EXPLORING MULTIFACETED FACTORS INFLUENCING COMMUNITY RESILIENCE TO EARTHQUAKE-INDUCED GEOHAZARDS: INSIGHTS FROM MONTENEGRO

Goran Grozdanić
Vladimir M. Cvetković

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Prof. Dr. Vladimir M. Cvetković
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Proofreading and Editing
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Prof. Dr. Vladimir M. CVETKOVIĆ
Goran GROZDANIĆ, PhD

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PREFACE

This scientific monograph stems from a deep interest in the resilience of local communities to natural disasters, particularly earthquakes, which pose one of the greatest challenges humanity faces. In our quest to explore the multifaceted factors influencing this crucial dimension of societal preparedness, we focused on Montenegro, a country located in the seismic active zone of the Mediterranean. Through an in-depth analysis of various aspects, we aim to contribute to a better understanding of the factors shaping the resilience of local communities to earthquakes and provide guidance for the development of effective strategies and programs.

Our research mission aims to identify key factors shaping the resilience of local communities to earthquakes and analyze the prerequisites for the development and implementation of various strategies and programs that would enhance the situation in this area. In doing so, we rely on an interdisciplinary approach, integrating insights from various scientific disciplines to gain a deeper understanding of the complexity of this issue. In this context, we consider demographic, socioeconomic, and psychological factors influencing the resilience of local communities to earthquakes. We understand that resilience is not only the result of technical preparations but also of deeper social, economic, and psychological dynamics. Through a systematic analysis of these factors, we strive to provide a comprehensive picture of the state of preparedness of local communities and to identify key points of intervention to improve their resilience.

Research approach is based on the analysis of available data as well as on field research, including interviews with the population and relevant experts. This enables us to gain a more detailed insight into the perception and attitudes of citizens regarding preparedness for earthquakes, as well as to identify specific challenges faced by local communities. Given the complexity of the problem and the importance of an interdisciplinary approach, we aim for our monograph to be a valuable resource for various stakeholders, including government institutions, non-governmental organizations, local communities, and the scientific community. We hope that the results of our research will serve as a basis for the development of concrete action plans and policies that will enhance the preparedness of local communities for earthquakes.

This monograph is not only the result of our research effort but also the product of collaboration with a wider community of experts and practitioners who have contributed their knowledge and experience to our understanding of this complex issue. We express our gratitude to all who have supported and contributed to our research. Through the following pages, we will guide you through a deep analysis of the factors shaping the resilience of local communities to earthquakes, providing insight into the complexity of this problem and identifying opportunities for improving the preparedness of local communities. We hope that this monograph will be a valuable resource for all those involved in this important field and will contribute to strengthening the resilience of local communities to earthquakes and other natural disasters.

A large number of social and natural factors influence the resilience of local communities to geohazards caused by earthquakes. Understanding these factors plays a crucial role in devising and implementing strategies to enhance resilience. The results of previous research on citizen resilience to geohazards caused by earthquakes have influenced the development of hypotheses, which are grounded in the concept of resilience. The general hypothesis involves testing the assertion that there is a relationship between demographic (gender, age, education, household size), socio-economic (employment, income level, marital status), and psychological characteristics (fear, past experience, risk perception) of citizens and their level of preparedness to respond to geohazards caused by earthquakes in the Republic of Montenegro. It is assumed that this relationship is at the pre-planning level, implying that citizens recognize the problem and accept that action must be taken. Based on the general hypothesis, three specific hypotheses have been defined: The first hypothesis concerns testing the assertion that there is a correlation between demographic factors (gender, age, education, household size) of citizens in the Republic of Montenegro and their resilience levels in responding to geohazards caused by earthquakes. The second hypothesis pertains to testing the assertion that there is a correlation between socio-economic factors (employment status, income level, marital status) of citizens in the Republic of Montenegro and their resilience levels in responding to geohazards caused by earthquakes. The third hypothesis concerns testing the assertion that there is a correlation between psychological characteristics (fear, previous experience, risk perception) of citizens

and their readiness levels in responding to geohazards caused by earthquakes in the Republic of Montenegro.

In the methodological framework of our research, we employed a combination of quantitative and qualitative methods to gather and analyze data. Surveys and interviews were conducted to collect quantitative and qualitative data, respectively, while statistical analysis techniques were applied to test the formulated hypotheses. Additionally, a comprehensive literature review was conducted to provide a theoretical foundation for our research and to contextualize our findings within existing knowledge. Through this methodological approach, we aimed to ensure the rigor and validity of our research findings. We extend our gratitude to the reviewers who provided valuable feedback and insights during the development of this monograph. Their contributions have undoubtedly enriched the quality of our work and have helped us refine our analysis and interpretations.

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1. INTRODUCTION

The occurrence of geo-hazards in the environment, particularly earthquakes, is an inevitable phenomenon that poses significant challenges. Predicting and preventing such events, as noted by Ivanović (1991), is a daunting task. Furthermore, mitigating natural hazards is compounded by anthropogenic influences and spatial pressures, leaving both property and human lives exposed to heightened risks. Only in recent history have we witnessed concerted efforts to safeguard societies from these natural perils through specific actions. Historically, natural phenomena leading to catastrophes were often attributed to "higher powers," suggesting an inability to prevent them. They were viewed as divine messages, perhaps meant to chastise sinners (Mileti, 1999:101). It's worth noting that until recently, there was a pervasive belief among our populace that events unfolded for a reason, especially during disasters, hence the colloquial expression "higher powers reminding us." This highlights a certain level of ignorance and unfamiliarity among citizens regarding specific natural phenomena.

Earthquakes, therefore, represent natural phenomena capable of directly or indirectly jeopardizing the environment, natural and material assets, and, most importantly, human lives. The extent of the threat posed by earthquakes varies depending on the development, preparedness of society, and lifestyle factors. Settlement in seismically active areas without adherence to regulated construction conditions amplifies the risk of both material and human losses.

For instance, nearly the entire territory of Montenegro exhibits seismic activity, with coastal regions being particularly vulnerable. Notably, the area between Bar and Ulcinj, where the last devastating earthquake occurred in 1979, registering an intensity of IX on the MCS scale (Radojičić, 2008). Other coastal regions such as Sutomore, Petrovac, Budva, Kotor, Risan, and Herceg Novi are also highly susceptible. Historical records, like the devastation of Duklja (present-day Podgorica) in 518 AD due to an earthquake in the Skadar Depression area, underscore the enduring seismic risks (Ivanović, 1991).

Therefore, conducting specific analyses to assess the resilience of local communities to earthquake-induced catastrophes is imperative. In areas lacking adequate spatial planning documentation, it's essential to develop such plans to enhance the protection of both the population

and infrastructure. The prevalence of unplanned construction, particularly along the Montenegrin coast, further exacerbates spatial pressures, potentially leading to induced seismicity.

On the other hand, a significant challenge lies in the resilience and preparedness of local communities to respond effectively to earthquake-induced hazards. Given that nearly half a century has elapsed since the last destructive earthquake in Montenegro, the apparent disregard or minimal attention to this problem is concerning. The current state of earthquake hazard protection in Montenegro is characterized by insufficient information about the risks and potential consequences.

Overall, the protection system against earthquake-induced hazards in Montenegro falls short, especially concerning the resilience of local communities and preparedness for earthquake response. While certain studies and reports have been conducted, their significance is limited due to their descriptive nature, lacking actionable response plans and strategies to bolster resilience. Consequently, there's a pressing need to strengthen disaster risk management systems through research, development, and innovative solutions, encompassing phases of preparation, education, response, mitigation, prevention, and post-disaster recovery efforts.

This research endeavors to delve into the multifaceted aspects influencing the resilience of the local community, recognizing the intricate interplay of various factors that contribute to its ability to withstand and recover from adversities, particularly in the context of seismic events such as earthquakes. By examining the socio-economic, environmental, infrastructural, and psychological dimensions, we aim to construct a comprehensive understanding of the resilience landscape in this area.

Our investigation is driven by the recognition that resilience is not a static attribute but a dynamic process shaped by a myriad of factors. We seek to identify these factors, ranging from individual psychological preparedness to community cohesion, governance structures, access to resources, and the quality of infrastructure. By comprehensively mapping out these elements, we aim to unravel the complex web of influences that determine the community's capacity to bounce back from disruptions.

Moreover, this study is motivated by the imperative to translate research findings into actionable insights that can drive meaningful change at the grassroots level. By elucidating the factors that underpin resilience, we lay the groundwork for the development and implementation of targeted strategies, programs, and policies aimed at enhancing the community's ability to mitigate risks and adapt to challenges. Central to our inquiry is the examination of citizens' readiness to respond in the event of earthquakes. Through surveys, interviews, and participatory methods, we aim to capture the nuances of individual and collective preparedness, shedding light on factors such as knowledge levels, risk perception, communication channels, and past experiences. By understanding the determinants of citizens' response readiness, we can tailor interventions that address specific gaps and empower individuals to take proactive measures in safeguarding their well-being and that of their communities.

Furthermore, our research seeks to bridge the gap between knowledge generation and practical application by facilitating the co-creation of resilience-building initiatives in collaboration with local stakeholders. By engaging community members, government agencies, non-profit organizations, and other relevant actors, we endeavor to foster a sense of ownership and collective responsibility in the pursuit of resilience goals. Through workshops, focus groups, and collaborative planning processes, we aim to harness the collective wisdom and resources of diverse stakeholders to co-design solutions that are contextually relevant and sustainable.

In addition to enhancing the community's capacity to respond to immediate crises, our research also aims to foster long-term resilience by addressing underlying vulnerabilities and systemic challenges. By advocating for policies that promote equity, social cohesion, environmental sustainability, and disaster risk reduction, we aspire to create a more resilient and inclusive society that is better equipped to withstand future shocks and thrive in the face of uncertainty.

1.1. The geographical position and distinctive features

The Republic of Montenegro, spanning 13,812 km², ranks among the smaller European countries in terms of size, precisely at the 39th position. It boasts 347 km² of internal sea area, 2047 km² of territorial sea, and 4917 km² of the continental shelf sea area (Burić, 2003). Situated along the Adriatic Sea coast, with a coastline stretching 293.5 km, Montenegro shares maritime borders with Italy. It also shares land borders, approximately 203 km in length, with Serbia to the northeast and east, 172 km with Albania to the south, 22.6 km with Croatia to the southwest, and 245 km with Bosnia and Herzegovina to the west. The distance between its northernmost and southernmost points measures 192 km in a straight line, while the distance between the westernmost and easternmost points is 163 km (Radojičić, 2008).

Figure 1. *Map of municipalities in Montenegro. Source: Wikipedia.*

According to official statistics from 2019, Montenegro has a population of 622,182 residing in 1,307 settlements across 24 municipalities. These municipalities vary greatly in size, with Nikšić being the largest at 2065 km² and Tivat the smallest at 46 km². The capital city, Podgorica, is home to the highest population with 175,515 inhabitants.
Montenegro's territory is divided into three regions: a) coastal region (comprising municipalities like Herceg Novi, Kotor, Tivat, Budva, Bar, and Ulcinj); b) central region (including Podgorica, Tuzi, Danilovgrad, Nikšić, and Cetinje); c) northern region (encompassing Plužine, Petnjica, Gusinje, Šavnik, Žabljak, Pljevlja, Mojkovac, Kolašin, Bijelo Polje, Berane, Andrijevica, Plav, and Rožaje).

The advantage of its location is reflected in its coastal-Mediterranean position, to which it owes its rich cultural-historical development. Through the ports of Bar and Kotor, it is open to other maritime states, while inland, it has strong connections with other Balkan Peninsula countries through land transportation, primarily via the Adriatic Highway and the Bar-Boljare Highway. The completion of the latter will notably enhance the country's transportation infrastructure. Additionally, there is an existing railway line from Bar to Belgrade, as well as airports in Podgorica and Tivat.

1.2. Topography and Geomorphology

Although encompassing a small area, Montenegro's terrain is highly specific, a result of geological evolution influenced by the work of endogenic and exogenic forces. The territory of Montenegro is characterized by a distinct geological structure belonging to the southeastern Dinarides region. Its access to the sea is one of Montenegro's prominent geomorphological features. Along the coastline, there is a series of plains, beyond which rise mountain massifs such as Orjen (1894m), Lovćen (1740 m), Sutorman (1185m), and Rumija (1593 m), physically separating this coastal part from the central part of Montenegro.

In the hinterland of these massifs lies a zone characterized by karst terrain, known as holokarst, represented by Mesozoic limestone with flysch and clastic sediments of the Paleogene and Quaternary. The areas of Nikšić field, Bjelopavlići, and Zeta plain represent the lowest points of the Central Montenegro, culminating in the mountain rang-

es of Goliya (1942 m) and Žijevo (2184 m). The northern part of Montenegro encompasses areas around the basins and canyons of rivers such as the Piva, upper flow of Moraca, Tara, Lim, and Ibar, extending to the international borders with neighboring countries. This area is notable for its elevation and includes mountains like Durmitor (2523 m).

1.3. Hydrology and Water Resources

Numerous hydrological forms and phenomena are found within the territory of Montenegro. The rivers of Montenegro gravitate towards both the Adriatic and the Black Sea basins, with 47.5% of the country's territory, or 6,268 km², belonging to the Adriatic basin, and 52.5%, or 7,544 km², belonging to the Black Sea basin. Flowing towards the Adriatic Sea are rivers such as the Moraca, Zeta, Sitnica, Ribnica, Cijevna, Orahovstica, Rijeka Crnojevica, and Bojana, while towards the Black Sea flow rivers such as the Piva, Tara, Cehotina, Lim, and Ibar. Across the entire country, an average of 1743 mm of precipitation falls annually, with 61.6% falling within the Adriatic basin and 38.4% within the Black Sea basin (Radojičić, 2008).

The largest lake on the Balkan Peninsula, Lake Skadar, belongs mostly to Montenegro, with 66%, while 34% belongs to Albania. The lake is a cryptodepression, with its surface area varying from 370 to 533 km², an average depth of 4-7m, and the maximum recorded depth of 60m (Radojičić, 2008). Besides Lake Skadar, other significant natural accumulations include Lake Shas, Lake Zogaj, Lake Biograd, Lake Plav, and Lake Crno, while artificial lakes include Lake Piva, Lake Krupac, Lake Slano, Lake Liverovići, Lake Bilećko, Lake Grahovsko, and Lake Otilovićko.

1.4. Climatic Factors: Influences on Montenegro's Environment

Climatic factors have a significant impact on shaping relief forms (in this case, karst and fluvial), land, as well as water richness, flora, and fauna, representing one of the fundamental geographical characteristics of a specific area. Climatic factors dictating and influencing the climate of a particular area include: geographical latitude, relief, dis-

tance from the sea, altitude, hydrological objects, and anthropogenic influences.

Given that Montenegro is located at the contact point between subtropical regions of high atmospheric pressure (Azores maximum) and subpolar areas (Icelandic minimum), a considerable portion of European air mass circulation occurs over it. Consequently, tropical air penetrating from Africa to the north and polar air penetrating southward alternate in this area, causing intense cyclonic activity (Radojičić, 2008). The climate is also influenced by the land masses of North Africa, the water masses of the Mediterranean and Adriatic Seas, as well as the land from the direction of the Euro-Asian continent. Relief fragmentation also affects microclimates. In mountainous areas near the sea, precipitation increases up to 1100 m altitude, then decreases, while in the interior, the maximum amount of precipitation occurs at altitudes between 1500 and 2000 m.

The position of Europe and Montenegro is such that major action systems such as the Genoa Cyclone, Adriatic Cyclone, Icelandic Depression, Black Sea Depression, Azores Anticyclone, Siberian Anticyclone, Central European Anticyclone, cold frontal systems from the north - Arctic cold front, and warm-tropical front from the south strongly influence weather conditions and climate.

The dominant climate types are: maritime type; continental type; mountain type (ZhMSCG). In the coastal and Zeta-Bjelopavlići plain, a Mediterranean climate prevails with warm and dry summers and mild and rainy winters. During winter, dry and cold bora winds blow from the mainland to the sea, while in autumn, the jugo wind blows from the sea, bringing heavy precipitation. Orjen, with an annual precipitation of 4600 mm, is one of the rainiest places in Europe. According to ZhMSCG data, specifically in the village of Crkvica, about 5000 mm of precipitation falls annually, representing the European maximum precipitation.

The karst fields in the hinterland, which are 20 - 80 km away from the sea as the crow flies, have a harsher climate, while a mountain climate prevails in the central and northern parts of the country, with the extreme north characterized by low precipitation and a continental climate.

Given that this scientific study focuses on municipalities in the coastal region (Ulcinj, Bar, Budva, Kotor, and Herceg Novi), the central region (Podgorica, Cetinje, and Niksic), as well as the northeastern (Berane) and northern (Zabljak), in Tables 1 and 2, the average annual temperatures and precipitation, and the height of the snow cover at meteorological stations in the municipalities where measurements were taken are shown, taken from the Hydro meteorological and Seismological Institute of Montenegro (ZhMSCG).

Table 1. *Rank and position of stations, with temperature data of average daily temperatures. Source: Hydro meteorological and Seismological Institute of Montenegro – ZhMSCG.*

Station	Measurements from	Average daily temperatures	Average maximum temperature	Average minimum temperature
Ulcinj	1949	7,2	16,2	-7,3
Bar	1949	8,5	19,5	-8,7
HercegNovi	1948	8,4	15,6	-4,5
Cetinje	1946	1	10,9	-14,5
Podgorica	1947	5,5	14,7	-8,0
Nikšić	1949	1,7	10,2	-12,9
Berane	1950	-1,1	13,7	-20,4
Žabljak	1958	-3,9	6,4	-21,7

Average daily temperatures are calculated as the mean value of 24-hour measurements at automatic meteorological stations. Coastal cities such as Ulcinj, Bar, Budva, Kotor, and Herceg Novi have similar temperature values, which is a result of their openness to the sea and insolation. In Podgorica, the values are slightly lower, but the openness to the sea through the Podgorica-Skadar valley keeps the temperature values close to those of coastal cities.

The Nikšić field, located 55 km inland from the sea as the crow flies, is also open to the sea via the Zeta valley, the Podgorica-Skadar valley, and the Bojana valley, from where warm air masses come. However, the amount of precipitation is somewhat higher, which affects air cooling. Berane has an exceptionally continental climate. Low air temperatures are influenced by surrounding mountains, distance from the sea, and the valley-like character of the area. Meanwhile, Žabljak experiences a mountain climate.

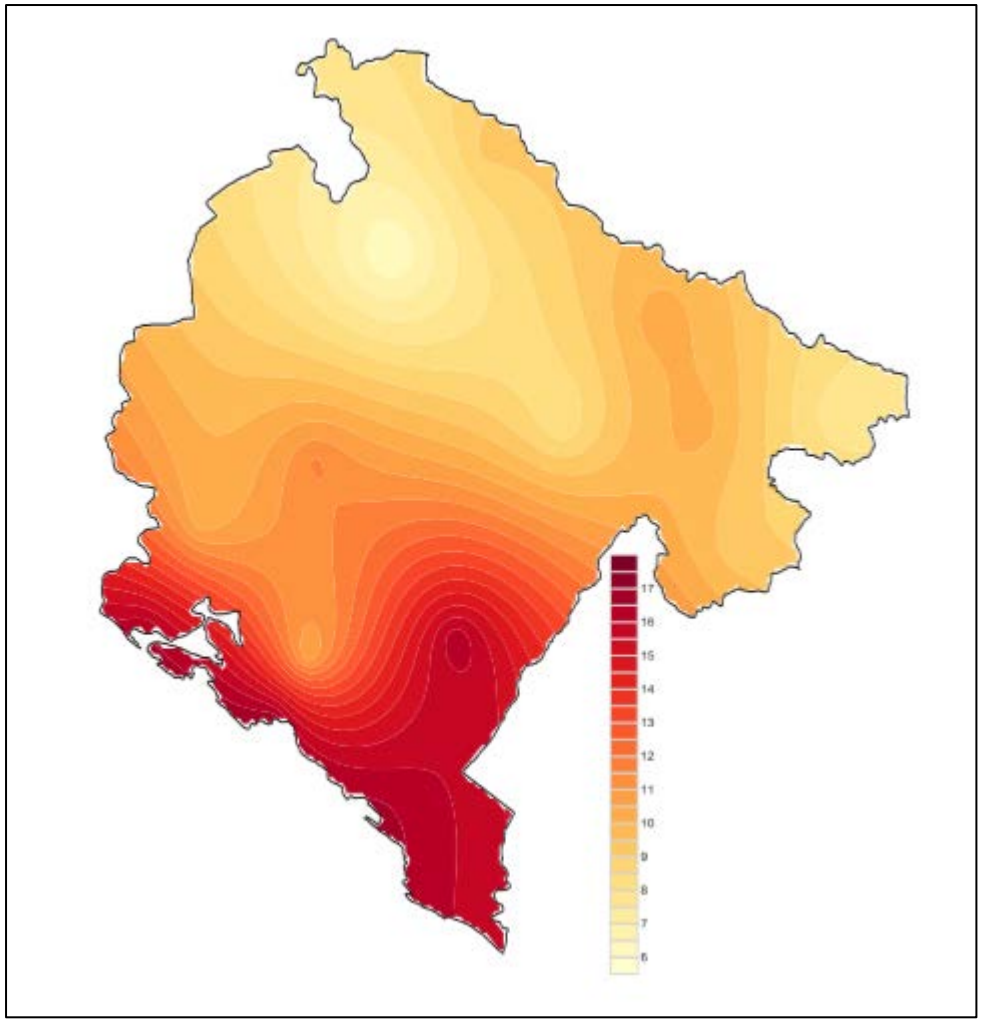

Figure 2. *Average annual air temperatures for the period 1991-2020. Source: Government of Montenegro*

Table 2. *Data on annual precipitation amounts expressed in mm and snow cover heights expressed in cm. Source: Hydro-Meteorological Institute and Seismology of Montenegro*

Station	Annual precipitation amount			Snow depths
	Average	Maximum	Minimum	
Ulcinj	1278,5	2018,8	758,4	0
Bar	1376,7	1913,1	758,0	0
Herceg Novi	1873,5	2771,6	1117,0	0
Cetinje	3341,3	5383,0	1908,9	3
Podgorica	1660,7	2475,7	869,6	0
Niksic	1937,2	3214,3	1096,4	1

Berane	906,7	1443,2	486,8	2
Žabljak	1492,2	2255,8	1017,6	20

Monthly precipitation is measured from 6 UTC on the last day of the previous month to 6 UTC on the last day of the current month. Measurements are taken at a height of 1m above ground level, on a receiving surface standardized by the World Meteorological Organization to 200 cm2.

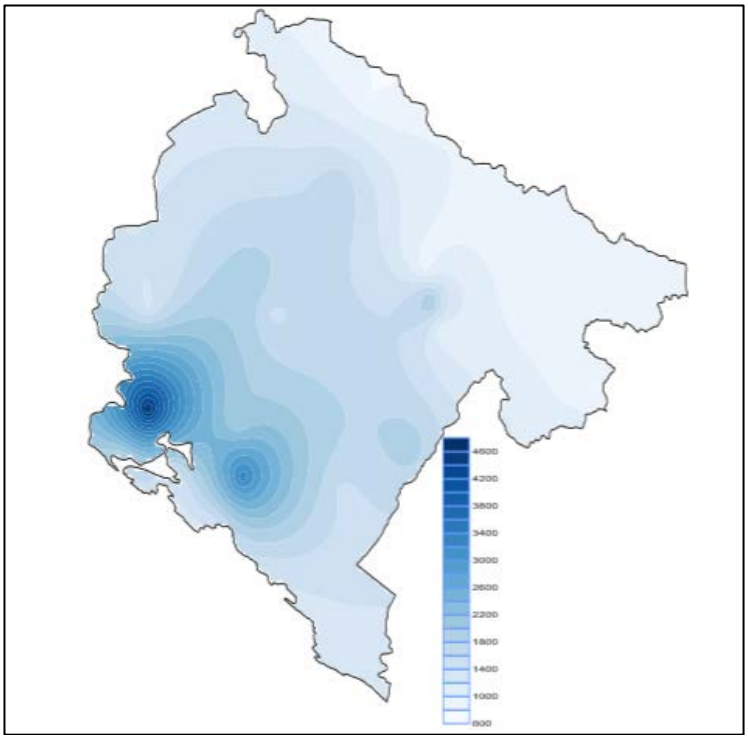

Figure 3. *Average annual precipitation for the period: 1991-2020. Source:* Government of Montenegro

It is expressed as the amount of water precipitation in mm or the quantity in l/m2. (Đujić & Anđelković, 2005). In coastal areas, approximately 74% of the total precipitation falls during the cold half of the year. It is not uncommon for no rainfall to occur during the summer months. Similar patterns are observed in Podgorica and Nikšić, where the highest precipitation is recorded from October to January. (Radojičić, 2005).

Inland from Herceg Novi, or rather the Bay of Kotor, lies a place known as the wettest place in Europe, Crkvice. The direct exposure to

the influence of the Mediterranean, or rather the Adriatic Sea, results in a large amount of precipitation. Warm and moist air masses moving from the south condense along the slopes of Orjen, causing significant precipitation in Crkvice, with an average of 4742 mm (Hydrometeorological Institute of Montenegro). The smallest amount of precipitation is in Berane, where we also have the highest share of snow.

Cloudiness represents the degree of sky coverage by clouds and in climatology is expressed in tenths (Ducic & Andjelkovic, 2005). Cloudiness affects the temperature regime. On cloudy days, the daily temperature fluctuations are smaller, while on clear days temperatures reach extreme values, maximum in summer and minimum in winter. In Podgorica, we have an average of 132 clear days and an average of 104 cloudy days. When it comes to sunshine hours, they range from 1693 hours in Kolasin to 2660 hours in Ulcinj. On average, the capital has 2462 sunny hours per year (Hydrometeorological Institute of Montenegro).

Wind represents the horizontal movement of air. Wind is a direct consequence of the distribution of air pressure and arises from the action of pressure gradient force (Ducic & Andjelkovic, 2005). Dominant winds in Montenegro are north, northeast, and south. Bura and jugo are the most significant winds blowing throughout the year but are most common in the winter period. Bura blows from the northeast and north, affecting the temperature decrease, reducing cloudiness and air humidity. It is strongest in the central valley area, along the Zeta and Moraca valleys, across Lake Skadar and the Bojana River, as well as across the Grbalj and Draga fields towards the Bay of Kotor, and across the Sutorman towards Bar and Sutomore (Radojicic, 2008). The maestral is also significant, blowing along the coast during the warmer half of the year. Its direction of movement is from the southwest and west. This wind refreshes and is suitable for sailing. Jugo is a warm and humid wind that brings cloudiness and precipitation. It often comes from the African region and carries precipitation with dust particles, the so-called dirty rain. Burin is also known as nocturnal wind, blowing at night, mainly after rain from the land towards the sea. Its opposite is the smornik, or daily wind, blowing in the afternoon hours from the cooler sea towards the warmer land.

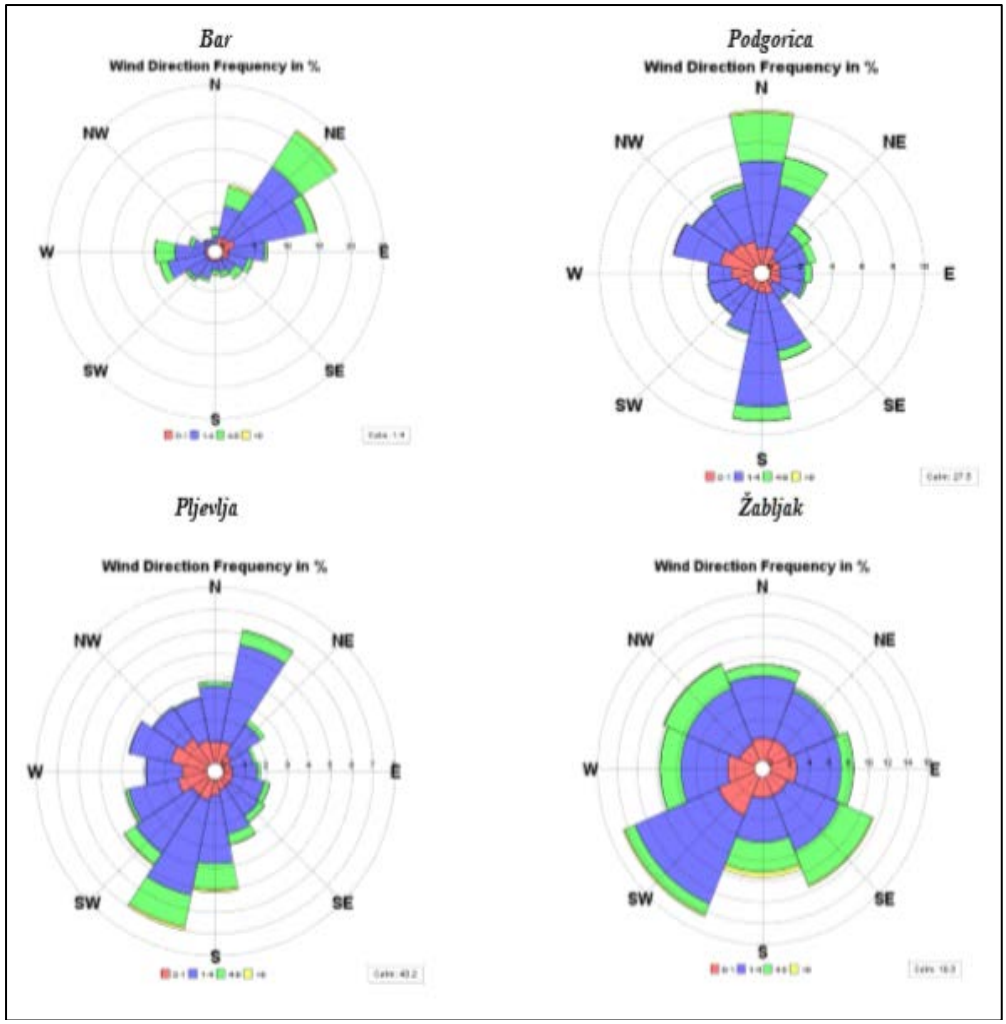

Figure 4. *Wind rose climatology for the period 1991-2020. Source: Hydrometeorological Institute of Montenegro*

2. PHENOMENOLOGY AND IMPACT ASSESSMENT OF GEOPHYSICAL HAZARDS

Under geophysical hazards, threats that may result from or be the effect of certain natural phenomena are implied, where the outcome can be changes in the environment, material damage, as well as loss of life. Biophysical hazards include seismic hazards or earthquakes, landslide hazards, erosion, forest fires, volcanic eruptions, while hydrological disasters, floods, flash floods, tsunamis, etc., fall under hydrological hazards.

2.1. Classification of Natural Hazards and Their Impacts: Understanding Montenegro's Vulnerabilities

Natural hazards, as well as those caused by human negligence, affect thousands of people every year. The consequences of these events often result in catastrophic loss of life and physical devastation. Natural hazards are geological or meteorological phenomena that result in the loss of human lives or property. Natural disasters include: earthquakes, landslides, erosion, forest fires, floods, volcanic eruptions, tsunamis, hurricanes, tornadoes, severe storms, and droughts.

Some of these phenomena can be caused by a combination of several different forces. For example, landslides can be caused by meteorological phenomena, i.e., precipitation saturating the soil on unstable slopes, but landslides can also occur as a result of earthquakes. Similarly, tsunamis occur as a consequence of submarine earthquakes, meteor or comet impacts, underwater earthquakes, which result in the creation of waves that can reach heights of up to 30 meters above sea level.

The World Meteorological Organization (WMO) and the United Nations (UN) reported in 2021 that the number of natural disasters per decade had increased fivefold from 1979 to 2019. And data collected in EM-DAT, an international disaster database maintained by the Centre for Research on the Epidemiology of Disasters in Brussels, shows that since 1998, around 300 disasters have been recorded annually (www.britannica.com).

The consequences of disasters manifest themselves in material and human losses. People who experience a disaster often face emotional problems such as stress, anxiety, constant worry, and more. While some recover independently from the consequences, others require professional help to overcome depression, insomnia, or similar issues.

Material losses from disasters are measured in billions of dollars. The costs are reflected in the destruction of infrastructure and residential buildings, as well as damage to agricultural goods, as a result of floods, hurricanes, earthquakes, and more. Floods in Pakistan in 2022 cost the country more than 30 billion dollars, while Hurricane Katrina hit the United States in 2005, causing damage of over 186 billion dollars. The most recent event from 2023 is the earthquake in Turkey and Syria, where the material damage was estimated at over 34 billion dollars, while in the same earthquake, more than 48,000 people lost their lives (www.britannica.com). Based on this data, we conclude that recovery from disasters is a complex and very costly process that has a significant impact on the economy of a society.

2.2. Natural and Anthropogenic Factors: Interplay and Impacts

Earthquakes are associated with deformations in the Earth's crust that have resulted from the movement of lithospheric plates (Gerzina & Carević, 2019). This movement of lithospheric plates is called plate tectonics and is the most common cause of earthquakes, so we can speak of tectonic earthquakes, and such earthquakes occur precisely at the contact of tectonic plates. In some places in the Earth's crust, there are fissures called faults. Faults can form under the influence of compressive, tensile, and shear forces, and depending on the type of displacement, we distinguish between normal, reverse, and strike-slip faaults (Ivanović, 1991).

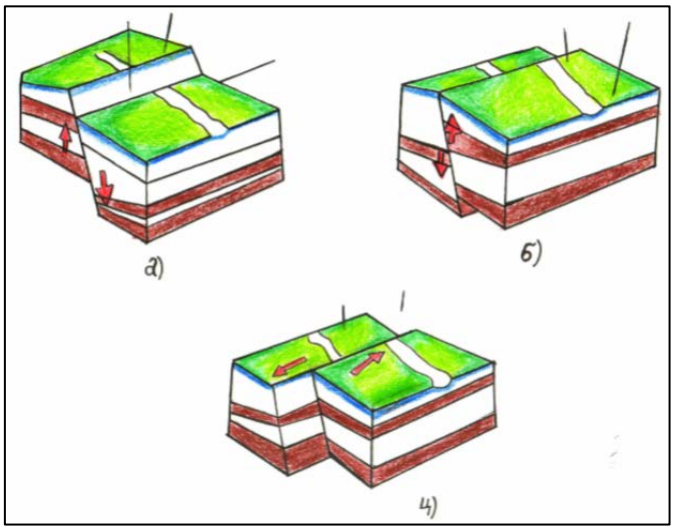

Figure 5. *Types of faults in the Earth's crust: a) Normal fault,b) Reverse fault, c) Strike-slip fault.*

Normal fault typically occurs as a result of extension, reverse fault due to compression, while in strike-slip faults, movement occurs along the direction of fault extension (Ivanović, 1991). In addition to tectonic causes, earthquakes can result from volcanic eruptions, volcanic earthquakes, or collapse of cave ceilings and underground spaces, known as urvan earthquakes.

Moreover, earthquakes can occur as a consequence of comet, meteor, and asteroid impacts (Gerzina & Carević, 2019). When discussing earthquakes induced by human activity, it refers to induced seismicity, which triggers minor tremors and ground shaking. There are numerous reasons for induced seismicity, with one of the main ones being large accumulations causing pressure. The first documented case of induced seismicity is associated with accumulation during the construction of the Hoover Dam on the Colorado River between the states of Nevada and Arizona in 1930. The dam was named after the American president Herbert Hoover, initially called Boulder.

Although there were initial doubts about the occurrence of so-called induced seismicity and the possibility that artificial reservoirs could trigger tremors, with the increase in the number of similar accumulations, the number of recorded tremors on dams also increased. Today, the prevailing understanding is that induced seismicity is the physical response of a portion of the Earth's crust to reservoir filling, when cer-

tain specific conditions are met, meaning that induced seismicity occurs when certain conditions are met.

Figure 6. *Hoover Dam on the Colorado River. Source: [National Park Service](https://www.nps.gov/lake/learn/historyculture/hoover-and-davis-dams.htm)*

This means that the causative fault, which can produce the release of seismic energy, is already stressed to the critical threshold, so that additional loads and propagation of pore pressures due to reservoir filling can trigger the release of seismic energy. Such a definition also implies that the stimulation due to reservoir filling cannot increase seismic potential and seismic risk if seismic risk at the dam site is adequately assessed (Božović, 2003). In cases where seismic risk is adequately assessed, reservoir filling cannot increase seismic risk.

2.3. Characteristics of Natural Disasters: Understanding the Patterns

Disasters injure, kill, induce emotional stress, and trauma. They destroy homes and businesses, trigger economic crises, and represent financial ruin for many. The poorest segments of society are often the most affected and vulnerable (Cuny, 1994). The scope of disasters has been exponentially increasing since the 1970s (Cvetković, Filipović, & Gačić, 2018). Between 1900 and 2013, there were 25,552 natural dis-

asters. The highest number consists of hydrological, followed by meteorological, geophysical, climatic, and biological disasters (Mijalković & Cvetković, 2014). The concept of disaster is often equated with the concept of hazard, which is not correct. Table 3 illustrates the difference between these two concepts.

Table 3. *Conceptual Differences between Hazard and Disaster. Source: Cvetković, 2020*

HAZARDS	DISASTERS
Existence of threats to life, health, the environment, and property.	The realized threat and resulting consequences for life, health, the environment, and property.
Event in an uninhabited area.	Manifestation in inhabited areas.
Absence of interactions with physical and social systems.	Existence of interaction with physical and social systems.
There are no other criteria besides the fact that a natural event occurred.	According to the EM-DAT international database, a hazard turns into a disaster when: there are 10 or more fatalities, 100 or more affected; a state of emergency is declared; international assistance is requested.

Natural disasters have the potential to become catastrophes in the absence of adequate mitigation systems (Chadta et al., 2007). The term "catastrophe" originates from the French word "désastre" (dés - bad; astre - star), indicating a "bad or evil star." Etymologically, the word is of Greek origin, from the word "katastrophe," meaning overturn, reversal, or catastrophe.

Porfiriev (2005) defines a catastrophe as an event that destabilizes society and the social system, leading to the inability or impaired functioning of connections and communication among its elements or social units (communities, social groups, and individuals). Preet (2006) suggests that catastrophes are social phenomena involving the interaction of a hazardous physical process with the local characteristics of

everyday life in a place and the larger social and economic forces shaping that area.

According to Bimal (2011), natural disasters can be categorized by their origin into atmospheric and hydrospheric (tornadoes, cyclones), lithospheric (earthquakes, volcanic eruptions, tsunamis), and biospheric (forest fires, bacteria). Considering their source of occurrence, they can also be classified as endogenic (earthquakes, volcanic eruptions), exogenic (floods, droughts), and anthropogenic (floods caused by dam breaches).

The United Nations Office for Disaster Risk Reduction (UNISDR, 2009) provides a widely accepted definition of the term "disaster," referring to a disturbance in the functioning of a community or society involving extensive human, material, economic, and environmental losses and impacts, exceeding the ability of the affected community or society to cope using its own resources.

The process of a catastrophe passes through four phases (Milivojević, Kokić-Arsić, Aleksić, & Grubor, 2011):

- Natural or human event: referring to natural events like earthquakes, volcanic eruptions, giant solar eruptions, supernova explosions near the solar system, and human-made events resulting from human activities like nuclear or biological warfare, uncontrolled scientific experiments, etc.
- Catastrophe action: actions resulting from the event, such as mass human suffering, material destruction, nuclear winters, abrupt global warming or freezing, which may encompass part of the planet, be global in nature, or even involve broader cosmic space.
- Cessation of action: bringing along consequences that may be local, regional, or global, including mass human deaths, destruction of humanity, total destruction of objects. In the case of events in cosmic space, the outcome could be the destruction of Earth or even the solar system.
- Recovery: involving many factors and partial actions of humanity. Factors influencing the process include the level of destruction, occurrences like radioactive radiation, destroyed economic systems, mass injuries, and illnesses of people. When discussing assumptions about global action and the destruction of

humanity, one can speak of the possibility of the emergence of a new civilization on Earth over a multi-millennial period.

2.4. Catastrophic Events in the Earth's Lithosphere: Understanding Natural Disasters

The interior of the planet Earth is divided into several layers, including: outer crust (continental/oceanic); earth's mantle or lithosphere; upper mantle; lower mantle; core; outer core; and inner core (barosphere).

The appearance of the Earth's relief is largely the result of endogenic movements, which occur in the interior of the Earth, namely in the Earth's crust. These are mainly geodynamic processes that cause the movement of continents, i.e., tectonic plates. As a result of this movement, processes such as subduction of parts of the Earth's crust, volcanic and intrusive activities, deformation of the Earth's crust, etc., occur. Subduction of oceanic crust under continental crust causes arc volcanoes on land, which predominantly erupt andesitic lava (Glavatović, 2005).

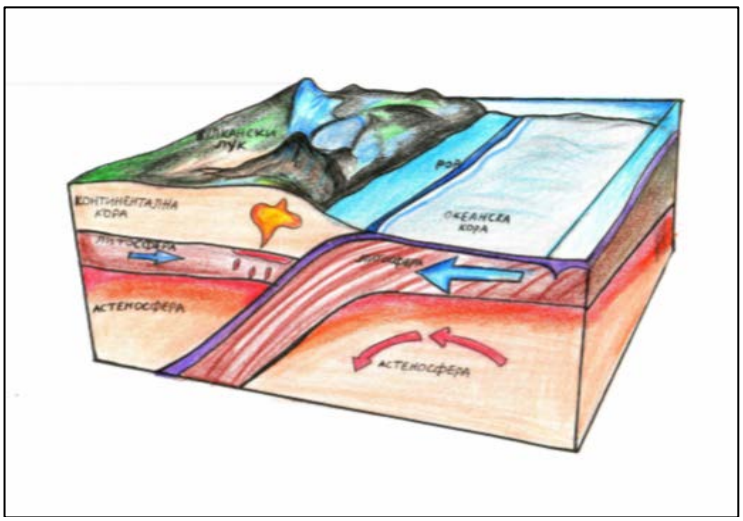

Figure 7. *Subduction process at the continental marginw*

As a result of the contact between tectonic plates, pressure is released in the rocks, leading to deformations such as faults, fractures, rifts, or

uplift of rock masses. All these events in the Earth's lithosphere contribute to the formation of relief, while internally they cause phenomena such as earthquakes, volcanism, deformation of the Earth's crust, and so on.

2.4.1. Plate Tectonics: Understanding Earth's Dynamic Crust

The superficial, solid layer of the Earth is, on average, 35 km thick and is called the Earth's crust. The lithosphere or Earth's crust is a solid, rocky outer shell of the Earth, structurally complex and diverse in composition, with varying thicknesses, extending from the Earth's surface to a boundary known as the Mohorovičić discontinuity (Glavatović, 2005).

The Earth's crust is composed of igneous, sedimentary, and metamorphic rocks. Igneous rocks form through the cooling of lava and magma and the crystallization of dissolved minerals. Sedimentary rocks form through the accumulation of minerals on the Earth's surface, predominantly in aquatic environments, while metamorphic rocks form through the metamorphosis of igneous and sedimentary rocks exposed to altered temperatures and pressures (Gerzina & Carević, 2019).

The Earth's crust consists of continental and oceanic crust. The continental crust is up to 35 km thick, while the oceanic crust is thinner, with an average thickness of 7 km. The Earth's crust is composed of three layers of rock: a surface layer of sedimentary rocks with a thickness of 5 to 15 km, followed by a layer of igneous rocks (granites), with a significant proportion of the silicate component SiO, approximately 15 km thick, and a layer that forms the base of the Earth's crust, a layer of basalt, with a thickness of 5 to 15 km. The oceanic crust consists of a layer of basaltic rocks (Glavatović, 2005).

All events in the Earth's lithosphere are conditioned by the movement of tectonic plates, primarily continental but also oceanic. In zones of collision between tectonic plates resulting from their movements, mechanical energy is released, which is a consequence of the mechanical breaking of rocks and leads to the formation of seismic waves and the occurrence of earthquakes. On planet Earth, we have seven major tectonic plates and dozens of minor ones.

Rank	Tectonic plate	Type	Area in square kilometers
1.	Pacific Plate	Main	103.300.000
2.	North American Plate	Main	75.900.000
3.	Eurasian Plate	Main	67.800.000
4.	African Plate	Main	61.300.000
5.	Antarctic Plate	Main	60.900.000
6.	Indo-Australian Plate	Main	58.900.000
7.	South American Plate	Main	43.600.000
8.	Somalian Plate	Less	16.700.000
9.	Nazca Plate	Less	15.600.000
10.	Philippine Plate	Less	5.500.000
11.	Arabian Plate	Less	5.000.000
12.	Caribbean Plate	Less	3.300.000
13.	Cocos Plate	Less	2.900.000
14.	Caroline Plate	Less	1.700.000
15.	Scotia Plate	Less	1.600.000
16.	Burma Plate	Less	1.100.000
17.	Neo-Tethys Plate	Less	1.100.000

Table 4. *List of Major and Minor Tectonic Plates by Size. Source: www.worldatlas.com, 2023*

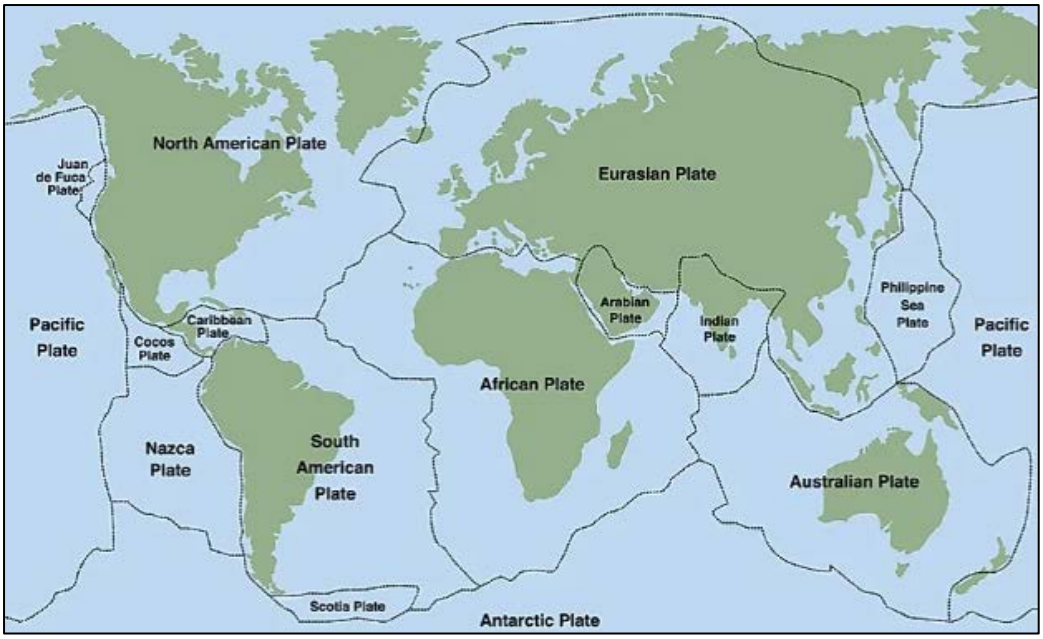

Figure 8. *Map of Major and Some Minor Tectonic Plates. Source: www.worldatlas.com, 2023*

There are three types of tectonic plate boundaries depending on how they move:

1. Transform boundaries - occur where plates slide past each other along a transform fault. The relative motion of plates is either sinistral (to the left relative to the observer) or dextral (to the right relative to the observer).
2. Divergent boundaries - occur where plates move away from each other, characteristic of mid-ocean ridges and rift zones like the East African Rift.
3. Convergent boundaries - occur where two plates collide, creating a subduction zone where one plate is forced beneath another or continental collisions where two continental plates converge. In subduction zones, friction and heating of the subducting plate almost always create a zone of volcanism (Oraskes, 2003).

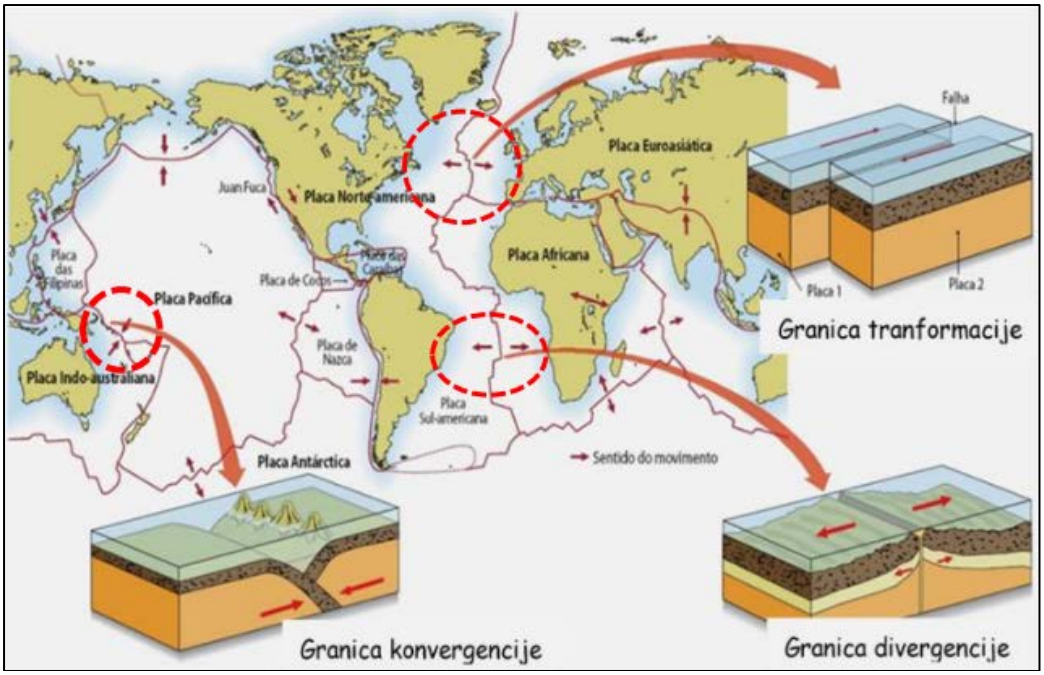

Figure 9. *Major lithospheric plates of Earth's lithosphere, with arrows indicating the direction of movement of individual plates - plate boundaries. Source: Stanković, 2016*

2.4.2. Seismic Activity: Understanding Earthquake Occurrences

Earthquakes have occurred throughout the entire history of the formation and development of Earth's crust. Considering the catastrophic consequences of destructive earthquakes, which result in the loss of human lives and material goods, there has always been a need to study the phenomenon of earthquakes. In recent decades, there has been an intensive development of instruments for recording seismic waves caused by earthquakes, observation of physical phenomena related to their preparation phase, as well as methods for data analysis and processing (Glavatović, 2005).

An earthquake is the shaking of the ground that occurs as a result of the release of energy during faulting. The place on the fault surface where energy is released, or where seismic waves originate, is called the hypocenter or focus of the earthquake. This released energy is transmitted in the form of seismic waves in all directions. The earthquake will be felt on the surface first at the epicenter, which is the

point directly above the hypocenter. The distance between the epicenter and the hypocenter is called the depth of the earthquake (Gerzina & Ćarević, 2019).

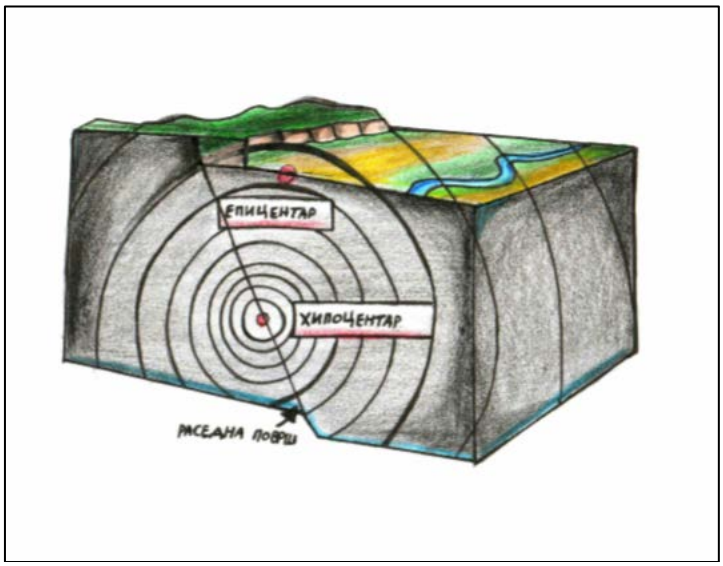

Figure 10. *Elements of an earthquake: epicenter and hypocenter*

According to Ivanović (1991), it is important to distinguish between the earthquake focus (hypocenter) and the area of the hypocenter focus because the seismic process can start in a very small focus and then spread to the entire area of the focus. The same applies to the epicentral area. The epicentral area usually coincides with the area of maximum destruction, known as the seismogenic zone, while the time of occurrence of the earthquake is called the hypocentral time.

The most important parameter of earthquake intensity, introduced by Charles Francis Richter (1935), is the earthquake magnitude, which directly depends on the energy released by the tremor. Magnitude represents a measure of the amount of energy released at the hypocenter. On the other hand, we have the macroseismic intensity, which represents a measure of the effect of that energy at a point on the Earth's surface (Ivanović, 1991).

The earthquake intensity is the degree of surface effects caused by the earthquake, or a measure of their destructiveness. The intensity of an earthquake is a qualitative parameter of its strength, so we can say

that intensity scales are descriptive. Today, the Mercalli scale is used to measure the intensity of earthquakes, devised by Giuseppe Mercalli (1902). This scale consists of 12 degrees of earthquake intensity based on sensory observations and the degree of damage.

2.4.3. Seismic Waves and Forecasting: Understanding Earthquake Prediction

Energy generated in the hypocenter spreads in all directions in the form of elastic waves, which we call seismic waves. There are three types of seismic waves: longitudinal, transverse, and surface waves.

Longitudinal or compressional waves represent a rapid alternation of pressure and rarefaction of material with a change in its volume. The longitudinal "P" wave is a sound wave type. As it passes through rocks, each rock particle moves back and forth in the direction of wave propagation. In this way, the rock undergoes compression and dilation, as if struck sharply with a hammer at one end. Particles exposed to the impact move momentarily, then return back. They transfer stress to neighboring particles and force them to move to the right. These waves have the highest speed when breaking the surface, which amounts to 7-8 km/s (Ivanović, 1991).

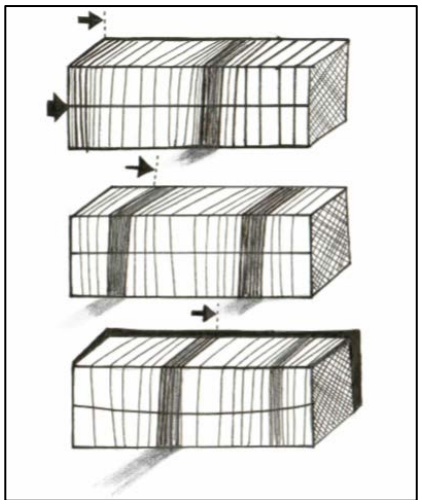

Figure 11. *Longitudinal Waves*

Transverse or shear waves deform the material through which they pass, but without changing its volume. When "S" waves propagate, particles move perpendicular to the direction of wave propagation, resembling a rope tied at one end and shaken at the other. These waves move at a slower speed than longitudinal waves, which is about 4-4.5 km/s (Ivanović, 1991).

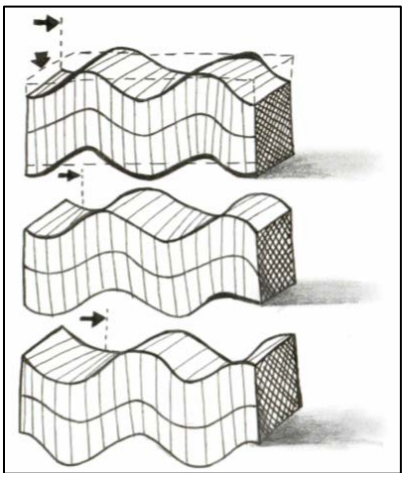

Figure 12. *Transverse Waves*

Surface waves - Waves that pass through the interior parts of the Earth are accompanied by surface waves, which propagate along the Earth's surface. There are two types of surface waves: Love waves and Rayleigh waves. Surface waves arise on the free surface of a solid, elastic space, similar to gravitational waves on the surface of a liquid under the influence of wind.

Love waves are transverse oscillations similar to "S" waves, but they only occur in the horizontal plane. They propagate along the Earth's surface, continuously bouncing off the upper and lower boundaries of surface layers.

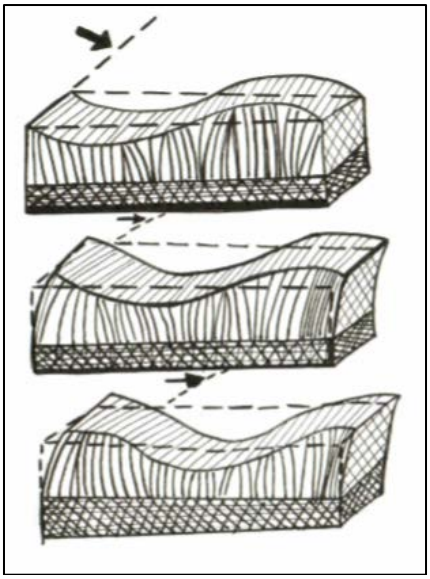

Figure 13. *Love waves*

Relief waves have a vertical component. In them, the impact occurs in the direction of wave propagation, and then oscillation occurs upwards, backwards, downwards, and a new impact occurs (Ivanović, 1991).

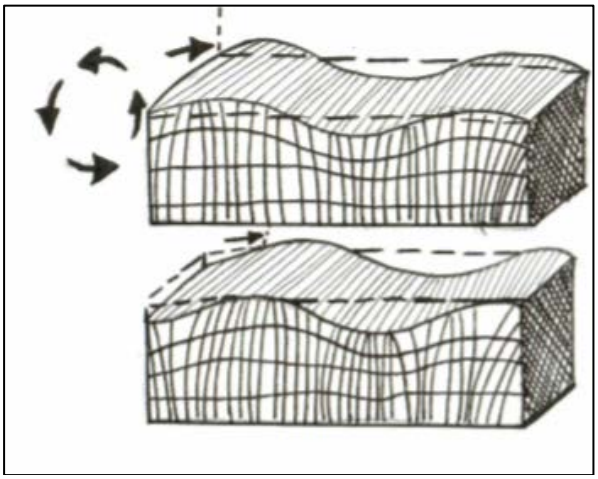

Figure 14. *Relief Waves*

The task of predicting earthquakes remains an insurmountable challenge due to their inherent unpredictability. These natural phenomena defy forecasting, rendering any attempts at prediction futile. However, our understanding acknowledges certain patterns, notably the heightened seismic activity in specific regions, particularly along the boundaries of lithospheric plates. Despite the inability to pinpoint the exact timing and location of future earthquakes, insights gleaned from historical earthquake data enable the formulation of long-term forecasts for particular regions. By analyzing seismic activity trends and geological characteristics, scientists can identify areas with heightened earthquake risk and provide probabilistic assessments of future seismic events. While these forecasts lack precision in terms of specific events, they serve as valuable tools for informing risk management strategies, urban planning, and disaster preparedness efforts in earthquake-prone regions.

3. EARTHQUAKE AS A NATURAL PHENOMENON: UNDERSTANDING ITS DYNAMICS

An earthquake, characterized by the shaking of the ground, occurs due to the abrupt release of energy along fault lines. This seismic event originates from a specific point on the fault plane, known as the hypocenter or earthquake focus, as described by Gerzina and Carević (2019). The hypocenter marks the precise location where seismic waves originate, initiating the seismic activity that propagates outward. It's worth noting that in the literature, the term "epicenter" is frequently employed interchangeably with the earthquake hypocenter, referring to the point on the Earth's surface directly above the hypocenter. This distinction helps geoscientists and seismologists precisely pinpoint the origin and characteristics of seismic events, facilitating more effective monitoring, analysis, and response strategies.

The characteristics of earthquakes, as outlined by Cvetković (2020), encompass several key aspects. Firstly, earthquakes occur suddenly and without warning, adding to their unpredictability and the challenges associated with preparedness efforts. Secondly, while there exist advanced scales for measuring earthquake intensity, accurately predicting their occurrence remains elusive, contributing to the complexity of disaster management. Thirdly, earthquake-prone regions are typically categorized into seismic zones, aiding in risk assessment and resource allocation to mitigate potential impacts. Moreover, the consequences of earthquakes extend beyond the intensity of ground shaking, also contingent upon the resilience of built structures and environmental elements, amplifying the overall impact on affected areas. Additionally, earthquakes inflict extensive damage on critical infrastructure, leading to significant economic and social disruptions within affected communities. Furthermore, earthquakes can trigger serious secondary hazards, compounding the challenges in post-disaster response and recovery efforts. Finally, the consequences of earthquakes are influenced by various factors, including the duration of ground shaking, local environmental conditions, and the resistance level of the affected areas, underscoring the multifaceted nature of earthquake impacts.

The consequences of earthquakes can include damage or collapse of all types of buildings, infrastructure, and critical facilities. Attention should be focused on residential buildings (Figure 16a and 16b), cultural-historical monuments (Figure 16c), important facilities such as hospitals, industrial facilities, private property such as automobiles (Figure 16g), as well as road and technical infrastructure (Figure 16d).

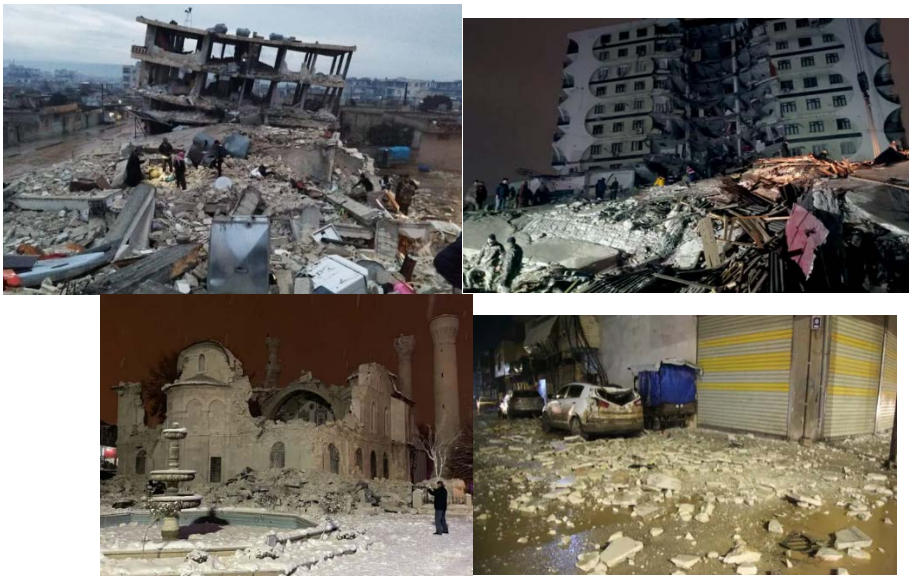

Figure 15. *Examples of damage after the earthquakes in Turkey and Syria in 2023: (a. and b. Residential buildings, Turkey; c. Jeni Mosque, Malatya, Turkey; d. Automobile in Aleppo, Syria. Source: theguardian.com*

The visual evidence provided by the attached images vividly illustrates the substantial material damage inflicted by earthquakes, underscoring the profound threat they pose to both property and human lives. Beyond the visible destruction, earthquakes also engender considerable risks to public health and safety, as highlighted by the collapse of buildings and infrastructure depicted in the images. Moreover, the aftermath of seismic events extends beyond physical devastation to encompass disruptions in economic and social relations within affected communities. Businesses may suffer financial losses, livelihoods may be jeopardized, and essential services may be compromised, exacerbating the socio-economic impact of earthquakes. Furthermore, the psychological toll of witnessing and experiencing such devastation cannot be overstated, as communities grapple with trauma, grief, and

uncertainty in the aftermath of seismic disasters. In sum, the images serve as a poignant reminder of the multifaceted impacts of earthquakes, emphasizing the urgent need for robust disaster preparedness, mitigation, and recovery efforts to safeguard lives and livelihoods in earthquake-prone regions (Figure 17).

Figure 16*: Destroyed road in Turkey. Source: thenationalnews.com*

3.1. Seismic Hazard and Risk Assessment

In the past decade, nearly 60% of people affected by disasters have lost their lives due to the consequences of earthquakes. A complicating factor is the fact that they cannot be predicted and can occur anywhere at any time (UNDRR, 2010). Earthquakes can cause massive material losses, leave people homeless, and communities without infrastructure, resulting in significant economic damage.

In terms of frequency from 1900 to 2013, earthquakes rank third among other disasters (hydrological and meteorological). During this period, most earthquakes occurred in Asia, followed by America, Europe, Africa, and the least in Oceania. The highest number of casual-

ties, injuries, and people left homeless were in Asia, while the least injuries, casualties, and homelessness were in Oceania (Cvetković, Milojković & Stojković, 2014).

Annually, there are about a million earthquakes, of which about three hundred thousand are felt, a thousand of them cause damage, one hundred to two hundred are destructive, twenty shake the entire mass of the Earth, and one to two are catastrophic. In terms of Percentagess, from the consequences of earthquakes, the highest number of people died (27.76%), were injured (51.77%), affected (53.30%), and became homeless (52.75%) in the period from 2000 to 2013 (Cvetković, Milojković & Stojković, 2014).

Depending on their intensity, earthquakes can have various effects: psychological (fear, panic), mechanical or destructive effects (damage and collapse of residential buildings, cultural monuments, roads, and other infrastructure, bridges), pedological and geological effects influencing changes in the Earth's surface appearance (formation of new lakes, changes in river flows, floods, changes in water levels in wells, formation of surface cracks, new landslides, and activation of existing ones, destruction of plant cultures), chemical effects (damage to nuclear power plants and chemical facilities resulting in the emission of pollutants endangering the environment), tsunamis (underwater earthquakes generate tsunamis, which can reach heights of several tens of meters) (Đorđević, 2018).

Seismic risk involves a set of events (earthquakes), related consequences (damage and losses in a broader sense), and probabilities of a particular occurrence during a certain period. Damage and loss can refer to individual structures, businesses, communities, or the entire infrastructure of a nation and can also be measured in monetary terms (repair costs, loss of income, casualties (injuries and deaths), or loss of function (production capacities) (McGuire, 2004).

Thus, seismic risk is reflected not only in human losses but also in material losses. Therefore, assessing seismic risk starts from the expected damage to existing building stock and infrastructure, based on which potential hazards to human health and lives, as well as appropriate material losses, are calculated. Therefore, it is necessary to assess both the hazard and the exposure of buildings and the population to seismic risk to assess the vulnerability levels of individual building types. The consequences that earthquakes can bring are shown in ta-

ble no. 5, which indicates the level of damage earthquakes can cause according to intensity expressed in the Mercalli scale.

Maximum acceleration in m/s²	Seismic intensity level	Seismic intensity level	Seismic intensity level
0,0025	I	Imperceptible earthquake	It is only registered by seismographs.
0,0025-0,005	II	Very light earthquake	It is only felt by sensitive individuals, mostly on higher floors.
0,005-0,010	III	Light earthquake	More people feel it inside houses.
0,010-0,025	IV	Moderate earthquake	In houses, a larger number of residents feel it, while only few individuals feel it in open spaces. Doors and furniture shake, windows and dishes rattle as if passing by large trucks. Some people are awakened.
0,025-0,050	V	Fairly strong earthquake	Many people notice it in open spaces. Hanging objects sway. Pictures on the wall move. Some smaller items are displaced. Doors and windows open and close. Some individuals flee from houses.
0,050-0,100	VI	Strong earthquake	All individuals fleeing from houses notice it. Pictures fall from walls, many items are broken, dishes are shattered. Pieces of furniture are shifted or overturned. Smaller church bells ring. Some damage occurs to poorly built objects.
0,10-0,25	VII	Very strong earthquake	Collapse and destruction with significant damage to furniture and residences. Larger church bells ring. A large number of well-built houses are damaged.

			Chimneys break and fall from roofs. Many chimneys collapse.
0,25-0,50	VIII	Devastating earthquake	About a quarter of buildings are severely damaged, some houses collapse, and many become uninhabitable. Cracks form in wet soil and on steep slopes.
0,50-1,00	XIX	Destructive earthquake	About 50% of brick houses are significantly damaged. Many collapse, and the majority become uninhabitable.
1,0-2,5	X	Disastrous earthquake	About 3/4 of buildings are severely damaged, and most of them collapse. Cracks several centimeters wide form in the ground. Earth slides occur, and parts of cliffs break off.
2,5-5,5	XI	Catastrophic earthquake	All brick buildings collapse. Wide cracks form in the ground, through which water carrying mud and sand penetrates. The ground collapses, many rocks detach and fall.
5-10	XII	Great catastrophic earthquake	No human structure can survive. The appearance of the land changes completely, lakes are filled in, and rivers change their courses.

Table 5. *Modified Mercalli Intensity Scale of Seismic Intensity. Source: Ivanović, 1991*

To conduct a risk assessment and develop a model of expected seismic losses for a specific area, it is necessary to process data on seismic conditions, geological structure, frequency of seismic activity, as well as on the exposure and vulnerability of building stock and infrastructure to seismic hazards. Risk assessment is conducted with the aim of evaluating the vulnerability of infrastructure and buildings. Based on

this assessment, expected losses and consequences for health and lives of people can be calculated.

Seismic hazard refers to the effects that an earthquake can cause at a specific location, while exposure encompasses the dimensions of human activity in areas of seismic hazard. Vulnerability relates to relative financial losses due to damage in relation to the value of the building expressed in terms of repair costs and replacement costs of objects. Assessing seismic risk is a logical way to make decisions about seismic safety. Vulnerability is one of the key factors in seismic risk assessment. Vulnerability refers to the potential for suffering to a certain extent of loss caused by some type of hazard (Etkin et al., 2004), while Turner defines it as the likelihood that a system will experience damage due to exposure to a hazard (Turner et al., 2003).

Vulnerability emphasizes the response of the system to a hazard or potential hazard, which determines the likelihood of loss from the hazard. The concept of vulnerability focuses solely on the condition of the system before the hazard, which is of great importance for future hazard preparedness. It is an inherent characteristic of the system and changes as it moves from one place to another or undergoes reconstruction after a disaster. For example, if a community settles in an area prone to floods, vulnerability will increase, whereas if it moves away from that area, vulnerability decreases (Hongjian Zhou, et al., 2008).

3.2. History of Earthquake Studies: Tracing the Evolution of Understanding in Montenegro

Earthquakes are undoubtedly among the most terrifying natural disasters. Due to the danger they pose, records of earthquakes can be found in documents dating back thousands of years. The oldest records of earthquakes date back to ancient China, during the Shang dynasty, 3000 years before our era. Herodotus in the 4th century BCE mentioned earthquakes as "marvelous phenomena" (Ivanović, 1991).

Although ancient Greeks, Japanese, and Eskimos attributed the causes of earthquakes to the anger of gods, the movements of whales shaking the earth, and its sheer age, even then, the ancient Roman poet said that "nature does everything according to its own will without any gods" (Paštar, 2019). In the records of the oldest civilizations, earthquakes are mentioned from very ancient times. The story from

the Bible about the destruction of Sodom and Gomorrah and the fall of the walls of Jericho (around 1100 BCE) can be linked to earthquakes. Pliny the Elder (23 – 79 CE) also showed interest in earthquakes (Ivanović, 1991).

Most of the records dating from that period, including those from the old and middle ages, are mostly based on mystical explanations of this natural phenomenon. It wasn't until the 18th century that John Michell concluded that earthquakes occur as a result of the passage of elastic waves through the Earth's mass. The first list of major earthquakes that occurred worldwide was compiled by A. Perray in 1840. His work was continued by R. Mallet, who published about 7,000 earthquakes in the Reports of the British Society in 1852 (Ivanović, 1991).

The largest and most destructive earthquakes recorded so far are shown in Table 5. In Lisbon (1755), Calabria (1783), California (1906), Messina (1906), China (1920), Tokyo (1923), Bulgaria (1928), India (1935), Chile (1939), Turkey (1939), Romania (1940), Greece (1954), the Indian Ocean tsunami (2004), Japan (2011), earthquakes in Turkey and Syria (2023).

The earthquake in Sendai (Japan) in 2011, accompanied by a tsunami, had catastrophic consequences. The tremor had a magnitude of 8.9 – 9.2 on the Richter scale and was the strongest earthquake ever recorded in Japan. 15,849 people died, 6,156 were injured, and 2,546 are listed as missing. During the earthquake, a tsunami 10 meters high was triggered, which leveled entire cities. This earthquake also caused damage to the Fukushima nuclear power plant, posing a global threat (https://en.wikipedia.org/wiki).

The latest major earthquake occurred in Turkey and Syria on February 6, 2023, causing significant material damage and human losses across Turkey and Syria. According to official data, the number of human casualties in Turkey and Syria exceeded 41,000.

Table 6. *Earthquakes That Caused the Greatest Disasters. Source: www.znanje.org*

Date	Location	Magnitude	Number of Victims
January 23, 1956	China, Shanxi	≈8	830. 000

December 26, 2004	Sumatra	9,0	283. 106
July 27, 1976	China, Tangshan	7,5	255. 000
August 9, 1138	Syria, Aleppo	-	230. 000
May 22, 1927	China, Haining	7,9	200. 000
December 22, 856	Iran, Damghan	-	200. 000
December 16, 1920	China, Gansu	8,6	200. 000
March 23, 893	Iran, Ardabil	-	150. 000
September 1, 1923	Japan, Kanto	7,9	143. 000
October 5, 1948	Turkmenistan, Ash-gabat	7,3	110. 000
December 28, 1908	Italy, Messina	7,2	70. 000 – 100. 000
September, 1290	China	-	100. 000
November, 1667	Azerbaijan	-	80. 000
November 18, 1727	Iran, Tabriz	-	77. 000
November 1, 1755	Portugal, Lisbon	8,7	70. 000
December 28, 1932	China, Gansu	7,6	70. 000
May 31, 1970	Peru	7,9	66. 000
1268 AD	Turkey, Silicia	-	60. 000
January 11th, 1693	Italy, Sicily	-	60. 000
May 30, 1935	Pakistan, Quetta	7,5	30. 000 – 600. 000
February 4, 1783	Italy, Calabria	-	50. 000
June 20, 1990	Iran	7,7	50. 000
February 6, 2023	Turkey and Syria	7,8	41. 000

The most powerful earthquake ever recorded occurred in Chile on May 22, 1960. The magnitude of this earthquake was 9.5 on the Richter scale and it had devastating consequences for society. Thousands of people lost their lives, were injured, left homeless, and the material damage amounted to hundreds of millions of dollars.

The earthquake in Chile covered an area of 140,000 km² and altered the previous appearance of the landscape. The land subsided by 2 m over a length of about 500 km in a belt 20-30 km wide. Almost one-fifth of the territory of this country was unrecognizable. Some cities completely disappeared, islands were submerged, while new islands emerged. Topographic maps were rendered unusable (Petrović & Manojlović, 2003).

Date	Location	Magnitude
May 22, 1960	Chile	9.5
March 28, 1964	Alaska	9.2
March 09, 1957	Alaska	9.1
December 26, 2004	Northern Sumatra	9.0
November 04, 1952	Kamchatka	9.0
January 31, 1906	Ecuador	8.8
March 28, 2005	Northern Sumatra, Indonesia	8.7
February 04, 1965	Alaska	8.7
November 11, 1922	Chile/Argentina, border	8.7
October 13, 1963	Kuril Islands	8.6
August 15, 1950	Tibet	8.6
December 16, 1920	China	8.6
February 03, 1923	Kamchatka	8.5
June 26, 1917	Tonga	8.5

Table 7. *Strongest Recorded Earthquakes Since 1990. Source: www.znanje.org*

3.3. Geographical Distribution of Earthquakes on Earth

Earthquakes are unevenly distributed across the planet Earth. On one hand, we have regions of high seismic activity, where strong and frequent earthquakes occur, such as the Mediterranean region and the coastal areas of the Pacific, where continental crust is subducted beneath oceanic crust. The East African Rift Valley is also seismically active. On the other hand, we have a zone of low seismic activity characteristic of Canada, Australia, West Africa, the Russian plains, Antarctica, and the central part of the Pacific (except Hawaii), as there is no orogenesis occurring in these areas (Lješević, 2012).

In addition to the provided text, it's crucial to recognize that earthquakes are not uniformly distributed across the Earth's surface. Certain regions experience heightened seismic activity, characterized by frequent and powerful earthquakes, while others remain relatively seismically quiet. The Mediterranean region and coastal areas of the Pacific Ocean are prime examples of zones with high seismic activity. Here, the convergence of tectonic plates, with continental crust subducting beneath oceanic crust, creates conditions conducive to significant seismic events. Similarly, the East African Rift Valley is renowned for its seismic activity, attributed to the tectonic forces driving the gradual splitting of the African continent.

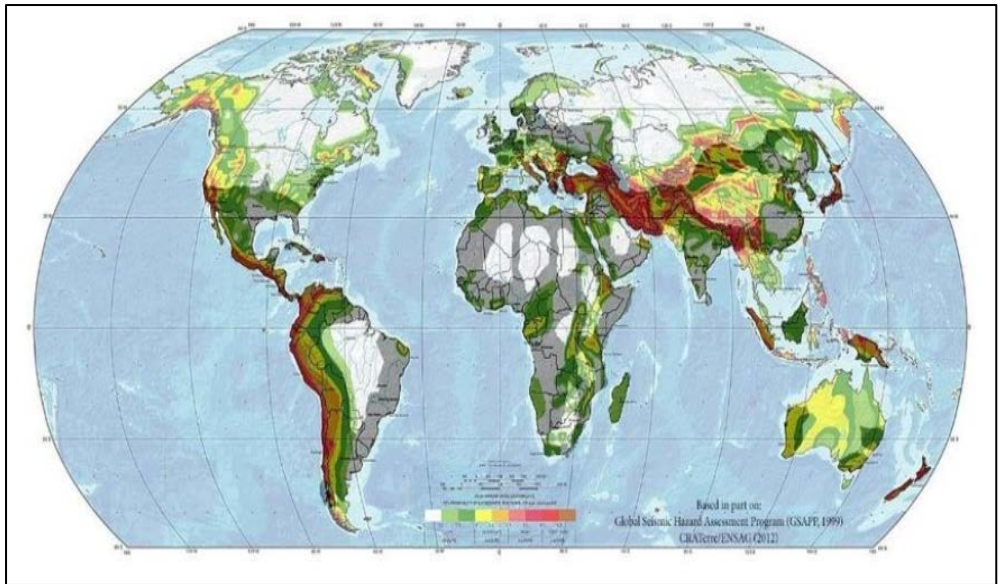

Figure 17. *A world map depicting earthquake hazard (red indicates the highest hazard, while white indicates the lowest). Source: www.researchgate.net*

Conversely, there exist regions with minimal seismic activity, where earthquakes are rare and less intense. Canada, Australia, West Africa, the Russian plains, Antarctica, and the central Pacific (excluding Hawaii) are notable examples of such areas. The absence of significant tectonic activity, particularly the lack of orogenesis or mountain-building processes, contributes to the relative geological stability of these regions. While seismic events still occur sporadically in these zones, they are typically of lower magnitude and pose lesser risk compared to their more seismically active counterparts. Understanding the geographical distribution of earthquakes is essential for assessing regional risk profiles, informing disaster preparedness efforts, and implementing targeted mitigation strategies to mitigate the impact of seismic events on vulnerable populations and infrastructure.

4. SEISMIC ACTIVITY IN MONTENEGRO

The territory of Montenegro is largely seismically active, especially along the coast, but also in parts of central Montenegro. This activity is due to the contact between the Eurasian and African plates, resulting in frequent earthquakes in the Adriatic region, to which Montenegro belongs. From a seismic perspective, Montenegro's diverse terrain is subject to varying degrees of seismic activity across different regions. Along the coastal area, historically renowned for its powerful earthquakes, seismic forces have been recorded to reach up to 10 degrees on the MSC scale. This region is marked by the presence of numerous fault lines, including the Dobro Vode-Stari Bar-Virpazar fault, the Bar-Cetinje fault, the Buljarica area fault, and the Budva-Kotor-Orahovac-Grahovo-Njegos fault. Moving inland, central Montenegro encompasses areas such as Duga, Golija, the Niksic field, Lower Zeta, Podgorica-Skadar basin, and a deep karst plateau, where seismic events ranging from 7 to 9 degrees on the MSC scale are possible.

Further inland, the landscape transforms into a rugged terrain characterized by deep canyons and towering mountains, particularly evident in the Komarnica-Shavnik-Kolasin valley. In this region, seismic activity can yield earthquakes of up to 7 degrees on the MSC scale. Finally, the northeastern region of Montenegro, including Pljevlja, Bijelo Polje, Berane, and Plav, experiences significant seismic activity, with the Berane basin being particularly prone to earthquakes, including the strongest recorded earthquake in the region, measuring at 8 degrees on the MSC scale (Radojičić, 2008).

This regional variability in seismic activity underscores the importance of comprehensive seismic risk assessment and disaster preparedness initiatives. By understanding the unique geological characteristics and historical seismic patterns of each region, authorities can implement targeted measures to mitigate the impact of earthquakes on infrastructure, communities, and the environment. Additionally, raising awareness among the population about earthquake preparedness and response strategies is crucial for enhancing resilience and minimizing the potential human and economic losses associated with seismic events.

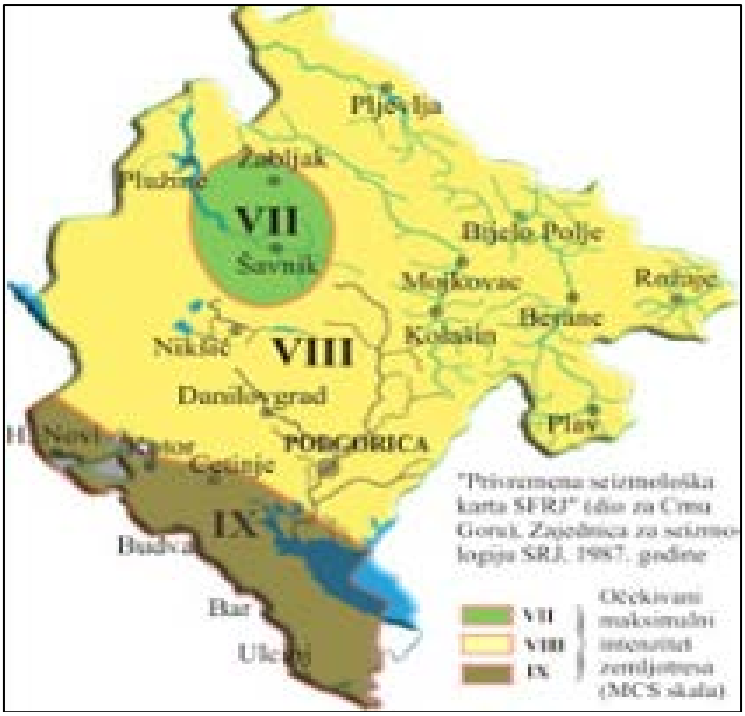

Figure 18. *Seismic regionalization of the territory of Montenegro. Source: Seismological Observatory of Montenegro*

Upon closer examination of the map, it becomes evident that the Montenegrin coast stands out as the most susceptible to seismic activity. This vulnerability is attributed to a combination of geological factors, including the presence of active fault lines and the tectonic dynamics at play in the region. The coastal area's proximity to the convergence of tectonic plates, particularly where continental crust meets oceanic crust, contributes to heightened seismic risk. Additionally, the densely populated nature of coastal communities, coupled with extensive infrastructure development, amplifies the potential impact of seismic events on human lives, property, and critical infrastructure. As such, addressing seismic vulnerability along the Montenegrin coast warrants prioritized attention in disaster risk management and urban planning efforts. By implementing proactive measures such as seismic retrofitting, land-use zoning regulations, and public awareness campaigns, stakeholders can enhance the resilience of coastal communities and reduce the potential consequences of future seismic events.

4.1. Geological Structure of Montenegro: Understanding its Composition and Formation

Montenegro belongs to the Dinaric belt and geologically represents a transitional space between the old Rhodope massif to the northeast and the old Adriatic massif, a part of the African geotectonic complex, to the south and southwest. In geological history, there have been frequent changes between sea and land, as well as significant uplifts and faults, resulting in the complexity of facies composition, the presence of all geological formations from the Paleozoic to the Quaternary, and a rich fossil record (Radojičić, 2008).

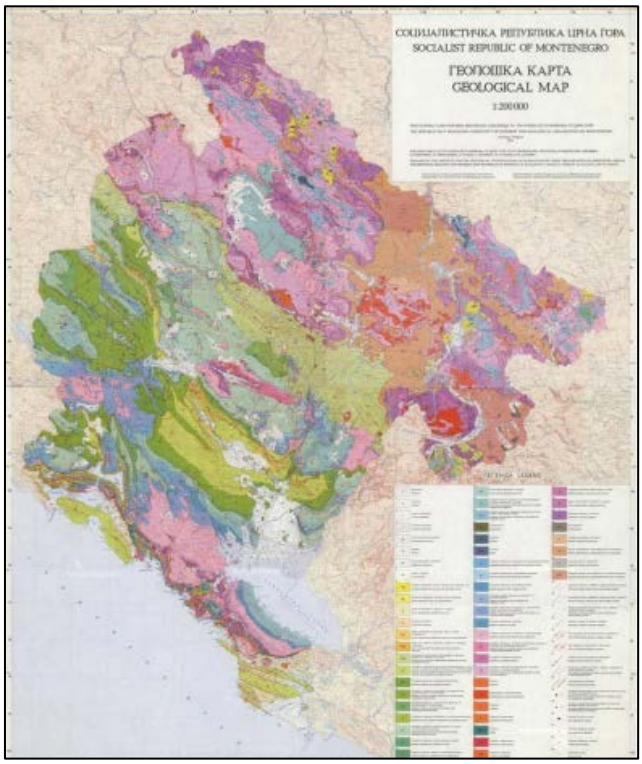

Figure 19. *Geological Map of Montenegro. Source: Institute for Geological Research*

The territory of Montenegro is composed of various types of igneous, metamorphic, and sedimentary rocks that formed over the past 400 million years. This period in Earth's evolution, according to the geological time scale, corresponds to the eras: Paleozoic (including the geological periods: Devonian, Carboniferous, and Permian), Mesozoic (including the geological periods: Triassic, Jurassic, and Cretaceous),

and Cenozoic (including the geological periods: Paleogene, Neogene, and Quaternary) (Radusinović & Pajović, 2005).

4.2. Tectonic Relationships and Seismic Activity in Montenegro: Exploring the Geological Dynamics

The territory of Montenegro in geotectonic terms is highly complex. In this area, there is a collision of tectonic plates, leading to tectonic instability, which has been most pronounced since the beginning of Alpine orogenesis until today. Geological and geophysical research, available geological maps, and map interpreters, as well as satellite imagery, indicate the fundamental tectonic characteristics of Montenegro: zonal distribution of geological formations, the extension of major tectonic masses in a northwest-southeast direction, dipping of layers towards the northeast, thrusting towards the southwest, highly expressed anticlinal and synclinal structures, klippens, minor nappe structures, and faults (Bešić, 1951, 1969, 1983; Radojičić, 1980, 1983, 1991, 1996, 2008).

According to a study on the correlation of geological structures with the possible occurrence of disasters and hazards in Montenegro (Radusinović & Pajović, 2005), the following structural tectonic units are highlighted: The para-autochthonous unit, also known as the Budva-Ćukali zone, High Karst, and Durmitor tectonic unit.

The para-autochthonous tectonic unit, known in the literature as the Adriatic, Adriatic-Ionian, Dalmatian, and South Adriatic unit, encompasses the most protruding parts of the Montenegrin coastline: Grbalj, Luštica, and Kotor Bay, as well as the area between Bar and Ulcinj, where systems of regional thrusts have been identified during exploration for oil, revealing overturned and reversely overturned structures. In the northeast, this zone is bounded by the Budva-Ćukali zone. Anticlines such as Volujica-Šasko Lake, Možura-Brivska Gora, and Bijela Gora are prominent on the surface, while within the anticlines' cores, there are cretaceous carbonates with anhydrite, and in the syncline cores, Eocene flysch sediments.

The Budva-Ćukali zone extends along the narrow coastal area of the Montenegrin coast, from Sutomore in the northwest, across the slopes of Orjen, Lovćen, Sutorina, and Rumija, through Albania, to Greece. The Budva-Ćukali zone is thrust upon the para-autochthonous zone.

Initially, this zone had a rift structure, with a width of 40-100 km, but during the Alpine orogenesis period, it was compressed into a system of overturned isoclinic thrusts, which were mutually fragmented and separated by klippens. These terrains belong to the most tectonically deformed regions of Montenegro.

The High Karst unit encompasses parts of central Montenegro and the Montenegrin coast, from Rumija, Lovćen, and Orjen in the southwest, to Volujak, Plužine, Durmitor, Semojla, Kolashin, Tresnjevica, and Komovi in the northwest. It consists of two structural units, the Old Montenegrin and Kučka klippens, separated by the synclinorium of Zeta. The Old Montenegrin tectonic unit comprises anticlinoria of the old Montenegrin region, which branch out to the northwest into a series of complex anticlinal-synclinal sets. The Kučka tectonic unit is composed of carbonate rocks and Durmitor flysch sediments. Within the carbonate sediments, the area of Nikšićka Župa, Golijske, the Komarnica Canyon are prominent, while flysch sediments are prevalent in the area of Durmitor.

The Durmitor tectonic unit encompasses the northeastern part of Montenegro, which is separated from the previous unit by reverse dislocations, proven along the Dinarides. Numerous reverse dislocations, known as klippens, are found at this location. In Montenegro, there is evidence of neotectonic activity, as evidenced by earthquakes. Certain tectonic blocks in the Dinarides and in the area of Albania are moving divergently with annual displacements of several millimeters, which has been determined by precise measurements using GPS methods (Radusinović & Pajović, 2005).

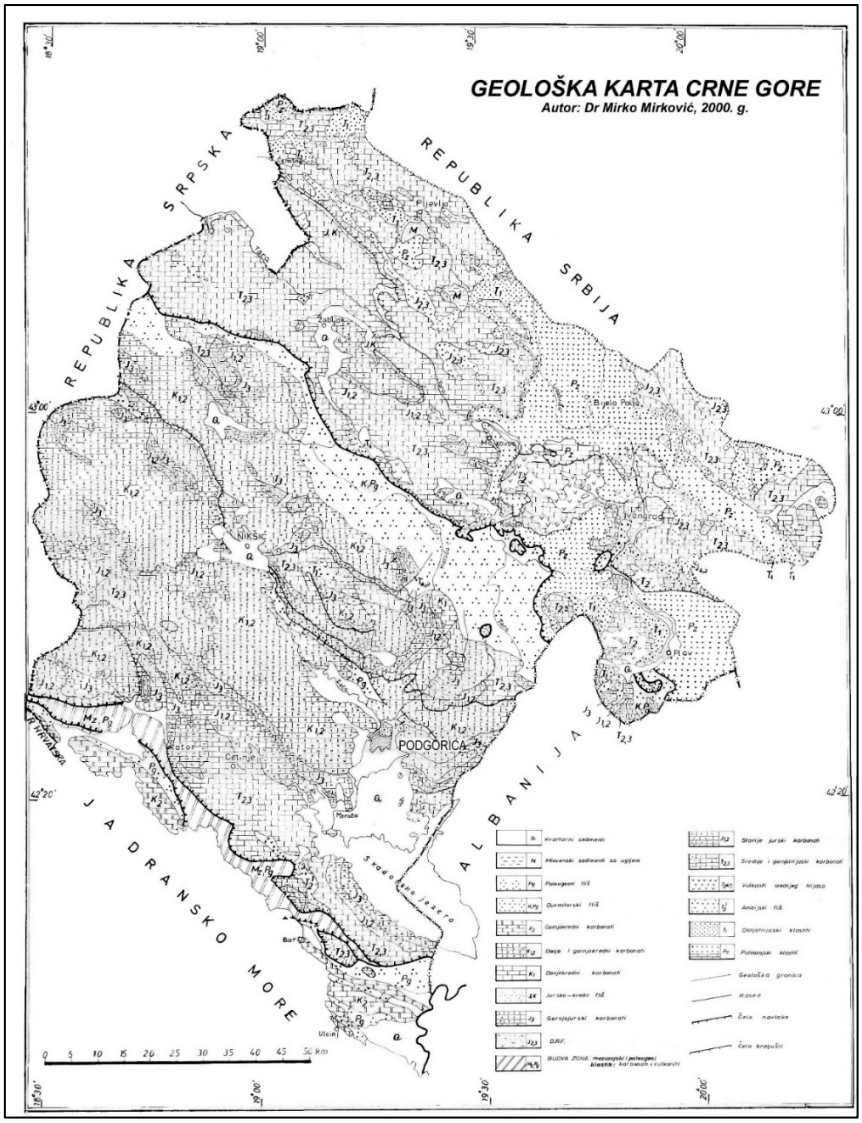

Figure 20. *Geological map of Montenegro. Source: Mirković, 2000*

Radojičić (2008) identifies the following tectonic units characterizing the space of Montenegro: the Adriatic Massif, the zone of para-autochthonous and coastal flysch, the Budva zone, the zone of deep karst, the Kučka zone, and the Durmitor and Pljevlja zones.

The Adriatic Massif is geologically a continuation of the ancient African massif that has submerged northward from the earliest periods, encompassing the basin of the Mediterranean Sea and part of the Adriatic Sea. Reflective seismic investigations have shown that the

thickness of the solid crust (sial) at greater depths of the Adriatic Sea is around 22 km, and around Podgorica and Nikšić it is 46 km. The deep rifts to the Moho layer, which separates the Adriatic Massif and the Dinarides, extend along the coast, entering Montenegro from Albania, from 5 to 10 km away from the coast, and from the peninsula of Luštica, they turn northwestward.

The zone of para-autochthonous and coastal flysch represents a part of the Dinarides under the sea, and along the coast it stretches as a narrow belt from the Bojana River, encompassing the area from Ulcinj to Bar, where it disappears beneath the Budva-Cukali zones, only to reappear near Kotor and Tivat and through Žvinja near Herceg Novi. The thickness of this complex system of layers reaches up to 7000 m and is composed of a narrow zone of Upper Cretaceous limestone and dolomites.

The Budva (Cukali) zone has the character of a nappe and is composed of lithologically different layers. Clastic rocks predominate, around 75%, while the rest are limestones and dolomites. The sediments are approximately 1700 m thick.The zone of deep karst is the largest geotectonic unit, built of Triassic, Jurassic, and Cretaceous limestones and dolomites, with a thickness of up to 4320 m.

The synclinal Kučka zone is predominantly composed of deposits of Durmitor flysch, overlain by the anticlinal Durmitor zone. The boundary can be traced from Lake Rikavac, between Žijovo and Prokletije, across Širokara, the southwest slopes of Komovi, across Crkvina, Dragovića Polje, Tušina, Mljetička, the southern ridges of Durmitor, the valley of Piva, Vrbnica to Sutjeska.
The anticlinal part of the Durmitor zone consists of the mountains of Durmitor, Sinjajevina, Bjelasica, Visitor, Komovi, and Prokletije. The terrain is composed of Durmitor flysch, Mesozoic limestones and dolomites, sporadically of conglomerates and eruptions, characterized by small forms of anticlines and synclines.

The boundary line of the Pljevlja zone, across the synclinal part of the Durmitor zone, runs through the valley of Ćehotina, across Donji Kolašin, and further through the valley of the Lim River. This zone includes the extreme northeastern parts of Montenegro and is predominantly composed of Paleozoic and Mesozoic schists, sandy and clayey sediments, with Mesozoic limestones and dolomites in higher parts.

In the neotectonic structure of the Montenegrin coast, a characteristic block structure is evident, which is conditioned by the presence of numerous dislocations of various ranks and ages that have created a distinctive block mosaic (Ivanović, 1991). On the Montenegrin coast, there are three orders of neotectonic locations (Ivanović, 1991).

Neotectonic locations of the first order are the deepest and oldest. They correspond to the time of formation from the Upper Cretaceous to the Eocene, when narrow, elongated, and deep fault zones were created. Although the initial deformations occurred very long ago, they have been renewed later, preserving their tectonic activity to this day. There are longitudinal dislocations that are recorded and of a Dinaric extension direction, as well as transverse and oblique ones that are perpendicular or at sharp angles to this direction. Three Dinaric extension direction dislocations have been identified: the Adriatic, Coastal, and the dislocation along the Nikšić - Podgorica - Skadar Lake stretch, while among the transverse dislocations, the most important is Tivat - Graho - Nikšić.

Neotectonic dislocations of the second order have been determined based on the distribution of epicenters of earthquakes of lower energy class. Here, a significant group of faults is formed by transverse faults characterized by great age and corresponding to the time after the Middle Miocene, when radial disturbances were very strong. Among these faults, particularly characteristic ones are: Sutomore, Bečići, and Buljarica faults.

Neotectonic dislocations of the third order are younger faults associated with strong epeirogenic uplifts that occurred before the Upper Pliocene. The geotectonic instability is confirmed by the occurrence of linear subsidence of the Montenegrin coast by 3 m in the last 2000 years.

4.3. Seismic Activity in Montenegro and Seismological Research: Understanding Earthquake Patterns and Mitigation Efforts

There have been numerous strong earthquakes on the Montenegrin coast, but the largest number has remained unnoticed. Pliny wrote in the 1st century about an earthquake that devastated Epidaurum, present-day Cavtat. Duklja suffered from an earthquake in 518 AD. Kotor was destroyed in a couple of instances, in 1520 and then in 1559, also

as a consequence of earthquakes. According to estimates, the earthquake that occurred on June 13, 1563, destroyed all the settlements in Boka, with an intensity of X degrees according to the Mercalli scale. An earthquake of similar magnitude was recorded in Boka in 1608. The earthquake of 1667 is also known for its severe consequences when Kotor, Perast, Risan, Herceg Novi, Budva, Bar, and Ulcinj were destroyed. Earthquakes with intensities above IX degrees according to the Mercalli scale were recorded on the Montenegrin coast in 1780 and 1830, then in 1905, 1926, 1927, which, besides the coast, also affected the Podgorica-Skadar Valley and the Berane Valley (Radojičić, 2008), as well as the earthquake in 1979.

Serious beginnings of seismological research in Montenegro date back to the 19th century, mostly related to recorded data on stronger earthquakes that hit this area, mostly having a statistical character. In the early 20th century, seismological services in Serbia began processing macroseismic data in the Balkans, including Montenegro. Jelenko Mihajlović's work significantly contributed to this. The first seismographs and the first organization of a macroseismic service in Montenegro started operating in March 1960, when the Seismological Observatory was founded in Titograd, today's Podgorica, which later, after the earthquake on April 15, 1979, evolved into the Republican Seismological Institute (Ivanović, 1991). However, there were hardly any significant researches on the seismicity of the territory of Montenegro until the catastrophic earthquake on April 15, 1979. Table 7 provides data on stronger earthquakes that have affected the territory of Montenegro.

Table 8. *Data on stronger earthquakes that have affected the territory of Montenegro. Source: Ivanović, 1991.*

Date	Time	Coordinates		Intensity	Location
518.	-	42,5	19,3	IX?	Duklja
1444.	-	42,0	19,3	VIII-IX	Ulcinj
24.1.1559.	-	42,4	18,8	VIII?	Kotor
13.6.1563.	12	42,4	18,8	X?	Kotor
14.5.1608.	-	42,4	18,7	IX?	Kotor

25.7.1608.	-	42,4	18,7	X?	Bay of Kotor
15.9.1608.	11	42,5	18,6	IX-X?	Bay of Kotor
2.2.1631.	-	42,5	18,7	VIII?	Bay of Kotor
2.2.1632.	-	42,4	18,4	IX	Herceg Novi – Kotor
21.9.1780.	14	42,5	18,7	IX?	Bay of Kotor
12.10.1926.	11:58	42,8	19,8	VIII	Ivangrad (Berane)
3.9.1968.	04:49	42,0	19,3	VII-VIII	Ulcinj
15.4.1979.	06:19	41,5	19,0	IX	Montenegrin Coast
15.4.1979.	14:43	42,5	18,7	VIII	Budva
25.5.1979.	17:23	42,2	18,8	VIII	Budva

From a seismic perspective, the territory of Montenegro can be divided into the following regions (Radojičić, 2008):

- Coastal region, characterized by the strongest earthquakes recorded in Montenegro so far, with seismic intensity up to 10 degrees on the Mercalli scale.
- Central Montenegro, consisting of Goliya and Duga, Nikšić field, Lower Zeta, Podgorica-Skadar valley, and the plateau of deep karst. This area is quite seismically active. In the Podgorica-Skadar valley area, earthquakes of up to 9 degrees on the Mercalli scale can be expected, up to 8 degrees in the Lower Zeta valley, and up to 7 degrees in the Nikšić field and the area of Duga and Goliya.
- Region of deep canyons and high mountains, with its central seismic axis following the valleys of Komarnica - Šavnik - Kolašin, is somewhat less seismically active, and earthquakes can reach a maximum intensity of 7 degrees.
- Northeastern Montenegro region, with its seismic axis following the direction of Pljevlja - Bijelo Polje - Berane - Plav, where the most seismically active area is the Berane valley, where an earthquake of intensity 8 degrees has been recorded in the past, while earthquakes in other parts of the region could reach a seismic intensity of up to 6 degrees on the Mercalli scale.

After the earthquake of April 15, 1979, a more detailed study of the seismicity of the territory of Montenegro began, although crucial research on the geological composition and tectonic structure had been conducted before, which greatly contributed to and provided a basis for research after the earthquake of 1979. Significant contributions to geological research were also made by studies on the presence and exploitation of oil and gas on the Montenegrin coast, especially after the Second World War in the 1950s and 60s.

Research enabled the determination of the depth of faults, of which five were identified on the territory of Montenegro, forming a deep trench in the central part, with a maximum depth of 54 km. The faults have a northwest-southeast direction and are identified as: Adriatic, Coastal, Rijeka, Zeta-Nikšić, and Durmitor faults. All faults intersect the Moho discontinuity, indicating a depth greater than 40 km (Ivanović, 1991). A significant contribution to the research was also made by Glavatović (1981), who, among other things, created a map of the thickness of the Earth's crust with the position of the Mohorovičić boundary.

4.4. The Earthquake on the Montenegrin Coast on April 15, 1979.

According to data from the Institute of Hydrometeorology and Seismology, on April 15, 1979, at 6:19 local time, Montenegro was struck by a devastating earthquake with a magnitude of 7.0 on the Richter scale, causing destruction with an intensity of IX degrees on the Mercalli scale throughout the Montenegrin coast, over a length of over 100 km. The epicenter was located in the Adriatic Sea, between Bar and Ulcinj, at a distance of about 15 km from the coast. This earthquake resulted in the loss of 101 lives in Montenegro and 35 in Albania. The most affected cities were Ulcinj, Bar, Petrovac, Budva, Tivat, Kotor, Risan, and Herceg Novi, with 250 settlements destroyed. 53 healthcare facilities, 570 social and childcare facilities, and 240 school buildings were damaged. A large number of cultural and historical monuments, including religious buildings, museums, and archives stationed along the Montenegrin coast, were also affected. Significant damage was inflicted on the transportation infrastructure, with 350 km of highways and 200 km of regional roads being damaged (IHMSCG).

Figure 21 and Figure 22. *Collapsed hotel "Slavija" and entrance to the old town in Budva. Source: IHMSCG*

Figure 23 and Figure 24. *Ruins in the old town, Kotor. Source: IHMSCG*

After the powerful destructive earthquake, a series of tremors followed throughout 1979, including 90 strong earthquakes with a magnitude of 4.0 and above, over 100 earthquakes with a magnitude of 3.5 - 4.0, and approximately 1000 weaker earthquakes (IHMSCG).
In Image 23, a map of earthquake epicenters with a magnitude greater than 3.0 that hit the territory of Montenegro and its surroundings during 1979 is presented. The main earthquake from April 15, 1979, is indicated by an arrow M=7.0 (IHMSCG).

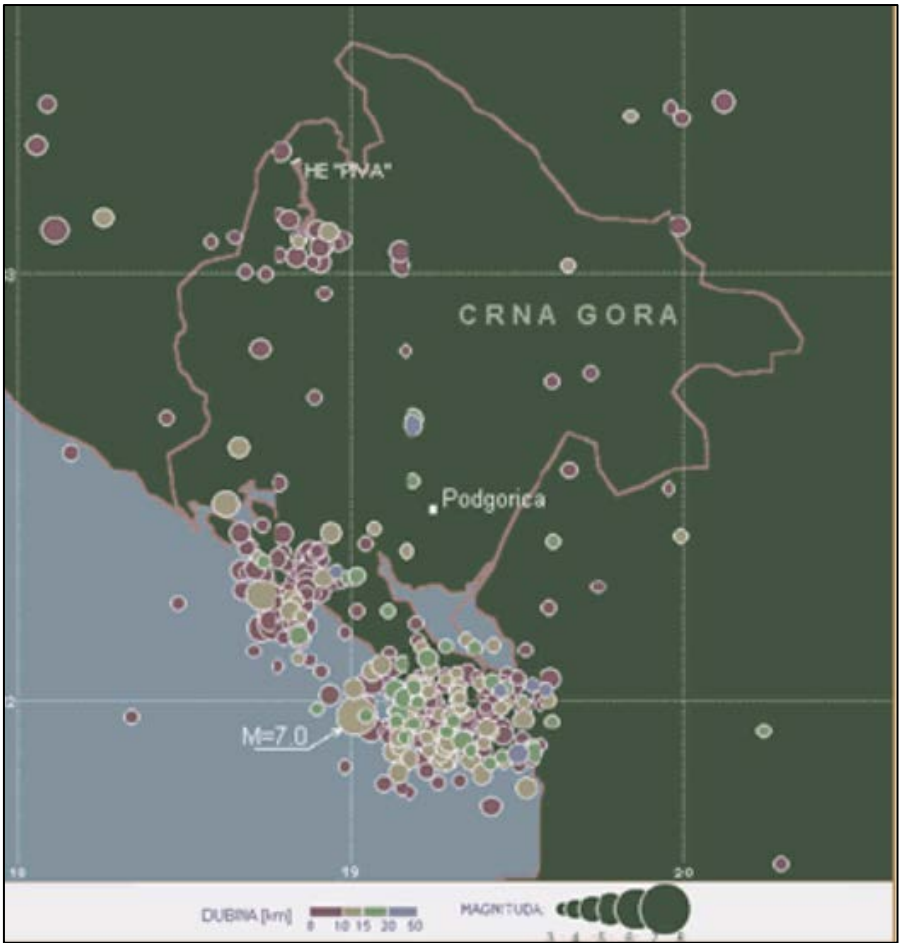

Figure 25. *Map of earthquake epicenters that hit Montenegro during 1979 with a magnitude above 3.0. Source: IHMSCG*

1. PHENOMENOLOGICAL DIMENSIONS OF RESILIENCE OF LOCAL COMMUNITIES TO EARTHQUAKE-INDUCED DISASTERS

5.1. Conceptual Definition of Resilience

Resistance, or resilience, can be defined as the ability of a system, community, or society exposed to risk to resist, absorb, adapt, and recover from the effects of the risk in a timely and effective manner, including preserving and restoring essential structures and functions (UNISDR, 2009). The term resilience is often used similarly to the concept of "bounce back," rooted in the Latin word "resiliere," meaning "to jump back" (Klein et al., 2003; Paton & Johnston, 2006).

Holling (1973) is often cited as the first author to use the term "resilience" after publishing the article "Resilience and Stability of Ecological Systems." He compared the concept of resilience with the notion of stability, which he defined as the ability of a system to return to equilibrium after a temporary disturbance (Joseph S. Mayunga, 2007). Considering Holling's background in ecology, we can say that the term resilience in this form originates from the field of ecology. The concept of resilience has not been sufficiently explored and studied, but contemporary research on this concept indicates its use in other spheres such as security, climate change, development of procedures for natural disaster response, protection of critical infrastructure, pandemics, terrorist attacks, etc. The focus of these modern studies is on so-called boundary situations when people face the consequences of threats that cause pain, suffering, and death (Walker, Cooper, 2011).

There are numerous definitions and explanations of the concept of resilience provided by various authors. In Table 8, we can see some of the most accepted definitions of the resilience concept, based on which we can conclude that resilience refers to the ability of a community to effectively recover from a disaster, or the ability of the community to return to its pre-disaster state.

Table 9. *Ecological Definitions of Resilience. Source: Joseph S. Mayunga*

Autor	Definition
Holling, 1973	The resilience of ecosystems is a measure of their ability to absorb changes and still persist.
Pimm, 1984	Resilience is the speed at which a system returns to its original state after a disturbance.
Holling et al., 1995	It is the ability of a system to absorb disturbances, or the magnitude of disruption that can be absorbed before the system changes its structure by altering the variables and processes that control behavior.
Alwang et al., 2001	Resilience is the ability to resist pressures from below and recover from shock. In ecological literature, it is a property that enables a system to absorb, and even extract, beneficial changes. Where resilience is high, it requires a significant disturbance to surpass the boundaries of qualitative change in the system and enable it to quickly transform into another state.
Walkers et al., 2002	Resilience is the potential of a system to remain in a certain configuration and retain its feedback and functions, including the ability of the system to reorganize after a disturbance-induced change.
Cardona, 2003	The capacity of a damaged ecosystem or community to absorb negative impacts and recover from them.
Resilience Alliance, 2005	Resilience is the ability of ecosystems to tolerate disturbance without collapsing into a qualitatively different state controlled by a different set of processes. Thus, a resilient ecosystem can withstand shocks and rebuild when necessary. Resilience in social systems has an additional dimension of future orientation.

In addition to the definitions listed in the table, there are numerous others that credibly explain this concept: Resilience represents a measure of a system's ability to withstand stress and shocks and the capacity to persist in an uncertain world (Perrings, 1998, p. 221); Tierney and Brani view the concept of resilience through the lens of the capacity of physical and human systems to provide an adequate response and to effectively recover from the consequences of natural disasters (Cvetković, 2017: p. 58); Wildavsky evaluates resilience as the ability to confront unforeseen hazards once they manifest, learning to bounce back (Wildavsky, 1998); Mileti points out that local resilience to disasters means that a locality is able to endure extreme natural events without suffering devastating losses, damages, reduced productivity, and quality of life without significant assistance from outside the community (Mileti, 1999).

5.2. Social and Individual Resilience: Exploring Strengths in the Face of Adversity

Social resilience is defined as the ability of social entities to positively respond to hazards, encompassing the capacity for resilience, recovery, and creativity within a community, and it pertains to the community's efforts to withstand a disaster and its consequences. Community creativity relates to the ability to accelerate and enhance recovery from all levels of the community and achieve pre-disaster levels of functioning, while capacity represents the community's ability to overcome disasters (Maguire, Hagan, 2007).

At the World Conference on Disaster Reduction in Kobe, Hyogo, Japan (January 18-22, 2005), the Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters was adopted (ISDR, 2005). It emphasized the need to build community resilience to disasters and outlined a way to achieve this goal. The expected outcomes defined at the conference aim to be achieved over the next 10 years. In order to realize these outcomes, specific strategic objectives for the local community were established at the conference.

Development and strengthening of institutions, mechanisms, and capacities at all levels, especially at the local community level, can systematically contribute to building resilience to hazards; key activities include utilizing knowledge, innovation, and education to foster a culture of safety and resilience at all levels (Cvetković, Filipović & Gačić, 2019). Social resilience can be enhanced by improving economic indicators of social resilience, such as economic growth and income, as well as by improving communication, disaster preparedness, increasing trust among people, education levels, access to protection resources, etc. (Cvetković, 2020).

On the other hand, according to Cvetković (2020: p. 228), individual resilience depends on internal and external factors. Internal factors include physical, physiological, anatomical, psychological, and other characteristics of individuals that make them more or less resilient to disasters. A study conducted in rural areas of Australia examined respondents' answers to the question of what are the characteristics of resilient people. The responses included: resourcefulness, acceptance of change, positivity, adaptability and flexibility, innovativeness, creativity, having goals or a vision for the future, being willing to move forward, having hope and faith (Hegney et al., 2007).

Household and societal resilience to the consequences of disasters are generally defined by the American Red Cross within the framework of five key steps that need to be taken at the individual, household, and community levels: a) developing and testing rescue protection plans; b) ensuring food and water supplies in households; c) training; d) volunteering; e) donating blood (Cvetković, Filipović, 2017).

The main elements and recommendations of the UNDP for increasing resilience are (UNDP, 2016):

Community action to protect against risks - risk analysis to prevent future disasters; identifying vulnerabilities and capacities; minimizing exposure to risks; introducing measures to protect people and their livelihoods when disasters occur; improving coping mechanisms. People's own actions to enhance their role as change agents - building people's resilience by building and strengthening systems such as social services at levels of governance below the national level and empowering the most vulnerable and exposed segments of the community, including persons with disabilities, children, youth, and the elderly, by building capacities to withstand shocks and stresses; capacities and capabilities need to be enhanced so that people can take an active role in disaster risk reduction, including: a) prevention and mitigation of risks; b) preparedness, including contingency planning and conducting exercises; c) response to catastrophic events and coping mechanisms; and d) rebuilding lives and livelihoods; in this process, providing choice is crucial (in terms of understanding risks, choosing places to live, and engaging in economic activities for which people are capable and willing to participate).

Individual resilience is directly related to their physical vulnerability, which involves the existence of a clear and unambiguous threat originating from nature or the technical-technological sphere containing potential enough to threaten people's vital interests, their communities, and their creations. It primarily relates to direct or indirect negative impacts of the mentioned spheres on individuals, their social processes, and material values (Cvetković, Filipović, 2017).

5.3. Factors Influencing Population Response to Earthquakes

5.3.1. Demographic Factors Influencing Resilience

When we talk about demographic characteristics, we refer to research that seeks to examine the impact of gender, age, ethnicity, education, household size, marital status, length of residence, health problems on citizens' resilience in the event of an earthquake.
Previous research shows that the relationship between women and men differs when it comes to hazards and responses to such events.
While women tend to take the threats of natural hazards much more seriously than men (Davidson & Freidenburg, 1996; Palm, 1995), men are more responsible for possessing supplies necessary for surviving natural disasters (Able & Nelson, 1990). However, men tend to disregard warning measures given by authorities, especially warnings given by their spouses regarding natural disasters (Turner, Nigg, & Young, 1981).

5.3.2. Socio-Economic Factors Influencing Resilience

Exploring the nuanced relationship between socio-economic factors and resilience unveils a multifaceted landscape where various elements converge to shape communities' abilities to withstand and recover from adversities. Socio-economic factors encompass a broad spectrum of influences, ranging from income levels, education, and employment opportunities to social cohesion, access to resources, and governance structures. These factors intertwine in complex ways, impacting communities' capacities to anticipate, adapt to, and bounce back from challenges, including natural disasters, economic downturns, and social disruptions (Cvetković & Šišović, 2024).

By delving deeper into the socio-economic determinants of resilience, we gain valuable insights into the root causes of vulnerability and the pathways towards building more resilient societies. This exploration not only enhances our understanding of the dynamic interactions between human systems and environmental hazards but also informs the design and implementation of targeted interventions aimed at bolstering resilience at individual, community, and societal levels. In this context, examining the socio-economic factors influencing resilience serves as a critical foundation for advancing evidence-based pol-

icies, programs, and practices that foster sustainable development, social equity, and disaster risk reduction.

The impact of income on resilience to disasters is profound. Families with limited financial means lack essential resources like proper nutrition and cognitive development tools, such as books and technology, resulting in lower expectations for their children's future prospects (Wagnild, 2003). Recent studies have shown that impoverished households are less resilient and more likely to fall back into poverty, particularly during crises like the COVID-19 pandemic, unlike wealthier households with higher socioeconomic status (Ur Rahman, Jian, Junrong, & Shafi, 2021). Income serves as a critical indicator of adaptive capacity, significantly affecting a community's ability to cope, recover, and adapt to environmental challenges (Deria, Ghannad, & Lee, 2020). This highlights the importance of addressing economic disparities in developing effective disaster response strategies.

Furthermore, a family's stable income significantly influences their children's educational outcomes. It enables them to meet basic needs like quality food, secure housing, and healthcare, directly impacting children's physical and mental development, and subsequently, their academic success (Chevalier, Harmon, O'Sullivan, & Walker, 2013). Additionally, a steady income allows families to invest in their children's education by providing educational materials and additional support, such as tutoring or extracurricular activities. However, low-income families often face financial uncertainties that can hinder their focus on education (Chevalier et al., 2013).

Moreover, individuals with lower socioeconomic status are disproportionately vulnerable to the negative impacts of natural disasters, extending beyond immediate consequences. During the response phase, financial constraints often lead to delayed or insufficient emergency aid, making it challenging for impoverished communities to address the aftermath effectively (Cannoodt, Mock, & Bucagu, 2012). In the recovery phase, economic inequalities become more pronounced, as disadvantaged individuals struggle to rebuild their lives and infrastructure (Comerio, 2014). Insurance, which is more accessible to the affluent, may be lacking among the economically disadvantaged, further complicating their recovery efforts.

Additionally, the psychological toll on individuals with lower incomes should not be underestimated. The experience of loss, displacement,

and the struggle for recovery can result in long-term emotional trauma (Miller & Rasmussen, 2010). However, the lack of adequate resources for mental health and support exacerbates this impact, leaving individuals vulnerable to mental health issues.

In conclusion, the disproportionate suffering of the impoverished during and after natural disasters presents a multifaceted challenge that requires comprehensive strategies. These strategies must address not only immediate response but also long-term efforts to build resilience, particularly in economically vulnerable communities. Addressing systemic inequalities and ensuring equal access to resources and support systems are crucial steps in strengthening the overall adaptive capacity of vulnerable populations.

6. RESEARCH METHODOLOGICAL FRAMEWORK

6.1. Research Subject: Exploring Resilience Factors in Earthquake Response

Questions about the factors influencing citizens' resilience to various disasters, including earthquakes, are becoming increasingly relevant worldwide. The subject of research involves examining the impact of specific physical geographic and social geographic components on the resilience of local communities to hazards caused by earthquakes.

Physical geographic characteristics include geographic location, geological structure, and mapping of faults and seismic active areas. By analyzing these physical geographic characteristics, we can determine which areas and locations are spatially most vulnerable. On the other hand, we have social geographic components: demographic, socio-economic, and psychological, through which the resilience and ability of citizens and communities to respond to natural hazards caused by earthquakes in Montenegro are determined. In this way, the aim is to examine the influence of gender, age, ethnicity, education, household size, marital status, length of residence, health problems (demographic characteristics), household income, property ownership, insurance cost, implementation cost (socio-economic characteristics), attitudes, risk perception, fear, previous experience, and knowledge (psychological characteristics) on citizens' resilience to earthquake-induced disasters (Figure 27).

With the aim of obtaining more concrete answers, a set of dimensions to be examined has been derived: knowledge about earthquakes and response methods; possession of documentation on protection and rescue; awareness and interest in implementing preventive measures; possession of water and food reserves; possession of necessary equipment; ability and skills to respond. Thus, the research represents an examination of the nature of the relationship and impact of demographic, socio-economic, and psychological characteristics of citizens on their readiness to respond in the event of an earthquake-induced disaster in Montenegro.

This research aims to identify the factors influencing the resilience of the local community and the prerequisites for developing and implementing various strategies and programs that will improve the situation in this area. The obtained answers provide us with data on the level and factor of influence on citizens' readiness to respond in the event of earthquakes. Based on these data, conditions are created for designing and implementing various programs, strategies, and campaigns aimed at enhancing their resilience in the event of earthquake-induced disasters.

5.1. Temporal Determination of Research Subject

Citizens' resilience in responding to natural disasters caused by earthquakes is a category that is continuously studied and implemented in developed countries and those threatened by this phenomenon worldwide. Since such research and investigation have not been conducted in Montenegro, the study will be based on the year 2023. All previous experiences of citizens regarding earthquakes-induced disasters will also be taken into account.

5.2. Spatial Determination of Research Subject

The seismic activity in Montenegro is conditioned by geodynamic processes in the Mediterranean Basin, specifically the contact between the Eurasian and African tectonic plates. The results of the collision of these two plates are frequent earthquakes in the southern Adriatic region, which are of high seismic hazard. Montenegro, which has been struck by numerous earthquakes during the 20th century, is also exposed to this hazard. On the epicenter map (Figure 2), we observe that the Montenegrin coast is more exposed to strong seismic activity compared to the inland areas of Montenegro and the region as a whole (Hydrometeorological and Seismological Institute of Montenegro).

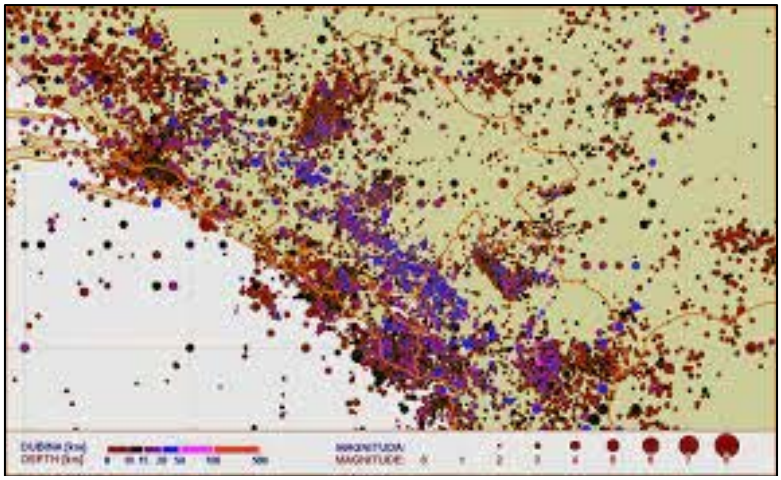

Figure 26. *Map of epicenters of recorded earthquakes in the territory of Montenegro and its surroundings for the period 1901-2010. Source: Hydrometeorological and Seismological Institute of Montenegro*

After the catastrophic earthquake on April 15, 1979, a series of seismological studies were conducted, which are still in use. A seismic zoning map of the territory of Montenegro was created in 1982, seismic hazard within the Spatial Plan of Montenegro in 1987, as well as in 2005 for the development of a new Spatial Plan of Montenegro.
From a seismic perspective, the territory of Montenegro is divided into the following regions:

1. The coastal region, characterized by the strongest recorded earthquakes, with seismic intensities of up to 10 degrees on the MSC scale. This area also contains a number of faults: Dobre Vode-Stari Bar-Virpazar; Bar-Cetinje; the area of Buljarica; Budva-Kotor-Orahovac-part of the Gracovo Field-Njegos; Przno-Verige-Risan-Grahovo.
2. Central Montenegro (Duga, Goliya, Niksic Field, Donja Zeta, Podgorica-Skadar Basin and the deep karst plateau), where earthquakes of intensity from 7 to 9 degrees on the MSC scale are possible.
3. The region of deep canyons and high mountains, which includes the area of the Komarnica-Shavnik-Kolasin valley, where seismic activity can cause earthquakes of up to 7 degrees on the MSC scale.
4. The northeastern region of Montenegro: Pljevlja-Bijelo Polje-Berane-Plav, where the Berane Basin is the most seismically

active, with the strongest recorded earthquake of 8 degrees on the MSC scale (Radojicic, 2008).

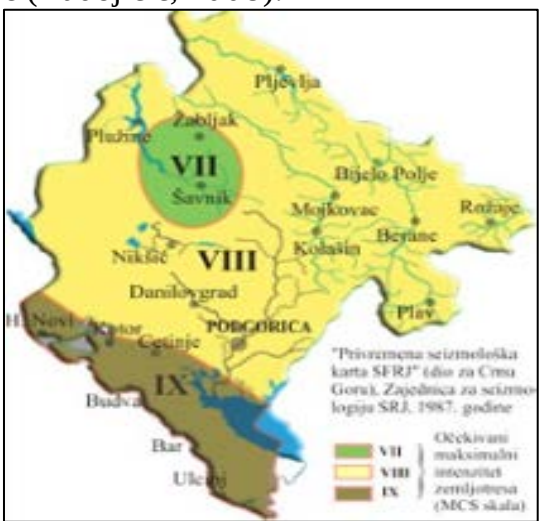

Figure 27. *Seismic Regionalization of the Territory of Montenegro. Source: Seismological Observatory of Montenegro*

Based on this map, we also see that the area of the Montenegrin coast-line is the most seismically endangered.

5.3. Disciplinary Determination of Research Subject

Given the complexity of the subject of research, an interdisciplinary approach is necessary to determine it. In conducting this research, disciplines that study disasters as natural phenomena, events that pose a threat to the safety of citizens, their property, health, lives, as well as hazards to the environment, have been utilized. Primarily, natural sciences such as geography, mathematics, and statistics were employed, but also social sciences such as sociology and psychology. Additionally, the use of organizational sciences, law, economics, and others is indispensable.

5.4. Research Objectives

Through a thorough review of existing research and literature, it has been determined that there is no unified stance regarding the impact of various factors on the motivation and barriers to conceptualizing and implementing appropriate resilience measures for citizens against

earthquakes. Hence, there is a need for further and more detailed systematization of this concept, as well as an explanation of the mutual correlation of demographic, socio-economic, and psychological factors with the level of citizens' resilience to natural disasters caused by earthquakes. The questionnaire starts from the premise of whether citizens of Montenegro are prepared to respond in the event of earthquakes. If they are not, the question arises: why not? The answer to this question helps us discover which factors influence the level of resilience of the local community in the event of this catastrophe.

Within the framework of the research, the explanation of the impact of demographic, socio-economic, and psychological factors influencing the level of resilience of the local community is planned, indicating that the research primarily has an explanatory goal. Therefore, the aim of the research is to determine the factors that influence the level of resilience of local communities in the event of dangers and disasters that earthquakes can cause, as well as to create conditions for the development and implementation of various strategies and programs that will contribute to the improvement in this area.

We have achieved the realization of this goal by studying and explaining how demographic, socio-economic, and psychological factors, as well as previous experiences and knowledge about earthquakes, influence the resilience of the local community to natural disasters caused by earthquakes in Montenegro.

5.5. Social and Scientific Justification of the Research

Earthquakes, as natural phenomena, are impossible to predict and prevent. Given this fact, we can say that we are forced to accept an inferior position regarding this phenomenon. However, in some cases, it is possible to undertake certain activities to reduce the negative impact and harmful consequences that earthquakes can cause.

Taking into account that Montenegro is located in the seismic Mediterranean region, and yet we do not have a clear answer to the question of what actions and activities should be taken to expedite resilience to these disasters, this question gains importance. If we recall the earthquake of April 1979, we see that the price of inadequate preparedness is extremely high. Transposing this to the present time, where there is a much higher population density and greater pressure on space, we conclude that the danger is significantly greater.

Providing answers to questions about the resilience of local communities to geohazards caused by earthquakes can be of great importance for government authorities in developing strategies to improve citizen resilience in response to this danger. The results of this research can also define specific activities that government authorities, local communities, humanitarian organizations, civil society organizations, and citizens could undertake in the event of earthquake hazards. The results obtained from this research in the territory of Montenegro can be compared with the level of citizen resilience in other countries in the region and the world.

Unfortunately, there is no literature on the topic of citizen and local community resilience to geohazards in our country, nor on the topic of geohazards caused by earthquakes in general. Compared to Montenegro, more attention is paid to the problem of resilience and preparedness for geohazards in the region (Cvetković, 2019), while issues of preparedness, mainly from the perspective of the protection and rescue system, have been addressed by intervention and rescue services (Milašinović & Kešetović, 2011; Jakovljević, 2013), focusing less on citizen preparedness and resilience. The societal justification of a doctoral dissertation implies the application of research results with the aim of obtaining answers to concrete steps that need to be taken to improve resilience and create a concrete resilience strategy that could be implemented at the state level, especially in earthquake-prone areas.

5.6. Hypothetical Research Framework Exploring Resilience Factors in Earthquake Response Through a Multidisciplinary Approach

A large number of social and natural factors influence the resilience of local communities to geohazards caused by earthquakes. Understanding these factors plays a crucial role in devising and implementing strategies to enhance resilience. The results of previous research on citizen resilience to geohazards caused by earthquakes have influenced the development of hypotheses, which are grounded in the concept of resilience.

The general hypothesis involves testing the assertion that there is a relationship between demographic (gender, age, education, household size), socio-economic (employment, income level, mari-

tal status), and psychological characteristics (fear, past experience, risk perception) of citizens and their level of preparedness to respond to geohazards caused by earthquakes in the Republic of Montenegro. It is assumed that this relationship is at the preplanning level, implying that citizens recognize the problem and accept that action must be taken. Based on the general hypothesis, three specific hypotheses have been defined:

1. The first hypothesis concerns testing the assertion that there is a correlation between demographic factors (gender, age, education, household size) of citizens in the Republic of Montenegro and their resilience levels in responding to geohazards caused by earthquakes.
2. The second hypothesis pertains to testing the assertion that there is a correlation between socio-economic factors (employment status, income level, marital status) of citizens in the Republic of Montenegro and their resilience levels in responding to geohazards caused by earthquakes.
3. The third hypothesis concerns testing the assertion that there is a correlation between psychological characteristics (fear, previous experience, risk perception) of citizens and their readiness levels in responding to geohazards caused by earthquakes in the Republic of Montenegro.

5.7. Data Sources: Gathering Information on Resilience Factors in Earthquake Response

5.7.1. Existing Data Sources for Resilience Factors in Earthquake Response

Considering the multi-methodological approach to the research, various data sources were used in the preparation of the doctoral dissertation. The data used in the study can be classified into two groups: existing data sources and data generated during the research implementation. Regarding the first group of data, all existing documentation and archival materials from various local, regional, national, and international institutions were used. Table 10 presents a census of institutional data sources whose analysis is planned within the research.

In addition to the mentioned data, additional data sources such as newspapers, portals, photographic records, media releases relevant to

citizens' resilience in responding to earthquakes were utilized. Furthermore, reports, maps, as well as legal acts regulating the area of protection from geohazards in the Republic of Montenegro, were meticulously analyzed in the study. All available domestic and foreign literature on this issue was also essential.

During the analysis of systematically organized data, the following methods were employed: secondary analysis, content analysis, comparative legal analysis, and literature review. From the data obtained through research for the purpose of the dissertation, information obtained from citizen surveys and interviews with specific informants were utilized, necessitating the application of survey and interview techniques.

Table 10. *Census of Institutional Data Sources Used for the Dissertation and Planned for Analysis Within the Research*

Type	**Institution**	**Document type**		**Data**
		Title	**Source**	
GOVERNMENT BODIES	The Parliament of Montenegro	The Law on Protection and Rescue	The law was published in the "Official Gazette of Montenegro", No. 13/2007, 5/2008, 86/2009 - other law, 32/2011, 54/2016, 146/2021, and 3/2023.	
		The Law on Protection of Population from Infectious Diseases	"Official Gazette of Montenegro", No.	
		The Law on Healthcare	12/2018 and 64/2020	
		The Law on Protection of Population from Infectious Diseases	"Official Gazette of Montenegro", No. 3/2016, 39/2016, 2/2017, 44/2018, 24/2019, Second Law 24/2019, - Second Law 82/2020 and 8/2021	
		The Law on Communal Activities	"Official Gazette of Montenegro", No. 055/16 dated 17.08.2016, 074/16 dated 1.12.2016.	

The Government of Montenegro	The Law on Sanitary Inspection	"Official Gazette of Montenegro", No. 14/2010 dated 17.03.2010.
	The Law on Social and Child Protection	"Official Gazette of Montenegro", No. 027/13, 001/15, 042/15, 047/15, 056/16, 066/16, 001/17, 031/17, 042/17, 050/17, 059/21, 145/21.
	The Law on Communal Activities	
	Draft Program for Montenegro's Accession to the European Union 2023-2024	Government of Montenegro, Ministry of European Affairs
	National Strategy for Sustainable Development	Government of Montenegro, Ministry of Sustainable Development and Tourism
	National Plan for Protection and Rescue from Earthquakes	Government od Montenegro
	Risk Assessment of Disasters in Montenegro	Government of Montenegro, Ministry of Internal Affairs, Directorate for Protection and Rescue
	National Plan for Protection and Rescue from Earthquakes	Goverment of Montenegro

	Institute for Hydrometeorology and Seismology of Montenegro	Annual reviews Climatological yearbooks	The website of the Institute of Hydrometeorology and Seismology	Climatological Data Seismological Data Station Data
REGIONAL AND INTERNATIONAL ORGANIZATIONS	European Parliament, other executive bodies, and other European organizations	European Strategy for Supporting Disaster Risk Reduction in Developing Countries	COM, 2009	Data on: managing a natural disaster caused by an earthquake with a specific focus on the resilience phase; anticipated measures of citizen preparedness to respond to a natural disaster caused by an earthquake; institutional support for resilience measures; rights and obligations of citizens regarding resilience with a special emphasis on knowledge, plans, stockpiles, and practice of specific activities; strategic issues related to citizen preparedness to respond to natural disasters caused by earthquakes
		Establishment of an Alliance for Global Climate Change between the European Union and the most vulnerable developing countries to climate change	COM, 2007, 540	
		Strengthening the EU's response to disasters and crises in third countries	COM, 2005,153	
		Communication from the Commission on strengthening the Union's capacity to respond to disasters	COM, 2008, 130	
		"Communication of the Commission towards the Council and the European Parliament"	Brussels, 2009.	
		"Memorandum of Understanding on the institutional framework for the Initiative for Prevention and Preparedness for Disasters in Southeast Europe"	Zagreb, 2007.	
		"Proposal for EU Strategy to Support Disaster Risk Reduction in Developing Countries"	Brussels: European Commission, 2009	
		Database of the Center for Research on the Epidemiology of Disasters (CRED)	Brussels	

United Nations	International Strategy for Disaster Risk Reduction	Resolution of the General Assembly number: 55/2; 58/213; 58/291; 59/231; 58/314; 57/356; 56/195; 54/219; 59/233; 46/182;
	Initiative for Disaster Risk Mitigation and Reduction in Southeast Europe. Risk Assessment for Southeast Europe.	United Nations, 2011.
	Johannesburg Plan of Implementation World Summit on Sustainable Development, Johannesburg, South Africa	United Nations, 26.08. – 04.09. 2002
	Millennium Declaration of the United Nations	55/2
	United Nations: Series of Treaties	vol 1760, br. vol 1771,br.30822.30619. vol 1954, br. 33480
	Excerpt from the final report of the World Conference on Disaster Risk Reduction	A/CONF.206/6

5.7.2. Collecting Quantitative Data on Resilience Factors in Earthquake Response

The data on demographic, socio-economic, and psychological characteristics of citizens and their resilience to earthquake-induced hazards were obtained through questionnaire surveys. The analysis of the collected data was conducted using several different techniques: determining frequency, or the prevalence of a particular response in the total mass of respondents' answers, calculating the Percentages of participation of a specific response in the total mass of responses, and the chi-square test of independence, used to determine statistically significant differences between compared groups or to identify statistically significant relationships between individual responses.

The data collected from the questionnaire surveys underwent preliminary preparation such as editing, coding, and statistical data preparation before the actual statistical processing. Subsequently, each question was analyzed separately through data analysis. This analysis was conducted by tabulating the data to determine the empirical distribution of the variables under consideration and calculating descriptive statistical indicators: measures of central tendency (mean, median, and mode), measures of dispersion (range, standard deviation, and coefficient of variation), and measures of distribution shape (skewness and kurtosis). Afterward, the data were subjected to tabulation and statistical methods.

A structured survey instrument was devised, incorporating a blend of qualitative (closed-ended) multiple-choice queries and five-point Likert scales, as outlined by (Joshi et al., 2016) and Cvetković et al. (2019). The initial segment of the survey pertained to the demographic and socioeconomic profiles of the respondents, encompassing factors such as gender, age, and educational attainment. Subsequent sections addressed respondents' perceptions regarding the safety of the household, supplies, shelter, special needs, local connectivity and fire. Before the research implementation, a preliminary questionnaire test was conducted in different languages in Serbia (40 participants), Macedonia (25 participants), and Montenegro (35 participants). The preliminary testing was conducted using an online snowball sampling approach. It is crucial to emphasize that our research adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for socio-medical research involving human subjects. Additionally, all participants provided informed consent before participating in the study, accepting the terms to participate in its implementation. The research protocol was approved by the Scientific-Professional Society for Disaster Risk Management, Scientific Research Group Review, ID – 01022024.

5.7.2.1. Sample Selection: Choosing Representative Cases for Studying Resilience Factors

During the implementation of the survey, care was taken to focus on local communities that are most vulnerable to seismic hazards. These are the local communities in which stronger earthquakes have been recorded relatively recently, with particular attention to the southern and central regions of Montenegro. The population consisted of all adult residents of these areas, as well as the rest of Montenegro. The

most represented municipalities/cities included Nikšić, Podgorica, Budva, Bar, Kotor, Herceg Novi, Ulcinj, Cetinje, and Berane, but a portion of the respondents also resided in seismically stable municipalities such as Žabljak, Pljevlja, and Rožaje. In these mentioned municipalities, care was taken to cover all age, gender, and social groups. Considering that the central part of Montenegro is the most populated, the largest number of respondents belonged to this area, followed by the coastal region.

5.7.3. Demographic Characteristics of Participants

The sample of respondents adequately represents both genders, with 49.3% being male and 50.7% female. This exceptionally balanced distribution enables a deep and comparative analysis of attitudes and participation in disaster preparedness between men and women. Moreover, such a distribution provides a strong foundation for researching and understanding the various aspects of both genders' reactions to disaster situations and their approaches to disaster prediction and rescue efforts (Table 11).

Table 11. *Overview of the sample of respondents by gender.*

Gender	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Males	197	49.3	49.3	49.3
Females	203	50.7	50.7	100.0
Total	400	100.0	100.0	

The presented data on education within the sample of respondents reveal a wide variation in educational levels. The majority of respondents, comprising a significant 36.5%, have attained higher education, indicating a pronounced interest and participation of individuals with advanced education in disaster preparedness. Next in importance are groups with secondary-four-year (28.0%) and secondary-three-year (10.3%) education, which may be of interest for investigating how individuals with different levels of vocational education perceive and engage in disaster preparedness activities.

The sample also includes only a small portion of respondents with primary education (1.5%), highlighting the need for further research on the various challenges this group may face in the context of disasters. Doctoral candidates, numbering 4.3%, and individuals with master's degrees, comprising 9.5%, represent a significant portion of the

sample. These data have the potential to shed light on the role of highly educated individuals in developing and implementing disaster preparedness strategies, as well as their contribution to enhancing societal resilience at a general level.

Lastly, 6.3% of respondents with postgraduate education represent an additional interesting category. Researching this subgroup could provide insight into specific aspects of disaster preparedness relevant to individuals with advanced education. In summary, these data on respondents' education enrich our understanding of the dynamics and engagement in the context of disaster preparedness, opening up numerous avenues for further research and identifying areas deserving attention in future scientific studies (Table 12).

Table 12. *Overview of respondents' education.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Doctoral	17	4.3	4.3	8.0
Master's	38	9.5	9.5	17.5
Primary	6	1.5	1.5	19.0
Secondary/Four-year	112	28.0	28.0	47.0
Secondary/Three-year	41	10.3	10.3	57.3
Higher	25	6.3	6.3	63.5
High	146	36.5	36.5	100.0
Total	400	100.0	100.0	

The research revealed that the dominant number of respondents in the sample achieved very good (40.5%) and excellent (29.8%) success in their high school education. This significant concentration of high grades may indicate a tendency among respondents to achieve outstanding academic results at a young age. In contrast, a small Percentages of respondents (0.8%) achieved only a passing grade, which may require further analysis to understand the possible stories and challenges faced by this subgroup and how it relates to their participation in disaster preparedness activities. Additionally, 26.0% of respondents achieved a good level of success in high school, which represents a significant portion of the sample (Table 13).

Table 13. *Overview of respondents' achievement in high school.*

Category	Frequency	Percentages	Valid Percent-	Cumulative Per-

			ages	centages
Good	104	26.0	26.0	38.8
Sufficient	3	0.8	0.8	19.8
Excellent	119	29.8	29.8	59.5
Very Good	162	40.5	40.5	100.0
Total	400	100.0	100.0	

The research revealed significant differences in the educational achievement of respondents in elementary school, with the majority, precisely 45.0%, achieving excellent success. These results may reflect an ambitious and committed attitude of respondents towards school obligations in the early years of education. In contrast, only 1.5% of respondents achieved sufficient success in elementary school, indicating a small number of individuals who lagged behind in their academic performance. This phenomenon may be the subject of further research to understand the possible factors influencing academic success in early childhood and its connection to attitudes towards disaster preparedness. Additionally, respondents achieved varying levels of very good (25.8%) and good (12.0%) success in elementary school, revealing diversity in educational achievements in the sample. This diversity may provide an interesting foundation for deeper investigation to understand the dynamics and possible correlations between academic success in youth and participation in disaster preparedness later in life. The research also found that 15.3% of respondents graduated with honors (Table 14).

Table 14. *Overview of the academic achievement of respondents in elementary school.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Good	48	12.0	12.0	12.5
Sufficient	6	1.5	1.5	14.0
Outstanding	61	15.3	15.3	29.3
Excellent	180	45.0	45.0	74.3
Very good	103	25.8	25.8	100.0
Total	400	100.0	100.0	

When it comes to the education of the respondents' mothers, the dominant level of education is secondary, with 53.5% of respondents indicating that their mothers completed high school. This dominant presence of secondary education may have significant implications for

understanding the influence of maternal education on attitudes and participation in disaster preparedness, opening the path for exploring possible correlations. Next, 15.0% of respondents report their mothers having completed higher education, while 14.8% mention tertiary education. These subgroups represent a significant portion of the sample and offer opportunities for research into how maternal education impacts various aspects of disaster preparedness in families. Several respondents (12.3%) state that their mothers have primary education, which represents another important aspect of investigation. This subgroup may be particularly interesting for analyzing how different educational statuses can affect a family's ability to adequately prepare for potential catastrophic events. On the other hand, the smallest number of respondents (1.5%) indicate that their mothers have not completed primary school, which represents an extremely small Percentages in the sample. This data can be explored to understand how such an educational status of the mother reflects on her perceptions and capabilities regarding disaster preparedness in the family. Finally, a few respondents (2.3%) mention that their mothers have a master's degree, while 3% of respondents stated that their mothers have completed a doctorate. These data indicate the presence of highly educated mothers in the sample and open up avenues for research into how their status affects their perception and engagement in disaster preparedness activities (Table 15).

Table 15. *Overview of the Education of Respondents' Parents (Mothers).*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Doctorate	1	.3	.3	.8
Master's	9	2.3	2.3	3.0
Incomplete primary school	6	1.5	1.5	4.5
Primary	49	12.3	12.3	16.8
Secondary	214	53.5	53.5	70.3
Higher	59	14.8	14.8	85.0
High	60	15.0	15.0	100.0
Total	400	100.0	100.0	

When it comes to the education of the respondents' fathers, the sample indicates the most prevalent middle level of education, with 55.3% of respondents stating that their father completed high school. This significant presence of middle education may reveal interesting patterns regarding attitudes and activities related to disaster prepared-

ness in families where the father has a middle level of education. Next, 18.8% of respondents cite their fathers having higher education, while 15.3% mention having further education. These data open the door to deeper research into how different levels of paternal education influence various aspects of disaster preparedness in families. The smallest number of respondents (1.3%) indicate that their father completed master's or postgraduate studies, while 1.5% of respondents say their father has not completed primary school. Additionally, 5.3% of respondents cite their father having primary education, representing a significant portion of the sample. This diversity in fathers' educational statuses offers a rich field for research into how paternal education may influence disaster preparedness scenarios in different family contexts. Furthermore, 2.3% of respondents indicate that their father completed doctoral studies, which is an exceptionally important aspect in research. This allows researchers to consider the influence of highly educated fathers on attitudes and participation in disaster preparedness activities, providing opportunities for a better understanding of the relationship between paternal education and family resilience (Table 16).

Table 16. *Overview of the Education of the Respondents' Parents (Father).*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Doctorate	9	2.3	2.3	2.8
Master's	5	1.3	1.3	4.0
Incomplete primary school	6	1.5	1.5	5.5
Primary	21	5.3	5.3	10.8
Secondary	221	55.3	55.3	66.0
Higher	61	15.3	15.3	81.3
High	75	18.8	18.8	100.0
Total	400	100.0	100.0	

The study encompassed a wide range of marital and relationship statuses among the respondents, with the largest portion of the sample being respondents living independently (34.5%). They were followed by respondents who were married (30.0%) and those in a relationship (24.0%). These diverse marital and non-marital structures provide scope for analyzing how marital status can influence disaster preparedness and resilience measures. Divorced respondents accounted for 6.0% of the total number of respondents, offering an opportunity for deeper examination of how past marital experiences affect participa-

tion in disaster preparedness activities. Engaged respondents comprised 4.0% of the sample, representing one of the least prevalent categories, and may be the subject of further research regarding the specific needs of this group in the context of disaster risk. The smallest number of respondents, only 1.3%, identified themselves as widows/widowers. This subgroup may be of particular interest for investigation, providing insight into how individuals who have experienced the loss of a marital partner direct their resources and attention towards preparing for potential disasters (Table 17).

Table 17. *Overview of the Marital Status of Respondents.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Married	120	30.0	30.0	30.3
Divorced	24	6.0	6.0	36.3
Single	138	34.5	34.5	70.8
In a relationship	96	24.0	24.0	94.8
Widower/Widow	5	1.3	1.3	96.0
Engaged	16	4.0	4.0	100.0
Total	400	100.0	100.0	

The research revealed a significant difference in the number of respondents who have children compared to those who do not, with a higher Percentages of respondents (57.0%) not having children, while 43.0% of respondents are those who have offspring. This distribution opens up many possibilities for research on how family status and the presence of children in the home can influence attitudes and disaster preparedness among respondents (Table 18).

Table 18. *Overview of respondents based on whether they have children or not.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	172	43.1	43.1	52.3
No	228	57.0	57.0	100.0
Total	400	100.0	100.0	

5.7.4. Socio-Economic Characteristics of Study Participants

This research aims to investigate how the size of residential units and ownership thereof influence citizens' resilience to respond to natural disasters caused by earthquakes. The study extensively analyzed the

housing conditions of respondents, revealing that the largest number of respondents live in apartments ranging from 60 to 80 m² (21.5%) and apartments from 35 to 60 m² (20.5%). In contrast, the fewest respondents live in villas (0.3%) and houses smaller than 35m² (1.5%). Among respondents, 2% live in houses ranging from 35 to 60 m², while 5.8% reside in houses ranging from 60 to 80 m². A significant portion of respondents, specifically 15%, live in houses from 80 to 100 m², while 14.8% of respondents inhabit houses larger than 100 m².

This diversity in housing conditions provides significant insights into the living spaces of respondents, paving the way for exploring how the size and type of housing affect their preparations and responses in the event of disasters. Regarding the size of apartments, 5.3% of respondents live in apartments up to 35 m², 9.8% reside in apartments ranging from 80 to 100 m², while 2.8% of respondents live in apartments larger than 100 m². This information complements a comprehensive understanding of respondents' housing conditions and provides a basis for considering how the size of apartments may impact their capabilities and needs in the event of catastrophic events (Table 19).

Table 19. *Overview of respondents by the size of the apartment/house they live in.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
House up to 35m²	6	1.5	1.5	2.5
House from 35 to 60m²	8	2.0	2.0	4.5
House from 60 to 80m²	23	5.8	5.8	10.3
House from 80 to 100m²	60	15.0	15.0	25.3
House over 100m²	59	14.8	14.8	40.0
Apartment up to 35m²	21	5.3	5.3	45.3
Apartment from 35 to 60m²	82	20.5	20.5	65.8
Apartment from 60 to 80m²	86	21.5	21.5	87.3
Apartment	39	9.8	9.8	97.0

from 80 to 100m²				
Apartment over 100m²	11	2.8	2.8	99.8
Villa	1	0.3	0.3	100.0
Total	400	100.0	100.0	

The results of the research unequivocally indicate that the majority of respondents (56.8%) reside in a residential property owned by a member of their family. Concurrently, a significant number of respondents (30.3%) report living in a residential property that they themselves own, which represents a notable presence of homeowners in the sample. In contrast, the fewest respondents (11.8%) live in a property rented from a third party. This diversity in housing arrangements is a significant factor in investigating how residential status may influence the readiness and response of respondents in the event of various catastrophic events (Table 20).

Table 20. *Overview of respondents according to the type of ownership of their residential property.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Your ownership	121	30.3	30.3	31.5
Family member's ownership	227	56.8	56.8	88.3
Ownership of a third party from whom you rent	47	11.8	11.8	100.0
Total	400	100.0	100.0	

The majority of respondents (88.0%) expressed that they do not worry and do not live with someone who has a disability, which represents a significant majority in the sample. Conversely, a certain number of respondents (10.8%) confirmed that they live with and care for a person with a disability. This information provides insight into the different dynamics of life and caregiving in this context and opens up possibilities for deeper research into how disability affects preparedness and resilience of families in the event of a disaster. In addition to analyzing the general attitudes and caregiving of respondents, it is also important to investigate the specific dynamics and challenges faced by those who care for a person with a disability. Such research can

provide important insights into the level of preparedness and needs of this subgroup, especially in the event of extreme events and disasters (Table 21).

Table 21. *Overview of respondents based on living with or caring for someone with a disability.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	43	10.8	10.8	12.0
No	352	88.0	88.0	100.0
Total	400	100.0	100.0	

The study revealed that the majority of respondents in the sample (96.3%) stated that they do not have a disability. However, it is important to note a significant subset of the sample, namely 3.8%, who confirmed the presence of some form of disability. This information provides context for considering the attitudes and needs of this specific group in the context of disaster preparedness, given the various challenges and requirements that disability can present in emergency situations. Additionally, this research can serve as a basis for the development of strategies and programs for disaster preparedness tailored to the needs of those with disabilities. Analyzing this data not only raises questions about the resilience and strengths of this group of respondents but also underscores the importance of directing efforts towards creating inclusive and effective disaster preparedness plans for all citizens, including those with disabilities (Table 22).

Table 22. *Overview of respondents based on whether they have any disability.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	15	3.8	3.8	5.3
No	385	96.3	96.3	100.0
Total	400	100.0	100.0	

Analysis of household income among the respondents yielded the following results: the majority of respondents (46.8%) reported incomes above 1000 euros, which represents a significant portion of the sample. Following them are respondents with incomes ranging from 700 to 1000 euros (31.5%), indicating a substantial presence in the sample. Additionally, 16.0% of respondents reported incomes ranging

from 450 to 700 euros. In contrast, the smallest number of respondents (5.8%) reported incomes below 450 euros. This segment represents a specific group that may be subject to further analysis and consideration, given the challenges and limitations associated with low incomes in the event of catastrophic events. Analysis of this income data provides deep insights into the socio-economic factors that may impact respondents' ability to adequately prepare for disasters and effectively cope with them (Table 23).

Table 23. *Overview of approximate household incomes among the respondents.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Up to 450€	23	5.8	5.8	6.8
From 450 to 700€	64	16.0	16.0	21.8
From 700 to 1000€	126	31.5	31.5	53.3
Over 1000€	187	46.8	46.8	100.0
Total	400	100.0	100.0	

The analysis of the national structure of the sample reveals a significant dominance of Montenegrins, who constitute the largest portion in the sample at 63.7%. They are followed by Serbs at 18.0%, representing a significant portion of the sample. Other national groups include Bosniaks at 6.8%, Albanians at 3.0%, Croats at 2.3%, and the least represented are Roma at 1.5%. This diversity of national groups in the sample opens up space for research into how different cultural, ethnic, and linguistic backgrounds may influence attitudes and disaster preparedness (Table 24).

Table 24. Overview of respondents by their nationality.

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Albanian	12	3.0	3.0	7.8
Bosniak	27	6.8	6.8	14.5
Montenegrin	255	63.7	63.7	78.3
Croat	9	2.3	2.3	80.5
Roma	6	1.5	1.5	82.0
Serb	72	18.0	18.0	100.0
Total	400	100.0	100.0	

A significant number of respondents report being employed (74.6%), while simultaneously 25.5% state that they are currently unemployed. This diversity in employment status opens up the possibility of exploring how individuals with and without employment may approach disaster preparedness differently and how different groups of respondents may face challenges in extreme situations. Studying employment status can be an important source of understanding how the employed and unemployed may manage disasters differently and how they may have different needs and challenges in case of emergencies. Additionally, such research can be valuable for the development of strategies and disaster preparedness programs tailored to different groups of respondents to ensure adequate support and resources (Table 25).

Table 25. Overview of respondents by employment status.

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	298	74.6	74.6	74.6
No	102	25.5	25.5	100.0
Total	400	100.0	100.0	

The workplace overview of the respondents reveals a significant presence in the public sector, with the majority (61.0%) stating that they are employed in this sector. Following that, the private sector follows with 29.5% of respondents working in this sphere. Additionally, 9.5% of respondents report being engaged in their own business. This diversity in employment locations opens up opportunities for researching how different work environments can influence attitudes and preparedness for disasters. Furthermore, analyzing this data can be useful in developing disaster preparedness strategies that take into account the specificities of working conditions in the public and private sectors, as well as the challenges and opportunities that entrepreneurs may experience (Table 26).

Table 26. *Overview of respondents by workplace location.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Public sector	244	61.0	61.0	88.0
Private sector	118	29.5	29.5	90.5

Own business	38	9.5	9.5	100.0
Total	400	100.0	100.0	

5.7.5. Psychological Characteristics of Participants in the Study

In the surveyed sample, the majority of respondents (93.3%) stated that they had not experienced non-material consequences of earthquakes. In contrast, 5.5% of respondents reported experiencing such consequences. This information provides valuable insight into the trends and wide range of experiences among citizens regarding the non-material consequences of earthquakes. Analyzing these data can contribute to a better understanding of the psychological and socio-economic aspects associated with citizens' experiences in the event of earthquakes. Additionally, investigating the long-term consequences and coping mechanisms can be a significant contribution to developing support programs and resources for individuals who have suffered from non-material consequences of earthquakes (Table 27).

Table 27. *Overview of respondents based on whether they have experienced non-material consequences of earthquakes.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	22	5.5	5.5	6.8
No	373	93.3	93.3	100.0
Total	400	100.0	100.0	

The results of the research indicate a significant difference in respondents' responses to questions about the material consequences of earthquakes. The majority of respondents (94.0%) stated that they did not experience material consequences of earthquakes, suggesting that most citizens have gone through this natural disaster without serious material losses. In contrast, a smaller number of respondents (4.8%) reported experiencing material consequences of earthquakes. This information provides significant insight into the prevalence and extent of material consequences that may arise from earthquakes. Additionally, these figures can serve as a basis for considering the need for various forms of assistance and support in the years following earthquakes to help those who have suffered material losses (Table 28).

Table 28. *Overview of respondents based on whether they experienced material consequences of earthquakes.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	19	4.8	4.8	6.0
No	376	94.0	94.0	100.0
Total	400	100.0	100.0	

5.8. Literature Review on the Impact of Factors on Community Preparedness and Resilience to Earthquakes

In the field of disaster studies, the exploration of the correlation between gender and preparedness for natural disasters is a highly pertinent subject (Combs et al., 2010; Drabek, 1969; Ikeda, 1995; Mano-Negrin & Sheaffer, 2004; Mehta, 2007; Mulilis, 1999; Myers, 1994; Norris, 1992; Rodríguez, Kennedy, Quarantelli, Ressler, & Dynes, 2009; Rüstemli & Karanci, 1999). Some researchers affirm a higher readiness among females in terms of their disaster response preparedness (Mano-Negrin & Sheaffer, 2004; Tomio, Sato, Matsuda, Koga, & Mizumura, 2014) Studies indicate that women perceive disaster threats more seriously than men (Davidson & Freidenburg, 1996; Palm, 1995) and often acquire information through social networks rather than official sources available online. Moreover, there is a noticeable underrepresentation of women in formal state emergency management organizations dealing with natural disaster emergencies, possibly linked to gender segregation and discrimination (Noel, 1990; Phillips, 1990). Conversely, men tend to take greater responsibility for possessing necessary supplies for surviving natural disasters (Able & Nelson, 1990) and are more proactive in implementing preventive measures to safeguard households (Szalay, Inn, Vilov, & Strohl, 1996). Numerous research findings have indicated that elderly individuals exhibit higher levels of preparedness when it comes to responding to natural disasters (Melick & Logue, 1985; Murphy, 1994; Murrell & Norris, 1984), Additionally, they tend to possess more knowledge about such events. However, they also tend to suffer more severe consequences due to their physical vulnerability (Durkin, Aroni, & Coulson, 1983; Johnson, Johnston, & Peters, 1989). Sattler, Kaiser, and Hittner (2000) found evidence suggesting a positive relationship between age and individuals' preparedness levels in responding to natural disasters.

Certainly, when delving into the realm of research that explores the multifaceted influence of gender, age, marital status, and various demographic and socio-economic factors on citizens' readiness for earthquake response, we come across a noteworthy study conducted by Cvetković and colleagues in 2019. This study, emanating from the heart of the region, specifically from Serbia, provides an illuminating lens through which we can examine and understand the dynamics of preparedness. Its significance lies not only in its empirical findings but also in its potential for comparison with data gleaned from research endeavors in neighboring Montenegro.

According to the findings of their research, Tomio et al. (2014) suggest that individuals with higher educational attainment exhibit greater readiness to react to disasters at the household level, while at the community level, such preparedness correlates with factors like length of residency, marital status, and the presence of elderly family members. Finnis and his colleagues (Finnis, Johnston, Ronan, & White, 2010), through their investigation into the association between participation in educational programs focused on natural disasters and households' readiness to respond, noted a positive link between program involvement and increased household preparedness for natural disaster response. Kohn et al. (2012) highlight significant variations in research outcomes concerning the influence of education on citizens' readiness levels for disaster response.

Some studies suggest that individuals with a high level of specific knowledge are more likely to be prepared for such events (Hurnen & McClure, 1997; Mishra & Suar, 2007). Edwards (1993) indicates that households with higher levels of education are more likely to adapt to implementing necessary preparedness measures. Faupel and his colleagues Faupel, Kelley, and Petee (1992) confirm the correlation between participation in educational programs on natural disasters and citizens' readiness levels for response based on their research findings. Johnston, Becker, and Paton (2012) point out that traditional educational programs on natural disasters, focused on passive information, often result in very low levels of awareness and motivation among citizens to enhance their readiness levels for response.

The readiness of citizens living alone or in marital or extramarital relationships to respond has prompted researchers to explore such connections (Russell, Goltz, & Bourque, 1995; Spittal, McClure, Siegert, & Walkey, 2008). Tomio et al. (2014) discovered that readiness to re-

spond is linked to the length of residence, marital status, and the presence of older family members in the household.

Findings from a nationwide survey conducted in the United States (FEMA, 2009), suggest that a higher proportion of unemployed individuals (47%) tend to depend more on the assistance provided by emergency services compared to those who are employed (31%). Employed individuals (69%) are inclined to believe that taking preparatory actions, planning, and stocking up on supplies will be beneficial in natural disasters. Additionally, they are more likely to perceive that enhancing preparedness levels will aid them in managing the aftermath of natural calamities. Increasing income heightens the risk of disasters such as floods, landslides, and windstorms, but this risk diminishes as income continues to rise (Kellenberg & Mobarak, 2008).

A physical disability serves as a contributing factor to the likelihood of injuries and fatalities resulting from earthquakes (Shapira, Aharonson-Daniel, Shohet, Peek-Asa, & Bar-Dayan, 2015). Also, Smith and Notaro (2009), in examining the correlation between preparedness for disasters and mobility impairments, arrived at the following findings: citizens with certain mobility impairments (20.7%) were more likely than citizens without such impairments (16.1%) to report inadequate preparedness for responding adequately in the event of natural disasters; citizens with mobility impairments were less likely to possess three-day supplies of water and long-lasting food, a battery-powered transistor, and a functional battery-operated lamp. Households containing disabled members exhibit lower tendencies to prepare emergency kits and strategize evacuation plans (Han, Wang, Du, & Zeng, 2017).

Cvetković et al. (2019) meticulously orchestrated their study, ensuring a robust representation of the Serbian populace in their sample. With a near-equal distribution between genders, their respondents mirrored the gender stratification of the Serbian population, offering a comprehensive insight into the preparedness landscape. The average age of participants, a sprightly 36 years, underscores the youthful vigor that permeates the study cohort, with a predominant presence of individuals under 36 years old. Furthermore, the educational composition of the sample unveils a predilection towards secondary education, echoing the broader educational trends documented by the Sta-

tistical Office of the Republic of Serbia. Marital dynamics within the sample paint a nuanced picture, with married couples comprising a substantial portion, emblematic of the societal fabric where matrimonial bonds hold significant sway. Yet, amid the marital bliss, there exists a spectrum of economic engagements, with a majority of respondents grappling with unemployment, juxtaposed against a backdrop of burgeoning monthly family incomes, indicative of the economic flux pervading the region. Beyond the demographic intricacies, the study delves into citizens' preparedness for earthquake response, unraveling a tapestry of perceptions and realities. The mean assessment of household preparedness, hovering at 3.02 out of 5, bespeaks a moderate level of readiness, while the evaluation of local community preparedness, averaging at 2.76 out of 5, hints at room for improvement on a communal front. Interestingly, a substantial cohort finds itself in a liminal space, neither fully prepared nor entirely unprepared, mirroring the nuanced nature of preparedness perceptions.

In essence, Cvetković and colleagues' (2019) study not only provides a snapshot of the preparedness landscape in Serbia but also serves as a springboard for cross-border comparison, offering a vantage point from which to juxtapose and glean insights into the preparedness paradigms prevalent in Montenegro. Through such comparative analyses, we inch closer towards crafting nuanced, region-specific interventions aimed at bolstering resilience and fortifying communities against the capricious whims of seismic upheaval.Considering the differences in gender roles and responsibilities, Cvetković and colleagues found that men have a higher percentages in the following categories: perception that their households are prepared, that the local community is prepared, that they know what geological layers exist beneath their homes, and that they believe buildings and residential structures are reinforced according to seismic conditions. In contrast, it was found that women have a higher Percentages in the following areas: they checked the resistance of their homes to earthquakes, reinforced their homes, and provided furniture.

As for age, the results obtained by Cvetković and colleagues (2019) show that young people had a higher Percentages compared to middle-aged and older individuals in the categories: that households and the local community are prepared, that homes were checked for earthquake resistance, that furniture in households is secured, and that buildings are reinforced. Compared to middle-aged and young people, older people reported a higher Percentages of awareness of

the geological layers beneath their homes. The results of descriptive statistical analysis in this sample of participants showed that 67% of participants stated they have an emergency kit, 49% regularly check the contents of the emergency kit, 62% have easy access to the emergency kit, 37% have emergency supplies, 34% have sufficient supplies, and 40% stated that their community stores emergency supplies. Regarding gender differences, a higher Percentages of men than women reported the following: knowledge of the route to shelters, familiarity with obstacles on the way to shelters, awareness of the conditions of the designated shelter, and familiarity with shelter management. In contrast, and in line with previous findings on gender differences in behavior, a higher Percentages of women than men reported that they would call their neighbors before evacuation. Regarding the influence of age, a higher Percentages of young people reported knowing the way to shelters, having a designated shelter nearby, being aware of obstacles on the way to the designated shelter, being aware of the conditions of the designated shelter, and being familiar with shelter management. In contrast, a higher Percentages of older individuals reported that they would call their neighbors before evacuation.

The study showed that slightly less than half (44%) could name a person who would need special care in the event of a disaster. Also, 42% stated they know what support is needed for older people, and 44% know that older people are more prone to life-threatening injuries. Regarding gender differences in relation to aid and support factors, a higher Percentages of women than men reported knowing someone who would need special care in the event of a disaster. They also reported better knowledge of the type of support needed for older people, who are also more vulnerable. A higher Percentages of young people reported knowing someone who would need special care in the event of a disaster and knowing that older people are more vulnerable. A higher Percentages of middle-aged people reported anticipating difficulties in evacuating their families and being aware of the type of support needed for older people.

7. RESEARCH FINDINGS

7.1. Results of Descriptive Statistical Analyses on Disaster Resilience to Earthquakes

Different perceptions of household preparedness for earthquake response stem from the surveyed sample. The largest number of respondents (36.3%) express the view that their household is neither prepared nor unprepared. Immediately after, 23.5% of respondents assess that their household is somewhat unprepared, while 19.0% believe it is somewhat prepared. Additionally, 9.5% of respondents state that their household is absolutely unprepared, while 11.0% consider it absolutely prepared. Analysis of these results can serve as a basis for the development of education programs and raising awareness about earthquake preparedness measures to raise awareness and support citizens' readiness for this type of natural disaster (Table 29).

Table 29. *Overview of respondents' answers to the question: "How do you rate the preparedness of your household for responding to earthquakes on a scale of 1 to 5? (1 - insufficient; 5 - excellent)."*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
1	38	9.5	9.6	9.6
2	94	23.5	23.7	33.2
3	145	36.3	36.5	69.8
4	76	19.0	19.1	88.9
5	44	11.0	11.1	100.0

Different attitudes of respondents regarding the preparedness of their municipality/city for responding to earthquakes provide important insights into public perception. The majority of respondents (33.3%) believe that their municipality/city is somewhat unprepared for responding to earthquakes, while some (32.8%) have the view that the municipality/city is neither prepared nor unprepared. Conversely, 17.8% of respondents state that their municipality/city is absolutely unprepared for responding to earthquakes. Additionally, 11.8% of respondents assess the preparedness of the municipality/city to some extent, while 3.3% of respondents agree with the statement that the municipality/city is absolutely prepared for responding to earthquakes. Such divergent emphasis on the preparedness of the munici-

pality/city highlights the need for additional research and analysis to understand the context and perceptions underlying the different attitudes of respondents. Moreover, these results can serve as a basis for improving programs and measures for the preparation of municipalities/cities for potential earthquakes (Table 30).

Table 30. *Overview of respondents' answers to the question: "How do you assess the preparedness of your municipality/city for responding to earthquakes on a scale from 1 to 5? (1- Insufficient; 5- Excellent)."*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
1	71	17.8	18.0	18.0
2	133	33.3	33.7	51.6
3	131	32.8	33.2	84.8
4	47	11.8	11.9	96.7
5	13	3.3	3.3	100.0
Total	395	98.8	100.0	

The results of the research on potential house (apartment) damage in the event of an earthquake of intensity 6 or higher on the Mercalli scale reveal a wide range of attitudes among respondents. The majority of respondents (35.3%) express uncertainty regarding possible damage, while 26.8% believe there could be minor damage. A more optimistic view is held by 9.0% of respondents who believe their apartment/house would suffer no damage in the event of an earthquake. On the other hand, 18.3% of respondents express some doubt that their home would have certain consequences in the event of an earthquake, while 9.5% believe there could be very significant damage to their house/apartment. This diversity of attitudes underscores the need for raising awareness and education about preparedness measures and the construction of stable structures capable of withstanding earthquakes. Analyzing these results can also serve as a basis for directing post-earthquake reconstruction and support programs (Table 31).

Table 31. *Overview of respondents' answers to the question: "Do you think your house (apartment) will be damaged in the event of an earthquake (intensity 6 on the Mercalli scale or stronger)? (1- not at all; 5- quite a bit)."*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
1	36	9.0	9.1	9.1

2	107	26.8	27.1	36.2
3	141	35.3	35.7	71.9
4	73	18.3	18.5	90.4
5	38	9.5	9.6	100.0

The survey highlighted that the largest portion of respondents (35.5%) lacks any information about the geological layers beneath their homes. An additional 22.0% of respondents have only a slight familiarity with this issue, while 22.5% have a moderate level of knowledge about the geological layers beneath their homes. On the other hand, 9.3% of respondents claim to possess solid knowledge about these layers, while 9.8% emphasize that their information about geological layers is exceptional - they know everything that needs to be known. These results signify a significant need for broader education and raising awareness about the geological characteristics of the ground beneath residential structures. The primary focus could be on providing information and education to respondents about the geological conditions at their locations, which could help them better understand the potential risks of earthquakes and guide them toward protective and preparatory measures (Table 32).

Table 32. *Overview of respondents' answers to the question: "Do you know what geological layers (composition of soil) are beneath your house? (1 - I don't know at all; 5 - I know excellently)."*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
1	142	35.5	35.9	35.9
2	88	22.0	22.2	58.1
3	90	22.5	22.7	80.8
4	37	9.3	9.3	90.2
5	39	9.8	9.8	100.0
Total	396	99.0	100.0	

The revelation that the majority of respondents (90.8%) have not checked the resistance of their homes in the event of an earthquake indicates the need to increase awareness of the importance and practical steps that citizens can take to protect their homes. However, 9.3% of respondents have expressed interest in checking the resistance of their homes, which is a positive indication of the readiness of a certain portion of the population to take proactive protective measures. The introduction of additional educational programs and campaigns focusing on the importance of checking the earthquake re-

sistance of homes could have a significant impact on increasing the number of citizens willing to take steps to protect themselves in the event of natural disasters (Table 33).

Table 33. *Overview of respondents based on whether they have checked the resistance of their homes in the event of an earthquake.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	37	9.3	9.3	11.1
No	363	90.8	90.8	100.0
Total	400	100.0	100.0	

The survey revealed that the majority of respondents (74.6%) used reinforced concrete in the construction of their homes, which is a significant data point regarding the construction of residential structures. Conversely, 25.5% of respondents stated that their house was not built using reinforced concrete. This information indicates different standards and materials used in home construction within the surveyed population. Given the importance of adequate construction in earthquake-prone regions, there could be an emphasis on education and promotion of secure building standards to encourage the use of reinforced concrete as a safe construction material for homes (Table 34).

Table 34. *Overview of respondents based on whether their house is built from reinforced concrete.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	298	74.6	74.6	77.3
No	102	25.5	25.5	100.0
Total	400	100.0	100.0	

The research results indicate that the majority of respondents (82.0%) stated that they had not anchored their furniture to the walls. In contrast, 18.0% of respondents confirmed that they had taken measures to anchor their furniture. These data highlight the need for additional awareness and education regarding the importance of anchoring furniture as a measure to reduce the risk of serious consequences during earthquakes. Effective campaigns and educational activities could encourage respondents to implement preventive measures that would contribute to optimal safety in their homes (Table 35).

Table 35. *Overview of respondents regarding whether they have anchored their furniture to the wall.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	72	18.0	18.0	20.0
No	328	82.0	82.0	100.0
Total	400	100.0	100.0	

The research results indicate that the majority of respondents (39.5%) stated that there are buildings made of reinforced concrete in their local municipality, however, not in large numbers. There are also those who believe that the number of such buildings is very small (24.5%) or that there are none at all (6.5%). However, there are varied perceptions among respondents, as 19.0% of them mentioned that the majority of buildings in their environment are constructed from reinforced concrete, while 8.0% believe that all buildings are constructed in this manner. These data provide insight into the diverse perceptions of respondents regarding the use of reinforced concrete in construction and underscore the need for increased awareness and education about safe construction materials (Table 36).

Table 36. *Overview of respondents' answers to the question: "Do you think buildings in your local municipality are constructed of reinforced concrete? (1 - none are; 5 - all are constructed of reinforced concrete)."*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
1	26	6.5	6.7	6.7
2	98	24.5	25.1	31.8
3	158	39.5	40.5	72.3
4	76	19.0	19.5	91.8
5	32	8.0	8.2	100.0

The study revealed that a larger number of respondents (58.5%) do not possess a complete first aid kit in their households, while 41.5% of respondents do have a complete first aid kit. These data indicate the importance of raising awareness about the significance of owning and knowing how to use first aid kits to enhance households' ability to respond to emergencies and important health situations (Table 37).

Table 37. *Overview of respondents based on whether they possess a complete first aid kit in their households.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	166	41.5	41.5	43.0
No	234	58.5	58.5	100.0
Total	400	100.0	100.0	

Research has revealed that a large number of respondents (57.5%), who claimed to possess a complete first aid kit, have not checked the contents of that kit. However, there is a certain number of respondents (42.5%) who have actively verified and refreshed the contents of their first aid kit. These data emphasize the importance of regular updating and reviewing of first aid supplies to ensure an effective and prepared response in case of emergencies and health issues (Table 38).

Table 38. *Overview of respondents' answers to the question: "Have you checked the contents of the first aid kit, if you have one?"*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	170	42.5	42.5	51.5
No	230	57.5	57.5	100.0
Total	400	100.0	100.0	

When it comes to storing the first aid kit in an easily accessible location, the research results show that 44.8% of respondents keep the kit in such a place, while 55.3% of respondents do not. These data highlight the need to raise awareness about the importance of keeping first aid kits in accessible and visible locations to enable a quick and efficient response in case of accidents and injuries (Table 39).

Table 39. *Overview of respondents regarding whether they keep the first aid kit in an easily accessible location.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	179	44.8	44.8	54.3
No	221	55.3	55.3	100.0
Total	400	100.0	100.0	

Research indicates that a significant portion of respondents (70.8%) do not possess any other emergency supplies, while 29.3% of respondents state that they have supplies. These results point to the

need to increase awareness about the importance of having necessary materials and resources that can be useful in emergency situations and accidents (Table 40).

Table 40. *Overview of respondents regarding whether they possess any other emergency supplies.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	117	29.3	29.3	31.3
No	283	70.8	70.8	100.0
Total	400	100.0	100.0	

The majority of respondents (28.7%) believe that the supplies they possess are not entirely sufficient in case of an emergency, while 27.0% express the opinion that these supplies are not sufficient at all. In contrast, 2.8% of respondents believe that their supplies are entirely sufficient. A significant portion of respondents (28.2%) believe that their supplies are somewhat sufficient, while 9.8% express confidence that their supplies are largely sufficient. These results underscore the need for increased awareness and planning for potential emergencies (Table 41).

Table 41. *Overview of respondents' answers to the question: "Do you think your supplies are sufficient in case of an emergency? (1- not sufficient; 5- very sufficient)."*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
1	108	27.0	28.0	28.0
2	113	28.2	29.3	57.3
3	115	28.7	29.8	87.0
4	39	9.8	10.1	97.2
5	11	2.8	2.8	100.0

A large majority of respondents (77.3%) are unaware of whether their local government possesses emergency supplies. Those who believe their local government does not have such supplies make up 14.5% of the total, while 8.3% believe that emergency supplies do exist in their local government. These findings highlight the need for better awareness and clarity regarding the measures taken and supplies held by local authorities (Table 42).

Table 42. *Overview of respondents' answers to the question: "Does your local government possess emergency supplies?"*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	33	8.3	8.3	9.8
No	58	14.5	14.5	22.8
I don't know	309	77.3	77.3	100.0

The research results reveal that a smaller number of respondents (18.3%) know their designated shelter nearby, while more respondents indicated that they are not informed about this issue (81.8%). This situation points to the need for clear and accessible information about designated shelters, which can contribute to increasing public awareness and readiness for potential emergencies (Table 43).

Table 43. *Overview of respondents regarding whether they know their designated shelter nearby.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	73	18.3	18.3	20.6
No	327	81.8	81.8	100.0
Total	400	100.0	100.0	

The research results indicate that a higher number of people (81.5%) do not know the way to the shelter, while there is a certain number of respondents (18.6%) who stated that they know the way to the shelter. This data highlights the importance of educational campaigns and raising awareness about shelter locations to provide citizens with the knowledge and resources for effective response in case of emergencies (Table 44).

Table 44. *Overview of respondents regarding whether they know the way to the shelter.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	74	18.6	18.6	21.6
No	326	81.5	81.5	100.0
Total	400	100.0	100.0	

In response to the question, "Are there any obstacles on the way to the shelter?" the majority of respondents answered that they are not sure (78.8%), followed by respondents who said there are no obstacles (13.5%), and the fewest respondents who indicated that obstacles exist (7.8%). This data underscores the need for additional research and the removal of possible obstacles on the way to the shelter to facilitate a quick and safe evacuation (Table 45).

Table 45. *Overview of respondents' answers to the question: "Are there any obstacles on the way to the shelter?"*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	31	7.8	7.8	12.1
No	54	13.5	13.5	21.3
I'm not sure	315	78.8	78.8	100.0
Total	400	100.0	100.0	

In response to the question, "Will you call your neighbors when evacuating?" there is a larger number of respondents who answered that they will (79.8%) compared to those who answered that they will not call their neighbors when evacuating (20.3%). This data indicates the importance of cooperation and support among neighbors in evacuation situations, which can contribute to a faster and more effective response to emergencies (Table 46).

Table 46. *Overview of respondents' answers to the question: "Will you call your neighbors when evacuating?"*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	319	79.8	79.8	82.8
No	81	20.3	20.3	100.0
Total	400	100.0	100.0	

The research results indicate that a larger number of respondents do not know (87.8%), while a certain number of respondents state that they know the condition of the shelters (12.3%). This data highlights the need for better informing the public about the condition and availability of shelters in case of emergencies, in order to increase readiness and reduce ignorance regarding this matter (Table 47).

Table 47. *Overview of respondents according to whether they know the condition of the shelters.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	49	12.3	12.3	15.1
No	351	87.8	87.8	100.0
Total	400	100.0	100.0	

The research results indicate that a large number of respondents do not know who manages the shelters (90.5%), while a small number of respondents stated that they do know (9.6%). This data reveals the need for better informing the public about the responsible institutions and individuals involved in managing and maintaining the shelters, in order to raise awareness and increase readiness of populated areas in case of emergencies (Table 48).

Table 48. *Overview of respondents regarding whether they know who manages the shelters.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	38	9.6	9.6	12.3
No	362	90.5	90.5	100.0
Total	400	100.0	100.0	

In terms of knowing who requires special care in emergencies, the majority of respondents indicated that they are unsure (54.8%), followed by those who know who requires special care (35.3%), and the least number of respondents are those who do not know who requires special care in emergencies (10.0%). This result emphasizes the need for better education and informing the public about the specific needs of certain groups of people in emergency situations, which would contribute to raising awareness and prevention effectiveness (Table 49).

Table 49. *Overview of respondents regarding whether they know which people require special care in emergencies.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	141	35.3	35.3	35.3
No	40	10.0	10.0	45.3
I'm not sure	219	54.8	54.8	100.0

The research results show that 11.5% of respondents indicated they have no knowledge about the majority of casualties and injuries belonging to the older population, 17.5% stated they have very little knowledge, and 22.0% have some knowledge on the topic. 28.5% of respondents mentioned they possess a good amount of knowledge on this subject, while 18.3% are highly knowledgeable about it. Increased awareness of these aspects can contribute to better support and protection for this group of people in case of accidents and natural disasters (Table 50).

Table 50. *Overview of respondents' answers to the question: "Are you aware that the majority of casualties and injuries belong to the older population? (1 - I don't know at all; 5 - I know excellently)."*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
1	46	11.5	11.8	11.8
2	70	17.5	17.9	29.7
3	88	22.0	22.5	52.2
4	114	28.5	29.2	81.3
5	73	18.3	18.7	100.0
Total	391	97.8	100.0	

When analyzing the question of the family members' ability to evacuate independently in the event of an earthquake, the research showed significant differences among the respondents. The majority of participants (73.5%) claim that there is no family member in their household who would be unable to evacuate independently. In contrast, only 26.6% of respondents stated that there is a family member who would not be able to evacuate independently. These statistics reveal a significant disparity among respondents in the perception of their family members' abilities in emergency situations. While the majority of respondents believe that all members of their family are capable of evacuation, a minority acknowledges that there is at least one member who would not be able to evacuate independently. This diversity in attitudes could be crucial in the development of strategies and programs to raise awareness and prepare families for potential emergencies, especially earthquakes. Additional educational activities and resources could be introduced to enable all family members to develop the necessary skills and abilities for a quick and safe evacuation if needed (Table 51).

Table 51. *Overview of respondents regarding whether there is someone in their family who would be unable to evacuate alone in the event of an earthquake.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	106	26.6	26.6	28.8
No	294	73.5	73.5	100.0
Total	400	100.0	100.0	

When it comes to knowledge about the details of seniors, persons with disabilities, and infants in their community, the research results reveal significant variations among respondents. The majority of participants (29.5%) state that they have a fair understanding of where these groups live, indicating a general awareness and knowledge about their surroundings. Conversely, 15.5% of respondents have very little knowledge about seniors, persons with disabilities, and infants in their community, while 20.8% have no knowledge about these groups at all.

It is interesting to note that there are respondents who stand out for their deep understanding, with 18.3% having a good understanding and 13.8% having a complete understanding of where seniors, persons with disabilities, and infants live. These differences in the level of information absorption about specific groups in the community can have significant implications for the development of support and assistance programs. Increased awareness of the needs and locations of members of these groups can contribute to better planning and faster response in emergency situations (Table 52).

Table 52. *Overview of respondents' answers to the question: "Do you know where seniors, persons with disabilities, and infants live in your community? (1 - I don't know at all; 5 - I know excellently)."*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
1	83	20.8	21.2	21.2
2	62	15.5	15.9	37.1
3	118	29.5	30.2	67.3
4	73	18.3	18.7	85.9
5	55	13.8	14.1	100.0

A large number of respondents, as revealed by the survey, have no knowledge at all about how to interact with deaf or hard of hearing

individuals (25.8%), while a similar Percentages have very little knowledge (25.8%) or possess moderate knowledge (25.8%). A small number of respondents claim to have absolute knowledge of how to interact with such individuals (7.0%), while there are also those who, although not knowing absolutely everything, are largely prepared to interact with deaf or hard of hearing individuals (13.5%). This diversity in the level of education and support among respondents regarding interactions with deaf or hard of hearing individuals is caused by varying degrees of engagement and education on these topics. Considering the strive for improving inclusivity and understanding, this finding indicates the need for additional educational experiences that would raise awareness and knowledge of appropriate practices in communication and relationships with deaf or hard of hearing individuals (Table 53).

Table 53. *Overview of respondents' answers to the question: "Do you know how to interact with deaf or hard of hearing individuals? (1- I don't know at all; 5- I know very well)."*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
1	103	25.8	26.4	26.4
2	102	25.5	26.2	52.6
3	103	25.8	26.4	79.0
4	54	13.5	13.8	92.8
5	28	7.0	7.2	100.0

The analysis reveals significant variations in the level of knowledge regarding the assistance required by seniors, individuals with disabilities, and infants among the respondents. Overall, 14.8% of respondents state that they have no knowledge about this information, while 22.0% indicate having very little understanding of the needs of seniors, individuals with disabilities, and infants. Additionally, 30.8% of respondents possess some knowledge, although it may not be entirely sufficient.

Individuals claiming to have extensive knowledge about the assistance needed by seniors, individuals with disabilities, and infants constitute 19.5%, indicating a clear awareness and understanding of the needs of these groups. Furthermore, 10.5% of respondents highlight that they possess absolute knowledge in this area, suggesting a deep commitment and expertise in the subject. This analysis underscores the need for raising general awareness about the needs of seniors, individuals

with disabilities, and infants, as well as providing additional educational resources to enrich understanding and support in these areas (Table 54).

Table 54. *Overview of respondents' answers to the question: "Do you know what kind of assistance seniors, individuals with disabilities, and infants require? (1- I have no knowledge at all; 5- I know excellently)."*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
1	59	14.8	15.1	15.1
2	88	22.0	22.6	37.7
3	123	30.8	31.5	69.2
4	78	19.5	20.0	89.2
5	42	10.5	10.8	100.0

The research results suggest that the majority of respondents (52.5%) have never been active in participating in the preparations of local authorities for disaster management. Only 13.0% of respondents claim to have participated to a very small extent, while 20.5% have contributed to some extent to the preparations. On the other hand, there are respondents who have been completely (4.0%) or to a large extent (7.5%) active in the preparations of local authorities for disaster management. This wide distribution of engagement indicates varying degrees of interest and participation among citizens in raising awareness and strengthening the local community regarding catastrophic events (Table 55).

Table 55. *Overview of respondents' answers to the question: "Have you participated in any way in the preparation of the local government for disasters? (1 - not at all; 5 - completely)"*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
1	210	52.5	53.8	53.8
2	52	13.0	13.3	67.2
3	82	20.5	21.0	88.2
4	30	7.5	7.7	95.9
5	16	4.0	4.1	100.0

Based on research, the majority of respondents emphasize that people in their municipality/city have a very limited awareness of the possibility of earthquakes (27.0%), or that, although they are aware, this awareness is insufficient (25.5%). It is noted that 23.3% of respond-

ents believe that people are not aware of this danger at all, and only 13.5% believe that people are largely aware of the potential earthquake, revealing significant gaps in public awareness. On the other hand, 8.8% of respondents believe that people in their local government fully understand the danger of earthquakes. This diversity in perception highlights the need for targeted efforts in educating and informing the public about potential hazards. Raising awareness of earthquake risks and providing specific information on safety measures may be crucial for increasing preparedness and reducing potential damage in the event of an earthquake (Table 56).

Table 56. *Overview of respondents' answers to the question: "Do you think residents of your municipality/city are aware that an earthquake can occur in your local government? (1 - not aware at all; 5 - fully aware)"*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
1	93	23.3	23.7	23.7
2	108	27.0	27.6	51.3
3	102	25.5	26.0	77.3
4	54	13.5	13.8	91.1
5	35	8.8	8.9	100.0

The conducted research reveals a wide range of attitudes among respondents regarding the ability of their neighbors to independently rescue themselves in the event of an earthquake. The largest portion of respondents (39.3%) believes that their neighbors can self-rescue, while 18.5% are largely confident in this assertion. An additional 8.3% expressed a strong belief that their neighbors can definitively self-rescue in the event of an earthquake. On the other hand, 23.5% of respondents expressed the view that rescuing their neighbors is very difficult, while 8.0% believe that it may not be achievable at all independently in the event of an earthquake. These different perceptions open up space for dialogue and educational initiatives that would promote the development of self-rescue capabilities in community emergencies. Raising awareness of the necessary skills and behaviors in the event of an earthquake can significantly contribute to the overall preparedness of the community (Table 57).

Table 57. *Overview of respondents' answers to the question: "Do you think your neighbors can independently rescue themselves in the event of an earthquake (and to what extent)? (1 - cannot at all; 5 - definitely can)"*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
1	32	8.0	8.2	8.2
2	94	23.5	24.1	32.3
3	157	39.3	40.3	72.6
4	74	18.5	19.0	91.5
5	33	8.3	8.5	100.0

When asked about the existence of a reliable person working on preparedness measures in their local government in the event of a disaster, the research results reveal significant differences among respondents. Only 25.6% of respondents state that their local government has a reliable person working on disaster preparedness, while a larger number of respondents (74.5%) emphasize that their local government does not have such a person. This significant minority, indicating the presence of a responsible person in the local government for preparedness measures, points to the need for improvement and enhancement of capacity and coordination in this area. It is interesting to track the causes and obstacles preventing the existence of a reliable person for preparedness measures and to consider possible improvements in the crisis management system at the local level (Table 58).

Table 58. *Overview of respondents' answers to the question: "Does your local government have a reliable person working on preparedness measures in the event of a disaster?"*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	102	25.6	25.6	30.8
No	298	74.5	74.5	100.0
Total	400	100.0	100.0	

The research has drawn conclusions about the disturbingly low levels of communication and education about natural disasters in the community, where the majority of respondents do not discuss this important aspect with people in their municipality/city at all (33.8%). An additional 22.0% of respondents almost never pay attention to this topic, while 27.5% occasionally discuss natural disasters in their city/municipality. On the other hand, a very small number of respondents (3.8%) discuss natural disasters daily, while 11.0% constitute a small group that engages in such discussions very often. These results indicate the need for active and continuous efforts to raise

awareness and facilitate discussions about natural disasters in the community. Educational campaigns, workshops, and other forms of engagement could play a crucial role in fostering an open dialogue about safety and disaster preparedness (Table 59).

Table 59. *Overview of respondents' answers to the question: "Do you talk to people in your municipality/city about natural disasters? (1 - I don't talk; 5 - I talk daily)"*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
1	135	33.8	34.4	34.4
2	88	22.0	22.4	56.9
3	110	27.5	28.1	84.9
4	44	11.0	11.2	96.2
5	15	3.8	3.8	100.0

The research has yielded conclusions that a larger number of respondents (60.8%) do not have knowledge of anyone who could advise them on resilience and proper response in the event of disasters. This indicates a significant anomaly in existing support and education systems regarding safety in the community. In contrast, 39.3% of respondents indicate that they know someone who could advise them on resilience and proper response in catastrophic situations. These results emphasize the need for better communication and targeted education in the community, focusing on identifying and training individuals who can provide important advice and support in emergencies. At the same time, these data can serve as a basis for the development of measures and programs that would enhance awareness and disaster response capabilities in the community (Table 60).

Table 60. *Overview of respondents based on whether they know someone who can advise them on disaster resilience.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	157	39.3	39.3	41.8
No	243	60.8	60.8	100.0
Total	400	100.0	100.0	

Based on the research, it is concluded that the majority of respondents maintain contacts within their neighborhood; however, this communication is not directed towards all neighbors for 30.5% of respondents. With the majority of neighbors, communication is estab-

lished by 20.3% of respondents, while 21.3% of respondents communicate with all neighbors. Another 17.5% of respondents communicate rarely with their neighborhood, while 7.5% of respondents state that they do not communicate with neighbors at all. This diversity in the pattern of communication within the neighborhood points to the importance of social networks in the community, but also to the need to strengthen bonds and communication among different parts of the community. Raising awareness about the importance of positive interpersonal relationships and support in times of hardship such as natural disasters can increase the overall resilience of the community (Table 61).

Table 61. *Overview of respondents' answers to the question: "Do you communicate with your neighbors? (1 - I don't communicate with anyone, 5 - I communicate with everyone)"*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
1	30	7.5	7.7	7.7
2	70	17.5	18.0	25.8
3	122	30.5	31.4	57.2
4	81	20.3	20.9	78.1
5	85	21.3	21.9	100.0

The research concludes that the majority of respondents (35.5%) believe that companies from their municipality/city can be helpful in emergency situations; however, this assistance is not perceived as significant. Only 15.0% of respondents believe that companies are of great help, while 15.0% express confidence that they are absolutely helpful in emergency situations. On the other hand, a certain number of respondents (11.3%) believe that companies are not helpful at all, while 27.8% of respondents hold the opinion that companies are of very little help in such situations. These data highlight the need for better coordination and collaboration between the community and companies in dealing with emergency situations, in order to raise the level of preparedness and efficiency in responding to emergencies (Table 62).

Table 62. *Overview of respondents' answers to the question: "Do you think that companies from your municipality/city are helpful in emergency situations? (1 - not helpful at all; 5 - extremely helpful)"*

Category	Frequency	Percentages	Valid Percent-	Cumulative Per-

			ages	centages
1	45	11.3	11.5	11.5
2	111	27.8	28.5	40.0
3	142	35.5	36.4	76.4
4	60	15.0	15.4	91.8
5	32	8.0	8.2	100.0

Based on the research, it was found that the majority of respondents (55.8%) have no knowledge of how to properly use a fire extinguisher. Alongside this group, there is a significant number of respondents (44.3%) who have stated that, on the contrary, they know how to properly use a fire extinguisher. These disparities in experience and knowledge provide opportunities for various educational and preventive initiatives. Training and raising awareness in the community about the proper use of fire extinguishers can be crucial in increasing preparedness and safety in the event of a fire (Table 63).

Table 63. *Overview of respondents based on whether they know how to use a fire extinguisher.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	177	44.3	44.3	46.8
No	223	55.8	55.8	100.0
Total	400	100.0	100.0	

Based on the research results, a wide range of attitudes among respondents regarding the possession of fire extinguishers in their homes/residences is observed. A large number of respondents (79.3%) state that they do not possess a fire extinguisher in their home, indicating a potential lack of means for initial intervention in case of a fire. At the same time, a certain number of respondents (20.8%) declare that they possess a fire extinguisher. These data provide an opportunity for educational campaigns and initiatives that would specifically focus on raising awareness about the importance of owning fire extinguishers in households. Providing information on the proper use of fire extinguishers and their significance for household safety could significantly contribute to increasing preparedness for fire outbreaks (Table 64).

Table 64. *Overview of respondents based on whether they possess a fire extinguisher in their home/residence.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	83	20.8	20.8	23.1
No	317	79.3	79.3	100.0
Total	400	100.0	100.0	

The research results present concerning data regarding the respondents' knowledge about the location of fire extinguishers and hydrants in their neighborhood. The majority of respondents (37.8%) state that they have no idea where this important safety equipment is located in their vicinity. An additional 21.8% of respondents have very little knowledge about the location of fire protection equipment, while 18.0% know, but not to a significant extent. Those with more advanced knowledge constitute a minority, with 11.5% of respondents having an excellent understanding of the location of fire extinguishers and hydrants in their neighborhood. An additional 9% of respondents possess a considerable amount of knowledge on this important topic. These data highlight the need for educational and preventive actions in the community to raise awareness about the locations of fire protection equipment and promote a safety culture (Table 65).

Table 65. *Overview of respondents' responses to the question: "Do you know where the fire extinguishers and hydrants are in your neighborhood? (1 - I have no idea at all; 5 - I know perfectly)"*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
1	151	37.8	38.5	38.5
2	87	21.8	22.2	60.7
3	72	18.0	18.4	79.1
4	36	9.0	9.2	88.3
5	46	11.5	11.7	100.0

The research reveals a significant underutilization of hydrants or fire hoses in the community, where a large number of respondents (79.0%) state that they have never used this safety equipment. However, a smaller proportion of respondents (21.1%) positively acknowledged being experienced in using hydrants or fire hoses. These data emphasize the need for clear education and training in the community on the proper use of this equipment in case of a fire (Table 66).

Table 66. *Overview of respondents based on whether they have used a hydrant or fire hose.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	84	21.1	21.1	23.8
No	316	79.0	79.0	100.0
Total	400	100.0	100.0	

The research reveals significant unfamiliarity among respondents regarding the term "Initial Firefighting," where the majority of respondents (39.0%) have never heard of this term. An additional 21.8% have heard of it very few times, while 18.0% have some knowledge but not extensively. On the other hand, only 8.3% of respondents have heard of "Initial Firefighting" and have extensive knowledge about it, while 11.0% of respondents have absolute knowledge of this term and have heard about it many times. These data indicate the need for broader community education on the importance and application of "Initial Firefighting," which is crucial for increasing safety levels and readiness for firefighting (Table 67).

Table 67. *Overview of respondents' responses to the question: "Have you heard of the term 'Initial Firefighting'?" (1 - I have never heard of it; 5 - I have heard of it many times)*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
1	156	39.0	39.8	39.8
2	87	21.8	22.2	62.0
3	72	18.0	18.4	80.4
4	33	8.3	8.4	88.8
5	44	11.0	11.2	100.0

The research highlights various forms of residential environments among respondents in the community. It is shown that 13.8% of respondents have no houses nearby, while 23.0% have very few houses in their vicinity. An additional 27.3% of respondents have houses nearby, but not many. Considering other aspects of residential arrangements, 11.0% of respondents stated that they have quite a few houses in their neighborhood that are close to them, while 22.8% have many houses, all of which are very close. These data illustrate the diversity of residential conditions and the availability of houses in the vicinity of respondents, which is significant for planning and organizing activities in the event of emergencies (Table 68).

Table 68. *Overview of respondents' responses to the question: "Are the houses in your neighborhood close to each other (distance less than 1 meter)? (1 - none are close; 5 - all are very close)"*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
1	55	13.8	14.1	14.1
2	92	23.0	23.5	37.6
3	109	27.3	27.9	65.5
4	44	11.0	11.3	76.7
5	91	22.8	23.3	100.0

The research findings reveal that a large majority of respondents, specifically 72.5%, believe that fire trucks can access any street in their neighborhood. Conversely, 27.5% of respondents expressed the opinion that fire trucks cannot access all streets in their neighborhood. This aspect of the research provides an outcome that may have significant implications for fire prevention and rapid response in case of fires, highlighting the need for potential improvements in accessibility for expedited access to rescue teams (Table 69).

Table 69. *Overview of respondents' answers to the question: "Can fire trucks access any street in your neighborhood?"*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	290	72.5	72.5	75.5
No	110	27.5	27.5	100.0
Total	400	100.0	100.0	

The research identifies a significant presence of improperly parked cars in the respondents' environment. The majority, specifically 59.8% of respondents, stated that they see improperly parked cars every day. In contrast, there are respondents (3.3%) who claim they never see them. Additional 11.3% of respondents stated that they almost never see them, 12.0% see them but not often, while 11.8% of respondents mentioned that they frequently see improperly parked vehicles. These data emphasize the importance of the issue of improper parking and open a dialogue about the measures needed to raise awareness and promote responsible parking in the community (Table 70).

Table 70. *Overview of respondents' answers to the question: "How often do you see improperly parked cars? (1- I never see them; 5- I see them every day)"*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
1	13	3.3	3.3	3.3
2	45	11.3	11.5	14.8
3	48	12.0	12.2	27.0
4	47	11.8	12.0	39.0
5	239	59.8	61.0	100.0

The research revealed a significant number of respondents who have not undergone any training for handling emergencies (79.5%), while 20.6% of respondents indicated that they had previously received such training. This data underscores the need for widely accessible training and education on prevention and response to emergencies to raise awareness and preparedness for potential hazards (Table 71).

Table 71. *Overview of respondents based on whether they have undergone any training for handling emergencies.*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	82	20.6	20.6	22.3
No	318	79.5	79.5	100.0
Total	400	100.0	100.0	

The research results reveal that a significant number of respondents, specifically 68.8%, who have not undergone training for handling emergencies, have expressed interest in such training. In contrast, 31.3% of respondents state that they are not interested in such training. This data illustrates the potential for introducing educational programs and training in the community, considering the considerable number of those who have not yet had the opportunity to acquire the knowledge and skills necessary for effective and safe handling of emergencies (Table 72).

Table 72. *Overview of respondents' answers to the question: "If you haven't, would you like to undergo some form of training for responding to natural disasters caused by earthquakes?"*

Category	Frequency	Percentages	Valid Percent-	Cumulative Per-

			ages	centages
Yes	275	68.8	68.8	76.8
No	125	31.3	31.3	100.0
Total	400	100.0	100.0	

The research results reveal that a large number of respondents, specifically 56.8%, have acquired and continue to gain knowledge and skills through informal education systems that are crucial for effectively responding to earthquakes. At the same time, the data shows that 43.3% of respondents confirmed that they have not received training and education in this area through informal education systems. Training and raising awareness can significantly contribute to the preparedness and readiness of citizens to respond to emergencies (Table 73).

Table 73. *Overview of respondents' answers to the question: "Have you acquired or are you acquiring knowledge and skills through informal education systems that are important for responding to earthquakes?"*

Category	Frequency	Percentages	Valid Percentages	Cumulative Percentages
Yes	227	56.8	56.8	59.1
No	173	43.3	43.3	100.0
Total	400	100.0	100.0	

7.2. Inferential Statistical Analyses: Exploring Relationships and Patterns in Disaster Resilience to Earthquakes

7.2.1. Inferential Statistical Analysis Based on Participants' Gender

The results of the T-test indicate statistically significant differences between men and women in the analyzed variables. Specifically, regarding households' preparedness for earthquakes (p = 0.00), the results showed a significant difference between genders. Similarly, the analysis revealed statistically significant differences in the perception of house damage (p = 0.01) and knowledge of geological layers beneath the house (p = 0.03) between men and women. Likewise, there is a statistically significant difference in the perception of the construction of reinforced buildings in the local government (p = 0.05) and the perception of the sufficiency of supplies in case of emergencies (p = 0.02) among genders. It's also interesting to note a significant difference in the willingness to participate in the preparation of local government (p = 0.00) between men and women. Furthermore, the results indicate a statistically significant difference in the percep-

tion of awareness that earthquakes can occur in the local government (p = 0.01). Discussions with people in the municipality/city about natural disasters also show a significant difference (p = 0.003), as well as knowledge of the locations of fire extinguishers and hydrants in the neighborhood (p = 0.000) between men and women.

On the other hand, no statistically significant correlation was found with some variables. Specifically, there is no statistically significant relationship with the knowledge that the majority of victims belong to the older population (p = 0.67), nor with knowledge of where older adults, handicapped individuals, and infants live in the community (p = 0.91). Similarly, there is no statistically significant association with dealing with deaf or hearing-impaired individuals (p = 0.33), nor with knowledge of the assistance needed by older adults, disabled individuals, and infants (p = 0.33). The perception that neighbors can self-rescue in the event of an earthquake did not show a statistically significant relationship (p = 0.79), nor did communication with neighbors (p = 0.52). Additionally, there was no statistically significant association with the perception that companies from the municipality/city are helpful in emergencies (p = 0.30), awareness of the term "Initial Fire Suppression?" (p = 0.07), and proximity of houses in the neighborhood (p = 0.11) (Table 53).

The study analyzed differences in perception and preparedness between men and women in the context of natural disasters, particularly earthquakes. The results indicate significant statistical differences between genders in several key variables. Household preparedness for earthquakes shows that men expressed a higher average score (3.21) compared to women (2.77), indicating greater readiness of men for this type of natural disaster. When it comes to the readiness of the municipality/city for earthquakes, the results indicate that men (average score M = 2.62) have significantly more confidence in the preparedness of local authorities compared to women (average score M = 2.35).

Perception of house damage also shows a statistically significant difference between men (average score M = 2.79) and women (average score M = 3.06), with men perceiving less damage to their homes. Regarding knowledge of geological layers beneath the house, the results indicate that men (average score M = 2.56) showed better understanding compared to women (average score M = 2.16), suggesting differences in awareness of geological aspects between genders. The

perception of the construction of reinforced buildings in the local government shows a statistically significant difference, with men (average score M = 3.12) expressing a more positive perception compared to women (average score M = 2.83).

Regarding the perception of the sufficiency of supplies in case of emergencies, the results indicate a statistically significant difference, with men (average score M = 2.55) expressing a more positive attitude compared to women (average score M = 2.06). These results suggest a gender dimension in the perception and preparedness for earthquakes, and that differences between genders may stem from different experiences, knowledge, and risk perceptions. Therefore, it is important to tailor information and education strategies to meet the specific needs of men and women, contributing to overall community preparedness for natural disasters.

Knowledge of where older adults, disabled individuals, and infants live shows a similar average score for both men (2.89) and women (2.88), indicating relatively equal awareness of both genders about the demographic composition of their community. This consistency in perception can contribute to coordinated efforts in protecting the most vulnerable groups during natural disasters. The desire to participate in the preparation of the local government differs between men (average score M = 2.18) and women (average score M = 1.73). Men express a greater desire for active participation in preparations of the local government compared to women. This difference may indicate the need to adjust informational initiatives and programs to encourage greater participation of women in these activities.

The perception of awareness that earthquakes can occur in the local government shows differences between men (average score M = 2.72) and women (average score M = 2.40). Men have a higher perception of awareness of the possibility of earthquakes in the local government compared to women. Such differences indicate the need for additional efforts to raise awareness among the female population about potential hazards. Discussions with people in the municipality/city about natural disasters also show differences between men (average score M = 2.46) and women (average score M = 2.11). Men are more inclined to discuss natural disasters compared to women. Therefore, encouraging open dialogue and joint planning can increase awareness of risks and preparedness in the entire community.

Knowledge of the locations of fire extinguishers and hydrants in the neighborhood also shows significant differences between men (average score M = 2.78) and women (average score M = 1.89). Men are better informed about the locations of fire extinguishers and hydrants in their community compared to women. This difference may indicate the need for targeted education of women about the locations of safety resources, thus enhancing overall community preparedness.

Based on research analyzing the perception and preparedness of men and women in the context of natural disasters, the following recommendations can be drawn. Firstly, it is necessary to focus on raising awareness and preparedness of women regarding earthquakes. Differences in the perception of household preparedness indicate the need for a gender-sensitive approach in designing programs and initiatives that address the specific needs of women in case of natural disasters.

Additionally, the implementation of education and information programs should be targeted and tailored to both genders. Results regarding the perception of the sufficiency of supplies in case of emergencies indicate the need to include both genders in educational activities, with a heavier focus on raising awareness among women. Moreover, special activities should be developed and implemented to increase women's participation in preparations for local government. Inclusive programs that encompass and support both genders in activities related to disaster preparedness are recommended.

Specifically, directing efforts to raise awareness of potential earthquake hazards among female populations can be crucial. This includes activities such as radio and television broadcasting, workshops, and seminars dedicated to earthquake preparedness. Involving women in various phases of the development and implementation of disaster preparedness programs will also contribute to a better understanding of their needs and perceptions in this area. Achieving a balance in informing, educating, and involving both genders is crucial for creating resilient communities that are prepared for the challenges of natural disasters (Table 74).

Table 74. *Results of the independent samples t-test of gender and dependent variables.*

	Levene's	T-test for equality of means

		test for equality of variances								
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Household earthquake readiness	AEV	1.244	.265	3.924	393	.000	.435	.111	.217	.653
	UV			3.926	392.904	.000	.435	.111	.217	.653
Municipality/city earthquake readiness	AEV	2.550	.111	2.705	391	.007	.277	.102	.076	.478
	UV			2.701	382.581	.007	.277	.103	.075	.479
Perception of house damage	AEV	.170	.681	-2.373	391	.018	-.261	.110	-.478	-.045
	UV			-2.37	390.70	.018	-.261	.110	-.478	-.045
Knowledge of geological layers beneath the house	AEV	.324	.570	3.03	392	.003	.398	.131	.141	.656
	UV			3.040	391.546	.003	.398	.131	.141	.656
Perception of the prevalence of reinforced concrete buildings in the local government	AEV	.015	.903	2.853	386	.005	.294	.103	.091	.496
	UV			2.853	385.738	.005	.294	.103	.091	.496
Perception of having sufficient supplies in case of emergencies	AEV	10.219	.002	4.628	382	.000	.493	.106	.283	.702
	UV			4.624	370.477	.000	.493	.107	.283	.702
Knowledge that the majority of casualties and injuries belong to the older population	AEV	4.167	.042	-.427	387	.670	-.065	.129	-.310	.199
	UV			-.427	383.671	.670	-.065	.129	-.310	.199
Knowledge of where older adults, disabled individuals, and children live in the community	AEV	1.766	.185	.111	387	.912	.015	.134	-.248	.278
	UV			.111	385.116	.912	.015	.134	-.248	.278
Knowledge of how to communicate with deaf or hard of hearing individuals	AEV	.002	.967	.960	386	.337	.118	.123	-.124	.361
	UV			.960	385.968	.337	.118	.123	-.124	.361
Knowledge of assistance required by older adults, disabled individuals, and children	AEV	.506	.477	-.967	386	.334	-.119	.123	-.360	.123
	UV			-.967	386.000	.334	-.119	.123	-.360	.123
Desire to participate in local government preparedness	AEV	5.626	.018	3.797	386	.000	.453	.119	.219	.688
	UV			3.79	379.777	.000	.453	.119	.218	.688
Perception of awareness that an	AEV	.735	.392	2.52	388	.012	.313	.124	.069	.558
	UV			2.52	387.306	.012	.313	.124	.069	.558

earthquake can occur in the local government										
Perception that neighbors can self-rescue in the event of an earthquake	AEV	.216	.642	1.762	386	.079	.186	.105	-.022	.393
	UV			1.762	385.992	.079	.186	.105	-.022	.393
Talking to people in the municipality/city about natural disasters	AEV	1.261	.262	3.026	388	.003	.352	.116	.123	.580
	UV			3.025	387.327	.003	.352	.116	.123	.580
Establishing communication with your neighbors	AEV	.122	.727	.630	384	.529	.078	.123	-.165	.320
	UV			.630	383.499	.529	.078	.123	-.165	.320
Perception that companies from the municipality/city are helpful in emergencies	AEV	3.318	.069	1.022	386	.307	.113	.111	-.105	.332
	UV			1.022	382.949	.307	.113	.111	-.105	.332
Knowledge of the location of fire extinguishers and hydrants in the neighborhood	AEV	8.726	.003	6.789	388	.000	.891	.131	.633	1.149
	UV			6.784	380.097	.000	.891	.131	.632	1.149
Awareness of the term "Initial Fire Suppression"	AEV	.045	.832	1.815	388	.070	.249	.137	-.021	.519
	UV			1.815	388.000	.070	.249	.137	-.021	.519
Proximity of houses in the neighborhood	AEV	7.461	.007	-1.574	387	.116	-.216	.137	-.485	.054
	UV			-1.575	384.561	.116	-.216	.137	-.485	.054

Note: AEV (Assumed equal variances); UV (Unequal variances)

Variables	Gender	N	Mean	Std. Deviation	Std. Error Mean
Household preparedness for earthquakes	Males	195	3.21	1.079	.077
	Females	200	2.77	1.124	.079
Readiness of municipalities/cities for earthquakes	Males	194	2.62	1.076	.077
	Females	199	2.35	.951	.067
Perception of house damage	Males	194	2.79	1.062	.076
	Females	199	3.06	1.120	.079
Knowledge of geological layers beneath the house	Males	195	2.56	1.264	.091
	Females	199	2.16	1.335	.095
Perception of the construction of buildings with reinforced structures in the local self-government	Males	193	3.12	1.021	.074
	Females	195	2.83	1.005	.072
Perception of the sufficiency of supplies in case of emergencies	Males	191	2.55	1.127	.082
	Females	193	2.06	.953	.069
Awareness that the majority of the affected and injured individuals be-	Males	194	3.22	1.212	.087
	Females	195	3.28	1.337	.096

long to the older population					
Knowledge of where older adults, people with disabilities, and infants reside in the community.	Males	194	2.89	1.269	.091
	Females	195	2.88	1.368	.098
Knowledge of how to interact with deaf or hard of hearing individuals	Males	193	2.55	1.203	.087
	Females	195	2.43	1.226	.088
Awareness of the assistance needed by older adults, individuals with disabilities, and infants	Males	194	2.83	1.207	.087
	Females	194	2.95	1.208	.087
Desire to participate in local government preparedness	Males	193	2.18	1.243	.089
	Females	195	1.73	1.104	.079
Perception of awareness that an earthquake can occur in the local government	Males	194	2.72	1.195	.086
	Females	196	2.40	1.259	.090
Perception that neighbors can independently rescue themselves in the event of an earthquake	Males	194	3.04	1.035	.074
	Females	194	2.85	1.040	.075
Talking to people in the municipality/city about natural disasters	Males	194	2.46	1.166	.084
	Females	196	2.11	1.129	.081
Establishing communication with your neighbors	Males	193	3.35	1.190	.086
	Females	193	3.27	1.234	.089
Perception of the assistance provided by municipal/city businesses in case of emergencies	Males	194	2.86	1.043	.075
	Females	194	2.74	1.141	.082
Knowledge of the locations of fire extinguishers and hydrants in the neighborhood	Males	194	2.78	1.380	.099
	Females	196	1.89	1.206	.086
Awareness of the term “Initial Fire Suppression”	Males	194	2.42	1.349	.097
	Females	196	2.17	1.363	.097
The proximity of houses in the neighborhood	Males	194	2.94	1.292	.093
	Females	195	3.16	1.407	.101

7.2.2. Inferential Statistical Analysis Based on Participants' Age

The results of Pearson correlation show that there is a statistically significant correlation between age and perception of municipality or city preparedness for earthquake disasters ($r = -0.101$, $p \leq 0.005$ – small correlation). The results indicate that age explains 1.01% of the variance in the assessment of municipality or city preparedness for earthquakes. The negative correlation suggests

that as individuals get older, they assess the municipality or city's preparedness for earthquakes with lower values.

On the other hand, no statistically significant correlation was found between age and the following variables: perception of house damage (r = -0.033); knowledge of geological layers beneath the house (r = -0.081); perception of the construction of reinforced concrete buildings in the local self-government (r = -0.021); knowledge that the majority of victims belong to the elderly population (r = -0.043); knowledge of where the elderly, disabled individuals, and infants live in the community (r = -0.036); knowledge of dealing with deaf or hearing-impaired individuals (r = -0.064); knowledge of assistance required by the elderly, disabled individuals, and infants (r = -0.065); desire to participate in preparing the local self-government (r = 0.042); perception of awareness that earthquakes can occur in the local self-government (r = -0.065); Perception that neighbors can independently rescue themselves in the event of an earthquake (r = 0.057); discussion with people in the municipality/city about natural disasters (r = -0.038); communication with neighbors (r = -0.027); perception of companies in the municipality/city being helpful in emergencies (r = 0.036); knowledge of the location of fire extinguishers and hydrants in the neighborhood (r = 0.046); awareness of the term "initial fire suppression?" (r = 0.034); proximity of houses in the neighborhood (r = 0.059) (Table 75).

Table 75. *Correlation Analysis of Age and Dependent Variables*

		Years of age of the test subject
Household preparedness for earthquakes	Pearson Correlation	-.033
	Sig. (2-tailed)	.518
	N	397
Readiness of municipalities/cities for earthquakes	Pearson Correlation	-.101*
	Sig. (2-tailed)	.045
	N	395
Perception of house damage	Pearson Correlation	-.081
	Sig. (2-tailed)	.109
	N	395
Knowledge of geological layers beneath the house	Pearson Correlation	.081
	Sig. (2-tailed)	.106
	N	396
Perception of the construction of buildings with reinforced structures in the local self-government	Pearson Correlation	-.021
	Sig. (2-tailed)	.673
	N	390
Awareness that the majority of the af-	Pearson Correlation	-.043

fected and injured individuals belong to the older population	Sig. (2-tailed)	.404
	N	386
Knowledge of where older adults, people with disabilities, and infants reside in the community.	Pearson Correlation	-.036
	Sig. (2-tailed)	.474
	N	391
Knowledge of how to interact with deaf or hard of hearing individuals	Pearson Correlation	-.064
	Sig. (2-tailed)	.208
	N	391
Awareness of the assistance needed by older adults, individuals with disabilities, and infants	Pearson Correlation	-.065
	Sig. (2-tailed)	.200
	N	390
Desire to participate in local government preparedness	Pearson Correlation	.042
	Sig. (2-tailed)	.403
	N	390
Перцепција свјесности да се у локалној самоуправа може догодити земљотрес	Pearson Correlation	-.024
	Sig. (2-tailed)	.634
	N	390
Perception that neighbors can independently save themselves in the event of an earthquake	Pearson Correlation	.057
	Sig. (2-tailed)	.260
	N	392
Talking to people in the municipality/city about natural disasters	Pearson Correlation	-.038
	Sig. (2-tailed)	.453
	N	390
Establishing communication with your neighbors	Pearson Correlation	-.027
	Sig. (2-tailed)	.599
	N	392
Perception of the assistance provided by municipal/city businesses in case of emergencies	Pearson Correlation	.036
	Sig. (2-tailed)	.481
	N	388
Knowledge of the locations of fire extinguishers and hydrants in the neighborhood	Pearson Correlation	.046
	Sig. (2-tailed)	.363
	N	390
Awareness of the term “Initial Fire Suppression”?	Pearson Correlation	.034
	Sig. (2-tailed)	.501
	N	392
The proximity of houses in the neighborhood	Pearson Correlation	.059
	Sig. (2-tailed)	.244
	N	392

7.2.3. Inferential Statistical Analysis Based on Participants' Education

In further research, the impact of education level on dependent continuous variables was examined through one-way analysis of variance (ANOVA). Participants were classified into six groups (elementary, secondary, higher vocational, higher education, master's, doctoral). Using the homogeneity of variance test, the equality of variances in results for each of the six groups was examined. Based on the results of Levene's test, the assumption of variance homogeneity was tested. For variables where the assumption was violated, a table of "Robust Tests of Equality of Means" and the results of two tests, Welsh's and

Brown-Forsythe's, which are robust to the assumption of variance equality, were presented. The results of the Welsh's test were used in the study.

According to the results, there is a statistically significant difference between the mean values of the mentioned groups for the following dependent continuous variables: municipality/city readiness for earthquakes ($F = 2.23$, $p = 0.04$); perception of sufficiency of supplies in emergencies ($F = 2.85$, $p = 0.01$); knowledge that the majority of victims belong to the elderly population ($F = 6.00$, $p = 0.00$); knowledge of where older people, disabled persons, and infants live in the community ($F = 2.78$, $p = 0.01$).

On the other hand, no statistically significant difference was found between the mean values of the mentioned groups for the following dependent variables: household readiness for earthquakes ($F = 1.78$, $p = 0.11$); perception of house damage ($F = 0.40$, $p = 0.84$); knowledge of geological layers beneath the house ($F = 1.78$, $p = 0.11$); perception of buildings constructed with reinforced concrete in the local government ($F = 1.51$, $p = 0.18$); knowledge of how to assist deaf or hearing-impaired individuals ($F = 0.15$, $p = 0.97$); knowledge of assistance required by the elderly, disabled persons, and infants ($F = 1.63$, $p = 0.14$); willingness to participate in local government preparedness ($F = 2.17$, $p = 0.56$); perception of the possibility of earthquakes in the local government ($F = 0.37$, $p = 0.86$); perception that neighbors can independently rescue themselves in case of earthquakes ($F = 0.47$, $p = 0.79$); discussion with people in the municipality/city about natural disasters ($F = 0.55$, $p = 0.73$); communication with neighbors ($F = 0.76$, $p = 0.57$); perception of the assistance provided by companies from the municipality/city in emergencies ($F = 2.02$, $p = 0.07$); knowledge of the location of fire extinguishers and hydrants in the neighborhood ($F = 1.41$, $p = 0.21$); awareness of the term "Initial Fire Suppression" ($F = 1.04$, $p = 0.39$); proximity of houses in the neighborhood ($F = 1.66$, $p = 0.14$).

Subsequent comparisons using Tukey's Honestly Significant Difference (HSD) test indicate that the observed mean: municipality/city readiness assessment for earthquake response is statistically significant ($p < 0.05$) and differs among citizens who have completed secondary school ($M = 2.58$, $SD = 1.07$) and those with doctoral degrees ($M = 2.18$, $SD = 1.07$) and elementary school ($M = 1.67$, $SD = 0.51$). Citizens with completed secondary education predominantly assess

municipality/city readiness for earthquake response, while those with completed elementary school and doctoral studies do so to a lesser extent. Regarding citizens with doctoral degrees, this is predominantly emphasized, along with citizens with completed master's studies; perception of sufficiency of supplies in emergencies is statistically significant ($p < 0.05$) and differs among citizens who have completed doctoral studies ($M = 2.88$, $SD = 1.16$) and elementary school ($M = 2.17$, $SD = 1.32$).

Citizens with completed doctoral studies predominantly emphasize having sufficient supplies in emergencies, while those with completed elementary school do so to a lesser extent. In addition to citizens with a doctorate, this is predominantly emphasized by citizens with completed master's studies; knowledge that the majority of victims belong to the elderly population is statistically significant ($p < 0.05$) and differs among citizens who have completed elementary school ($M = 2.17$, $SD = 0.98$) and faculty ($M = 4.03$, $SD = 0.89$). Citizens with completed elementary school predominantly emphasize knowledge that the majority of victims belong to the elderly population, while citizens with completed faculty studies do so to a greater extent; knowledge of where older people, disabled persons, and infants live is statistically significant ($p < 0.05$) and differs among citizens who have completed secondary school ($M = 2.36$, $SD = 1.22$) and faculty ($M = 3.27$, $SD = 1.32$). Citizens who have completed faculty predominantly emphasize knowing the location where older people, disabled persons, and infants live, unlike citizens who have completed elementary school.

Table 76. *One-Way Analysis of Variance (ANOVA) between Education and Dependent Variables.*

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Household preparedness for earthquakes	Between group	11.064	5	2.213	1.784	.115
	Within group	466.266	376	1.240		
	Total	477.330	381			
Readiness of municipalities/cities for earthquakes	Between group	11.419	5	2.284	2.231	.049
	Within group	382.908	374	1.024		
	Total	394.326	379			
Perception of house damage	Between group	2.456	5	.491	.406	.844
	Within group	452.028	374	1.209		

	Total	454.484	379			
Knowledge of geological layers beneath the house	Between group	14.461	5	2.892	1.678	.139
	Within group	646.206	375	1.723		
	Total	660.667	380			
Perception of the construction of buildings with reinforced structures in the local self-government	Between group	7.863	5	1.573	1.510	.186
	Within group	384.366	369	1.042		
	Total	392.229	374			
Perception of the sufficiency of supplies in case of emergencies	Between group	15.566	5	3.113	2.851	.015
	Within group	398.547	365	1.092		
	Total	414.113	370			
Awareness that the majority of the affected and injured individuals belong to the older population	Between group	46.680	5	9.336	6.006	.000
	Within group	575.190	370	1.555		
	Total	621.870	375			
Knowledge of where older adults, people with disabilities, and infants reside in the community.	Between group	24.081	5	4.816	2.781	.018
	Within group	640.770	370	1.732		
	Total	664.851	375			
Knowledge of how to interact with deaf or hard-of-hearing individuals	Between group	1.159	5	.232	.153	.979
	Within group	558.297	369	1.513		
	Total	559.456	374			
Awareness of the assistance needed by older adults, individuals with disabilities, and infants	Between group	12.029	5	2.406	1.636	.149
	Within group	542.489	369	1.470		
	Total	554.517	374			
Desire to participate in local government preparedness	Between group	15.168	5	3.034	2.177	.056
	Within group	514.102	369	1.393		
	Total	529.269	374			
Perception of awareness that an earthquake can occur in the local government	Between group	2.961	5	.592	.375	.866
	Within group	586.281	371	1.580		
	Total	589.241	376			
Perception that neighbors can independently rescue themselves in the event of an earthquake	Between group	2.579	5	.516	.471	.798
	Within group	403.885	369	1.095		
	Total	406.464	374			
Talking to people in the municipality/city about natural disasters	Between group	3.752	5	.750	.554	.735
	Within group	502.773	371	1.355		
	Total	506.525	376			

Establishing communication with your neighbors	Between group	5.766	5	1.153	.769	.572
	Within group	550.202	367	1.499		
	Total	555.968	372			
Perception of the assistance provided by municipal/city businesses in case of emergencies	Between group	12.004	5	2.401	2.026	.074
	Within group	437.186	369	1.185		
	Total	449.189	374			
Knowledge of the locations of fire extinguishers and hydrants in the neighborhood	Between group	13.489	5	2.698	1.431	.212
	Within group	699.577	371	1.886		
	Total	713.066	376			
Awareness of the term “Initial Fire Suppression”?	Between group	9.789	5	1.958	1.047	.390
	Within group	694.015	371	1.871		
	Total	703.804	376			
The proximity of houses in the neighborhood	Between group	15.428	5	3.086	1.665	.142
	Within group	685.633	370	1.853		
	Total	701.061	375			

Robust Tests of Equality of Means					
		Statistica	df1	df2	Sig.
Household preparedness for earthquakes	Brown-Forsythe	1.859	5	92.275	.109
Readiness of municipalities/cities for earthquakes	Brown-Forsythe	2.808	5	130.010	.019
Perception of house damage	Brown-Forsythe	.408	5	105.477	.842
Knowledge of geological layers beneath the house	Brown-Forsythe	1.601	5	106.674	.166
Perception of the construction of buildings with reinforced structures in the local self-government	Brown-Forsythe	1.522	5	106.935	.189
Perception of the sufficiency of supplies in case of emergencies	Brown-Forsythe	2.578	5	47.864	.038
Awareness that the majority of the affected and injured individuals belong to the older population	Brown-Forsythe	6.364	5	92.615	.000
Knowledge of where older adults, people with disabilities, and infants reside in the community.	Brown-Forsythe	3.340	5	140.058	.007
Knowledge of how to interact with deaf or hard of hearing individuals	Brown-Forsythe	.172	5	113.109	.973
Awareness of the assistance needed by older adults, individuals with disabilities, and infants	Brown-Forsythe	1.654	5	96.038	.153
Desire to participate in local government preparedness	Brown-Forsythe	2.264	5	122.790	.052
Perception of awareness that an earthquake can occur in the local government	Brown-Forsythe	.364	5	84.973	.872
Perception that neighbors can independently rescue themselves in the event of an earthquake	Brown-Forsythe	.534	5	99.489	.750

Talking to people in the municipality/city about natural disasters	Brown-Forsythe	.554	5	95.430	.735
Establishing communication with your neighbors	Brown-Forsythe	.825	5	116.990	.535
Perception of the assistance provided by municipal/city businesses in case of emergencies	Brown-Forsythe	1.984	5	89.402	.089
Knowledge of the locations of fire extinguishers and hydrants in the neighborhood	Brown-Forsythe	1.433	5	98.188	.219
Awareness of the term “Initial Fire Suppression”?	Brown-Forsythe	.864	5	65.548	.510
The proximity of houses in the neighborhood	Brown-Forsythe	1.637	5	95.327	.158
a. Asymptotically F distributed.					

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Household preparedness for earthquakes	1	6	2.00	.894	.365	1.06	2.94	1	3
	2	151	3.01	1.143	.093	2.83	3.20	1	5
	3	25	2.60	.913	.183	2.22	2.98	1	4
	4	145	3.00	1.093	.091	2.82	3.18	1	5
	5	38	3.08	1.100	.178	2.72	3.44	1	5
	6	17	2.71	1.359	.329	2.01	3.40	1	5
	Total	382	2.96	1.119	.057	2.85	3.07	1	5
Readiness of municipalities/cities for earthquakes	1	6	1.67	.516	.211	1.12	2.21	1	2
	2	151	2.58	1.079	.088	2.41	2.76	1	5
	3	25	2.08	.759	.152	1.77	2.39	1	3
	4	143	2.48	.992	.083	2.32	2.65	1	5
	5	38	2.37	.970	.157	2.05	2.69	1	4
	6	17	2.18	1.074	.261	1.62	2.73	1	5
	Total	380	2.46	1.020	.052	2.36	2.56	1	5
Perception of house damage	1	6	3.00	.894	.365	2.06	3.94	2	4
	2	151	2.91	1.101	.090	2.74	3.09	1	5
	3	24	2.75	1.073	.219	2.30	3.20	1	5
	4	144	2.93	1.055	.088	2.76	3.10	1	5
	5	38	3.13	1.256	.204	2.72	3.54	1	5
	6	17	3.00	1.173	.284	2.40	3.60	1	5
	Total	380	2.94	1.095	.056	2.83	3.05	1	5
Knowledge of geological layers beneath the house	1	6	1.67	.816	.333	.81	2.52	1	3
	2	151	2.20	1.155	.094	2.01	2.38	1	5
	3	25	2.16	1.313	.263	1.62	2.70	1	5
	4	144	2.39	1.370	.114	2.16	2.61	1	5
	5	38	2.74	1.554	.252	2.23	3.25	1	5
	6	17	2.65	1.656	.402	1.80	3.50	1	5

	Total	381	2.33	1.319	.068	2.20	2.47	1	5
Perception of the construction of buildings with reinforced structures in the local self-government	1	6	2.67	.516	.211	2.12	3.21	2	3
	2	150	2.90	1.002	.082	2.74	3.06	1	5
	3	24	2.54	1.215	.248	2.03	3.05	1	5
	4	142	3.09	1.003	.084	2.93	3.26	1	5
	5	36	3.00	.986	.164	2.67	3.33	1	5
	6	17	2.88	1.219	.296	2.26	3.51	1	5
	Total	375	2.95	1.024	.053	2.85	3.06	1	5
Perception of the sufficiency of supplies in case of emergencies	1	6	2.17	1.329	.543	.77	3.56	1	4
	2	144	2.35	1.013	.084	2.18	2.51	1	5
	3	24	2.00	.834	.170	1.65	2.35	1	3
	4	142	2.09	1.078	.090	1.91	2.27	1	5
	5	38	2.50	1.059	.172	2.15	2.85	1	5
	6	17	2.88	1.166	.283	2.28	3.48	1	5
	Total	371	2.26	1.058	.055	2.16	2.37	1	5
Awareness that the majority of the affected and injured individuals belong to the older population	1	6	2.17	.983	.401	1.13	3.20	1	4
	2	147	2.99	1.285	.106	2.78	3.20	1	5
	3	25	3.12	1.333	.267	2.57	3.67	1	5
	4	144	3.46	1.251	.104	3.25	3.66	1	5
	5	37	4.03	.897	.147	3.73	4.33	2	5
	6	17	3.00	1.458	.354	2.25	3.75	1	5
	Total	376	3.27	1.288	.066	3.14	3.40	1	5
Knowledge of where older adults, people with disabilities, and infants reside in the community.	1	6	3.00	.632	.258	2.34	3.66	2	4
	2	147	2.70	1.257	.104	2.50	2.91	1	5
	3	25	2.36	1.221	.244	1.86	2.86	1	5
	4	144	3.08	1.402	.117	2.85	3.31	1	5
	5	37	3.27	1.326	.218	2.83	3.71	1	5
	6	17	2.65	1.320	.320	1.97	3.33	1	5
	Total	376	2.88	1.332	.069	2.75	3.02	1	5
Knowledge of how to interact with deaf or hard of hearing individuals	1	6	2.17	.408	.167	1.74	2.60	2	3
	2	147	2.50	1.155	.095	2.31	2.68	1	5
	3	25	2.44	1.356	.271	1.88	3.00	1	5
	4	143	2.45	1.309	.109	2.23	2.66	1	5
	5	37	2.57	1.094	.180	2.20	2.93	1	5
	6	17	2.41	1.417	.344	1.68	3.14	1	5
	Total	375	2.47	1.223	.063	2.35	2.60	1	5
Awareness of the assistance needed by older adults, individuals with disabilities, and infants	1	6	2.83	.983	.401	1.80	3.87	2	4
	2	147	2.70	1.202	.099	2.50	2.90	1	5
	3	25	2.76	1.300	.260	2.22	3.30	1	5
	4	143	3.03	1.224	.102	2.83	3.24	1	5
	5	37	3.19	1.076	.177	2.83	3.55	1	5
	6	17	2.88	1.409	.342	2.16	3.61	1	5
	Total	375	2.89	1.218	.063	2.77	3.01	1	5
Desire to participate in local government preparedness	1	6	1.67	.816	.333	.81	2.52	1	3
	2	147	2.14	1.168	.096	1.95	2.33	1	5
	3	25	1.96	1.399	.280	1.38	2.54	1	5
	4	143	1.77	1.136	.095	1.58	1.96	1	5

	5	37	1.84	1.344	.221	1.39	2.29	1	5
	6	17	1.41	1.004	.243	.90	1.93	1	5
	To-tal	375	1.91	1.190	.061	1.79	2.04	1	5
Perception of awareness that an earthquake can occur in the local government	1	6	2.67	1.211	.494	1.40	3.94	1	4
	2	148	2.61	1.215	.100	2.42	2.81	1	5
	3	25	2.64	1.381	.276	2.07	3.21	1	5
	4	144	2.50	1.279	.107	2.29	2.71	1	5
	5	37	2.57	1.237	.203	2.16	2.98	1	5
	6	17	2.24	1.300	.315	1.57	2.90	1	5
	To-tal	377	2.55	1.252	.064	2.42	2.68	1	5
Perception that neighbors can independently save themselves in the event of an earthquake	1	6	2.33	.816	.333	1.48	3.19	1	3
	2	147	2.94	1.061	.088	2.77	3.11	1	5
	3	24	2.92	1.283	.262	2.38	3.46	1	5
	4	144	2.98	1.074	.089	2.80	3.16	1	5
	5	37	2.89	.774	.127	2.63	3.15	1	4
	6	17	2.88	.857	.208	2.44	3.32	1	5
	To-tal	375	2.94	1.042	.054	2.83	3.04	1	5
Talking to people in the municipality/city about natural disasters	1	6	2.33	1.033	.422	1.25	3.42	1	4
	2	148	2.30	1.123	.092	2.12	2.49	1	5
	3	25	2.20	1.258	.252	1.68	2.72	1	5
	4	144	2.19	1.188	.099	1.99	2.38	1	5
	5	37	2.49	1.170	.192	2.10	2.88	1	5
	6	17	2.06	1.197	.290	1.44	2.67	1	5
	To-tal	377	2.26	1.161	.060	2.14	2.38	1	5
Establishing communication with your neighbors	1	6	3.00	.894	.365	2.06	3.94	2	4
	2	148	3.20	1.256	.103	3.00	3.41	1	5
	3	25	3.08	1.256	.251	2.56	3.60	1	5
	4	141	3.38	1.181	.099	3.19	3.58	1	5
	5	36	3.44	1.275	.212	3.01	3.88	1	5
	6	17	3.53	1.231	.298	2.90	4.16	1	5
	To-tal	373	3.30	1.223	.063	3.17	3.42	1	5
Perception of the assistance provided by municipal/city businesses in case of emergencies	1	6	2.33	1.033	.422	1.25	3.42	1	4
	2	147	2.74	1.117	.092	2.56	2.92	1	5
	3	25	2.28	1.173	.235	1.80	2.76	1	5
	4	143	2.88	1.024	.086	2.71	3.05	1	5
	5	37	3.05	1.177	.194	2.66	3.45	1	5
	6	17	2.88	1.054	.256	2.34	3.42	1	5
	To-tal	375	2.79	1.096	.057	2.68	2.91	1	5
Knowledge of the locations of fire extinguishers and hydrants in the neighborhood	1	6	2.00	1.095	.447	.85	3.15	1	3
	2	148	2.25	1.200	.099	2.06	2.44	1	5
	3	25	1.76	1.012	.202	1.34	2.18	1	4
	4	144	2.43	1.480	.123	2.19	2.67	1	5
	5	37	2.35	1.687	.277	1.79	2.91	1	5
	6	17	2.71	1.611	.391	1.88	3.53	1	5
	To-tal	377	2.31	1.377	.071	2.17	2.45	1	5
Awareness of the term “Initial Fire	1	6	1.83	1.602	.654	.15	3.51	1	5
	2	148	2.24	1.242	.102	2.03	2.44	1	5

Suppression"?	3	25	2.12	1.424	.285	1.53	2.71	1	5
	4	144	2.35	1.371	.114	2.12	2.57	1	5
	5	37	2.73	1.644	.270	2.18	3.28	1	5
	6	17	2.35	1.579	.383	1.54	3.16	1	5
	To-tal	377	2.32	1.368	.070	2.18	2.46	1	5
The proximity of houses in the neighborhood	1	6	2.33	1.211	.494	1.06	3.60	1	4
	2	148	3.14	1.265	.104	2.93	3.34	1	5
	3	25	2.96	1.645	.329	2.28	3.64	1	5
	4	144	3.08	1.415	.118	2.84	3.31	1	5
	5	36	3.33	1.373	.229	2.87	3.80	1	5
	6	17	2.35	1.272	.308	1.70	3.01	1	5
	To-tal	376	3.07	1.367	.071	2.93	3.21	1	5

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
Household preparedness for earthquakes	Based on Mean	.650	5	376	.662
	Based on Median	.518	5	376	.762
	Based on Median and with adjusted df	.518	5	366.831	.762
	Based on trimmed mean	.682	5	376	.637
Readiness of municipalities/cities for earth-quakes	Based on Mean	2.167	5	374	.057
	Based on Median	1.581	5	374	.164
	Based on Median and with adjusted df	1.581	5	365.242	.164
	Based on trimmed mean	2.180	5	374	.056
Perception of house damage	Based on Mean	.563	5	374	.728
	Based on Median	.388	5	374	.857
	Based on Median and with adjusted df	.388	5	366.583	.857
	Based on trimmed mean	.585	5	374	.712
Knowledge of geological layers beneath the house	Based on Mean	4.847	5	375	.000
	Based on Median	3.221	5	375	.007
	Based on Median and with adjusted df	3.221	5	338.073	.007
	Based on trimmed mean	4.971	5	375	.000
Perception of the construction of buildings with reinforced structures in the local self-government	Based on Mean	1.367	5	369	.236
	Based on Median	1.212	5	369	.303
	Based on Median and with adjusted df	1.212	5	357.274	.303

	Based on trimmed mean	1.353	5	369	.241
Perception of the sufficiency of supplies in case of emergencies	Based on Mean	.953	5	365	.447
	Based on Median	.685	5	365	.635
	Based on Median and with adjusted df	.685	5	346.378	.635
	Based on trimmed mean	.854	5	365	.513
Awareness that the majority of the affected and injured individuals belong to the older population	Based on Mean	3.125	5	370	.009
	Based on Median	2.161	5	370	.058
	Based on Median and with adjusted df	2.161	5	321.547	.058
	Based on trimmed mean	2.959	5	370	.012
Knowledge of where older adults, people with disabilities, and infants reside in the community.	Based on Mean	1.546	5	370	.175
	Based on Median	1.199	5	370	.309
	Based on Median and with adjusted df	1.199	5	365.319	.309
	Based on trimmed mean	1.569	5	370	.168
Knowledge of how to interact with deaf or hard of hearing individuals	Based on Mean	3.431	5	369	.005
	Based on Median	1.975	5	369	.082
	Based on Median and with adjusted df	1.975	5	363.664	.082
	Based on trimmed mean	3.359	5	369	.006
Awareness of the assistance needed by older adults, individuals with disabilities, and infants	Based on Mean	.822	5	369	.534
	Based on Median	.792	5	369	.556
	Based on Median and with adjusted df	.792	5	366.983	.556
	Based on trimmed mean	.821	5	369	.535
Desire to participate in local government preparedness	Based on Mean	2.228	5	369	.051
	Based on Median	1.666	5	369	.142
	Based on Median and with adjusted df	1.666	5	277.003	.143
	Based on trimmed mean	2.374	5	369	.039
Perception of awareness that an earthquake can occur in the local government	Based on Mean	.207	5	371	.959
	Based on Median	.069	5	371	.997
	Based on Median and with adjusted df	.069	5	353.613	.997
	Based on trimmed mean	.182	5	371	.969
Perception that neighbors can independently rescue themselves in the event of an earthquake	Based on Mean	1.525	5	369	.181
	Based on Median	1.739	5	369	.125
	Based on Median and with adjusted df	1.739	5	354.813	.125

	Based on trimmed mean	1.575	5	369	.166
Talking to people in the municipality/city about natural disasters	Based on Mean	.525	5	371	.757
	Based on Median	.465	5	371	.802
	Based on Median and with adjusted df	.465	5	362.566	.802
	Based on trimmed mean	.449	5	371	.814
Establishing communication with your neighbors	Based on Mean	.730	5	367	.601
	Based on Median	.429	5	367	.828
	Based on Median and with adjusted df	.429	5	361.829	.828
	Based on trimmed mean	.757	5	367	.581
Perception of the assistance provided by municipal/city businesses in case of emergencies	Based on Mean	1.584	5	369	.164
	Based on Median	1.776	5	369	.117
	Based on Median and with adjusted df	1.776	5	365.511	.117
	Based on trimmed mean	1.536	5	369	.178
Knowledge of the locations of fire extinguishers and hydrants in the neighborhood	Based on Mean	6.017	5	371	.000
	Based on Median	2.552	5	371	.027
	Based on Median and with adjusted df	2.552	5	261.437	.028
	Based on trimmed mean	5.675	5	371	.000
Awareness of the term “Initial Fire Suppression”?	Based on Mean	2.543	5	371	.028
	Based on Median	2.033	5	371	.073
	Based on Median and with adjusted df	2.033	5	335.876	.074
	Based on trimmed mean	2.596	5	371	.025
The proximity of houses in the neighborhood	Based on Mean	1.362	5	370	.238
	Based on Median	1.463	5	370	.201
	Based on Median and with adjusted df	1.463	5	366.556	.201
	Based on trimmed mean	1.371	5	370	.234

7.2.4 Inferential statistical analysis based on the marital status of the respondents

In further research, the impact of marital status on dependent continuous variables was examined through one-way analysis of variance (ANOVA). Participants were classified into six groups (single, in a relationship, engaged, married, divorced, widowed). Using the homoge-

neity of variance test, the equality of variances in the results for each of the six groups was examined. Based on the results of Levene's test, the assumption of variance homogeneity was tested. For variables where the assumption was violated, a table of "Robust Tests of Equality of Means" and the results of two tests, Welsh and Brown-Forsythe, which are robust against the assumption of variance equality, were presented. Within the study, the results of the Welsh test were utilized.

According to the results, there is a statistically significant difference between the mean values of the specified groups for the following dependent continuous variables: perception of adequacy of supplies in case of emergencies ($F = 2.63$, $p = 0.34$). Subsequent comparisons using Tukey's HSD indicate that the observed mean perception of adequacy of supplies in case of emergencies is statistically significant ($p < 0.05$) and significantly differs among individuals who are engaged to the greatest extent (M = 3.22, SD = 0.99), indicating they have sufficient supplies in case of emergencies compared to those who are in a relationship (M = 2.00, SD = 1.00), married (M = 2.19, SD = 1.13), divorced (M = 2.30, SD = 0.98), etc.

On the other hand, no statistically significant difference was found between the mean values of the specified groups for the following dependent variables: household readiness for earthquakes ($F = 0.31$, $p = 0.86$); municipality/city preparedness for earthquakes ($F = 1.90$, $p = 0.10$); perception of house damage ($F = 1.71$, $p = 0.14$); knowledge of geological layers beneath the house ($F = 0.27$, $p = 0.89$); perception of buildings constructed with reinforced structures in the local government ($F = 1.02$, $p = 0.39$); knowledge that the majority of victims and injured belong to the older population ($F = 0.19$, $p = 0.94$); knowledge of where older people, persons with disabilities, and infants reside in the community ($F = 0.19$, $p = 0.94$); knowledge of dealing with deaf or hard of hearing individuals ($F = 1.59$, $p = 0.17$); knowledge of assistance required by older people, persons with disabilities, and infants ($F = 1.59$, $p = 0.17$); participation in local government preparedness activities ($F = 1.59$, $p = 0.17$); perception of awareness that earthquakes can occur in the local government ($F = 0.36$, $p = 0.17$); Perception that neighbors can independently rescue themselves in the event of an earthquake ($F = 0.95$, $p = 0.43$); discussing with people in the municipality/city about natural disasters ($F = 1.65$, $p = 0.15$); establishing communication with neighbors ($F = 2.16$, $p = 0.07$); perception that companies from the municipality/city can help in case of

emergencies (F = 1.48, p = 0.20); knowledge of the location of fire extinguishers and hydrants in the neighborhood (F = 1.34, p = 0.26); awareness of the term "initial fire extinguishment" (F = 0.74, p = 0.56); proximity of houses in the neighborhood (F = 0.81, p = 0.51) (Table 77).

Table 77. *One-Way Analysis of Variance (ANOVA) between Marital Status and Dependent Variables.*

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Household preparedness for earthquakes	Between groups	1.600	4	.400	.316	.867
	Within groups	490.308	387	1.267		
	Total	491.908	391			
Readiness of municipalities/cities for earthquakes	Between groups	7.885	4	1.971	1.909	.108
	Within groups	397.605	385	1.033		
	Total	405.490	389			
Perception of house damage	Between groups	8.166	4	2.042	1.713	.146
	Within groups	458.965	385	1.192		
	Total	467.131	389			
Knowledge of geological layers beneath the house	Between groups	1.901	4	.475	.275	.894
	Within groups	666.795	386	1.727		
	Total	668.696	390			
Perception of the construction of buildings with reinforced structures in the local self-government	Between groups	4.303	4	1.076	1.026	.393
	Within groups	398.258	380	1.048		
	Total	402.561	384			
Perception of the sufficiency of supplies in case of emergencies	Between groups	11.982	4	2.995	2.632	.034
	Within groups	427.850	376	1.138		
	Total	439.832	380			
Awareness that the majority of the affected and injured individuals belong to the older population	Between groups	1.275	4	.319	.193	.942
	Within groups	628.849	381	1.651		
	Total	630.124	385			
Knowledge of where older adults, people with disabilities, and infants reside in the community	Between groups	3.477	4	.869	.495	.739
	Within groups	669.168	381	1.756		

	Total	672.645	385			
Knowledge of how to interact with deaf or hard of hearing individuals	Between groups	9.468	4	2.367	1.593	.176
	Within groups	564.765	380	1.486		
	Total	574.234	384			
Awareness of the assistance needed by older adults, individuals with disabilities, and infants	Between groups	2.350	4	.587	.403	.806
	Within groups	553.848	380	1.457		
	Total	556.197	384			
Participation in local government preparations	Between groups	12.699	4	3.175	2.253	.063
	Within groups	535.363	380	1.409		
	Total	548.062	384			
Perception of awareness that an earthquake can occur in the local government	Between groups	2.201	4	.550	.362	.836
	Within groups	581.463	382	1.522		
	Total	583.664	386			
Perception that neighbors can independently rescue themselves in the event of an earthquake	Between groups	4.222	4	1.056	.955	.432
	Within groups	419.840	380	1.105		
	Total	424.062	384			
Talking to people in the municipality/city about natural disasters	Between groups	8.847	4	2.212	1.659	.159
	Within groups	509.205	382	1.333		
	Total	518.052	386			
Establishing communication with your neighbors	Between groups	12.732	4	3.183	2.164	.072
	Within groups	556.041	378	1.471		
	Total	568.773	382			
Perception of the assistance provided by municipal/city businesses in case of emergencies	Between groups	7.030	4	1.758	1.484	.206
	Within groups	449.967	380	1.184		
	Total	456.997	384			
Knowledge of the locations of fire extinguishers and hydrants in the neighborhood	Between groups	9.759	4	2.440	1.304	.268
	Within groups	714.510	382	1.870		
	Total	724.269	386			
Awareness of the term “Initial Fire Suppression”	Between groups	5.530	4	1.382	.745	.562
	Within groups	709.297	382	1.857		
	Total	714.827	386			
The proximity of houses in the neighborhood	Between groups	6.035	4	1.509	.818	.514
	Within groups	702.787	381	1.845		
	Total	708.821	385			

Descriptives									
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Household preparedness for earthquakes	2	3	3.33	1.528	.882	-.46	7.13	2	5
	3	64	3.19	1.194	.149	2.89	3.49	1	5
	4	162	2.98	1.109	.087	2.80	3.15	1	5
	5	118	2.96	1.049	.097	2.77	3.15	1	5
	6	40	2.78	1.209	.191	2.39	3.16	1	5
	Total	387	2.99	1.119	.057	2.88	3.10	1	5
Readiness of municipalities/cities for earthquakes	2	3	2.33	.577	.333	.90	3.77	2	3
	3	64	2.77	1.080	.135	2.50	3.04	1	5
	4	160	2.49	1.070	.085	2.32	2.65	1	5
	5	118	2.42	.871	.080	2.26	2.58	1	5
	6	40	2.20	1.043	.165	1.87	2.53	1	5
	Total	385	2.48	1.016	.052	2.38	2.58	1	5
Perception of house damage	2	3	4.33	1.155	.667	1.46	7.20	3	5
	3	63	2.75	.999	.126	2.49	3.00	1	5
	4	162	2.94	1.135	.089	2.76	3.11	1	5
	5	117	2.96	1.054	.097	2.76	3.15	1	5
	6	40	3.00	1.198	.189	2.62	3.38	1	5
	Total	385	2.93	1.101	.056	2.82	3.04	1	5
Knowledge of geological layers beneath the house	2	3	2.67	1.528	.882	-1.13	6.46	1	4
	3	64	2.30	1.094	.137	2.02	2.57	1	5
	4	162	2.39	1.343	.106	2.18	2.60	1	5
	5	117	2.39	1.345	.124	2.15	2.64	1	5
	6	40	2.08	1.474	.233	1.60	2.55	1	5
	Total	386	2.34	1.318	.067	2.21	2.48	1	5
Perception of the construction of buildings with reinforced structures in the local self-government	2	3	2.33	.577	.333	.90	3.77	2	3
	3	63	3.22	.991	.125	2.97	3.47	1	5
	4	159	2.87	1.036	.082	2.71	3.04	1	5
	5	116	3.04	.982	.091	2.86	3.22	1	5
	6	39	2.77	1.087	.174	2.42	3.12	1	5
	Total	380	2.97	1.022	.052	2.87	3.07	1	5
Perception of the sufficiency of supplies in case of emergencies	2	3	2.00	1.000	.577	-.48	4.48	1	3
	3	61	2.46	1.010	.129	2.20	2.72	1	5
	4	157	2.19	1.133	.090	2.01	2.37	1	5
	5	116	2.30	.989	.092	2.12	2.48	1	5
	6	39	2.41	1.044	.167	2.07	2.75	1	5
	Total	376	2.29	1.060	.055	2.18	2.40	1	5
Awareness that the majority of the affected and injured individuals belong to the older population	2	3	3.33	1.528	.882	-.46	7.13	2	5
	3	63	3.05	1.128	.142	2.76	3.33	1	5
	4	160	3.12	1.375	.109	2.90	3.33	1	5
	5	115	3.44	1.164	.109	3.23	3.66	1	5
	6	40	3.73	1.281	.203	3.32	4.13	1	5
	Total	381	3.27	1.279	.066	3.14	3.40	1	5
Knowledge of where older adults, people with disabilities, and infants reside in the community	2	3	3.33	.577	.333	1.90	4.77	3	4
	3	63	2.89	1.166	.147	2.60	3.18	1	5
	4	160	2.78	1.457	.115	2.55	3.01	1	5
	5	115	2.90	1.256	.117	2.67	3.14	1	5
	6	40	3.15	1.350	.213	2.72	3.58	1	5

	Total	381	2.88	1.336	.068	2.74	3.01	1	5
Knowledge of how to interact with deaf or hard of hearing individuals	2	3	2.33	1.155	.667	-.54	5.20	1	3
	3	63	2.51	1.076	.136	2.24	2.78	1	5
	4	159	2.41	1.284	.102	2.21	2.61	1	5
	5	115	2.68	1.232	.115	2.45	2.91	1	5
	6	40	2.25	1.214	.192	1.86	2.64	1	5
	Total	380	2.49	1.230	.063	2.37	2.61	1	5
Awareness of the assistance needed by older adults, individuals with disabilities, and infants	2	3	3.67	1.155	.667	.80	6.54	3	5
	3	63	2.57	1.103	.139	2.29	2.85	1	5
	4	160	2.76	1.241	.098	2.57	2.96	1	5
	5	114	3.23	1.129	.106	3.02	3.44	1	5
	6	40	2.85	1.312	.207	2.43	3.27	1	5
	Total	380	2.89	1.214	.062	2.76	3.01	1	5
Participation in local government preparations	2	3	2.00	1.000	.577	-.48	4.48	1	3
	3	63	2.10	1.146	.144	1.81	2.38	1	5
	4	159	2.01	1.240	.098	1.81	2.20	1	5
	5	115	1.85	1.086	.101	1.65	2.05	1	5
	6	40	1.58	1.279	.202	1.17	1.98	1	5
	Total	380	1.93	1.186	.061	1.81	2.05	1	5
Perception of awareness that an earthquake can occur in the local government	2	3	2.00	1.000	.577	-.48	4.48	1	3
	3	63	2.90	1.214	.153	2.60	3.21	1	5
	4	161	2.50	1.295	.102	2.30	2.70	1	5
	5	115	2.52	1.127	.105	2.31	2.73	1	5
	6	40	2.42	1.375	.217	1.99	2.86	1	5
	Total	382	2.56	1.244	.064	2.44	2.69	1	5
Perception that neighbors can independently rescue themselves in the event of an earthquake	2	3	2.67	1.155	.667	-.20	5.54	2	4
	3	63	3.19	1.162	.146	2.90	3.48	1	5
	4	159	2.81	.990	.079	2.65	2.96	1	5
	5	115	2.97	1.042	.097	2.77	3.16	1	5
	6	40	3.13	.992	.157	2.81	3.44	1	5
	Total	380	2.95	1.043	.053	2.84	3.06	1	5
Talking to people in the municipality/city about natural disasters	2	3	3.00	.000	.000	3.00	3.00	3	3
	3	63	2.35	1.152	.145	2.06	2.64	1	5
	4	161	2.35	1.247	.098	2.16	2.55	1	5
	5	115	2.13	1.120	.104	1.92	2.34	1	5
	6	40	2.08	.944	.149	1.77	2.38	1	5
	Total	382	2.26	1.164	.060	2.14	2.38	1	5
Establishing communication with your neighbors	2	3	3.67	1.155	.667	.80	6.54	3	5
	3	63	3.27	1.358	.171	2.93	3.61	1	5
	4	161	3.22	1.248	.098	3.02	3.41	1	5
	5	112	3.37	1.155	.109	3.15	3.58	1	5
	6	39	3.64	1.038	.166	3.30	3.98	1	5
	Total	378	3.32	1.221	.063	3.19	3.44	1	5
Perception of the assistance provided by municipal/city businesses in case of emergencies	2	3	3.67	.577	.333	2.23	5.10	3	4
	3	63	2.86	1.162	.146	2.56	3.15	1	5
	4	160	2.76	1.097	.087	2.58	2.93	1	5
	5	115	2.83	1.045	.097	2.63	3.02	1	5
	6	39	2.82	1.097	.176	2.46	3.18	1	5
	Total	380	2.81	1.088	.056	2.70	2.92	1	5
Knowledge of the locations of fire extinguishers and hydrants in the neighborhood	2	3	2.00	1.000	.577	-.48	4.48	1	3
	3	63	2.60	1.264	.159	2.28	2.92	1	5
	4	161	2.26	1.412	.111	2.04	2.48	1	5
	5	115	2.31	1.334	.124	2.07	2.56	1	5
	6	40	2.23	1.544	.244	1.73	2.72	1	5
	Total	382	2.33	1.377	.070	2.19	2.47	1	5

Awareness of the term "Initial Fire Suppression"	2	3	3.00	.000	.000	3.00	3.00	3	3
	3	63	2.17	1.339	.169	1.84	2.51	1	5
	4	161	2.36	1.353	.107	2.15	2.57	1	5
	5	115	2.32	1.348	.126	2.07	2.57	1	5
	6	40	2.20	1.506	.238	1.72	2.68	1	5
	Total	382	2.31	1.359	.070	2.17	2.44	1	5
The proximity of houses in the neighborhood	2	3	2.33	.577	.333	.90	3.77	2	3
	3	63	3.00	1.344	.169	2.66	3.34	1	5
	4	161	3.12	1.373	.108	2.91	3.34	1	5
	5	114	3.19	1.330	.125	2.95	3.44	1	5
	6	40	2.78	1.459	.231	2.31	3.24	1	5
	Total	381	3.08	1.362	.070	2.94	3.22	1	5

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
Household preparedness for earthquakes	Based on the mean value	1.024	4	382	.394
	Based on the median value	.551	4	382	.698
	Based on the median value with the attached degrees of freedom	.551	4	377.217	.698
	Based on the mean value with attached values	1.075	4	382	.369
Readiness of municipalities/cities for earthquakes	Based on the mean value	2.063	4	380	.085
	Based on the median value	1.732	4	380	.142
	Based on the median value with the attached degrees of freedom	1.732	4	376.079	.142
	Based on the mean value with attached values	2.089	4	380	.082
Perception of house damage	Based on the mean value	.647	4	380	.630
	Based on the median value	.861	4	380	.488
	Based on the median value with the attached degrees of freedom	.861	4	373.669	.488
	Based on the mean value with attached values	.630	4	380	.641
Knowledge of geological layers beneath the house	Based on the mean value	1.552	4	381	.187
	Based on the median value	.630	4	381	.641
	Based on the median value with the attached degrees of freedom	.630	4	296.808	.642
	Based on the mean value with attached values	1.350	4	381	.251
Perception of the construction of buildings with reinforced structures in the local self-government	Based on the mean value	.487	4	375	.746
	Based on the median value	.458	4	375	.766
	Based on the median value with the attached degrees of freedom	.458	4	372.043	.766

	Based on the mean value with attached values	.521	4	375	.721
Perception of the sufficiency of supplies in case of emergencies	Based on the mean value	.629	4	371	.642
	Based on the median value	.249	4	371	.910
	Based on the median value with the attached degrees of freedom	.249	4	364.325	.910
	Based on the mean value with attached values	.403	4	371	.806
Awareness that the majority of the affected and injured individuals belong to the older population	Based on the mean value	2.753	4	376	.028
	Based on the median value	2.366	4	376	.052
	Based on the median value with the attached degrees of freedom	2.366	4	359.272	.053
	Based on the mean value with attached values	2.813	4	376	.025
Knowledge of where older adults, people with disabilities, and infants reside in the community	Based on the mean value	3.820	4	376	.005
	Based on the median value	3.600	4	376	.007
	Based on the median value with the attached degrees of freedom	3.600	4	373.139	.007
	Based on the mean value with attached values	3.852	4	376	.004
Knowledge of how to interact with deaf or hard of hearing individuals	Based on the mean value	1.477	4	375	.208
	Based on the median value	.828	4	375	.508
	Based on the median value with the attached degrees of freedom	.828	4	370.926	.508
	Based on the mean value with attached values	1.328	4	375	.259
Awareness of the assistance needed by older adults, individuals with disabilities, and infants	Based on the mean value	.945	4	375	.438
	Based on the median value	.738	4	375	.567
	Based on the median value with the attached degrees of freedom	.738	4	368.135	.567
	Based on the mean value with attached values	.981	4	375	.418
Participation in local government preparations	Based on the mean value	1.663	4	375	.158
	Based on the median value	1.289	4	375	.274
	Based on the median value with the attached degrees of freedom	1.289	4	340.570	.274
	Based on the mean value with attached values	1.977	4	375	.097
Perception of awareness that an earthquake can occur in the local government	Based on the mean value	1.813	4	377	.126
	Based on the median value	.839	4	377	.501
	Based on the median value with the attached degrees of freedom	.839	4	371.249	.501

	Based on the mean value with attached values	1.692	4	377	.151
Perception that neighbors can independently rescue themselves in the event of an earthquake	Based on the mean value	.994	4	375	.411
	Based on the median value	.762	4	375	.551
	Based on the median value with the attached degrees of freedom	.762	4	368.539	.551
	Based on the mean value with attached values	1.072	4	375	.370
Talking to people in the municipality/city about natural disasters	Based on the mean value	6.082	4	377	.000
	Based on the median value	4.724	4	377	.001
	Based on the median value with the attached degrees of freedom	4.724	4	373.690	.001
	Based on the mean value with attached values	6.200	4	377	.000
Establishing communication with your neighbors	Based on the mean value	1.518	4	373	.196
	Based on the median value	1.480	4	373	.208
	Based on the median value with the attached degrees of freedom	1.480	4	365.948	.208
	Based on the mean value with attached values	1.542	4	373	.189
Perception of the assistance provided by municipal/city businesses in case of emergencies	Based on the mean value	.690	4	375	.599
	Based on the median value	.673	4	375	.611
	Based on the median value with the attached degrees of freedom	.673	4	373.659	.611
	Based on the mean value with attached values	.713	4	375	.584
Knowledge of the locations of fire extinguishers and hydrants in the neighborhood	Based on the mean value	1.504	4	377	.200
	Based on the median value	.495	4	377	.739
	Based on the median value with the attached degrees of freedom	.495	4	294.784	.739
	Based on the mean value with attached values	1.173	4	377	.322
Awareness of the term “Initial Fire Suppression”	Based on the mean value	2.528	4	377	.040
	Based on the median value	1.129	4	377	.343
	Based on the median value with the attached degrees of freedom	1.129	4	301.351	.343
	Based on the mean value with attached values	2.218	4	377	.066
The proximity of houses in the neighborhood	Based on the mean value	1.011	4	376	.402
	Based on the median value	.986	4	376	.415
	Based on the median value with the attached degrees of freedom	.986	4	372.861	.415

	Based on the mean value with attached values	1.048	4	376	.382

7.2.5. Inferential statistical analysis based on respondents' achieved parenthood

The results of the t-test indicate a statistically significant difference between respondents who are parents and those who are not in the analyzed variables. Regarding household preparedness for earthquakes, a statistically significant difference (p = 0.04) was found between parents and non-parents. Additionally, the analysis showed that there is a difference in the perception of whether local businesses are helpful in case of emergencies (p = 0.04).

On the other hand, no statistically significant association was found with the following variables: municipality/city readiness for earthquakes (p = 0.55); perception of house damage (p = 0.58); knowledge of geological layers beneath the house (p = 0.10); perception of the construction of buildings with reinforced structures in the local government (p = 0.18); perception of sufficiency of supplies in case of emergencies (p = 0.82); knowledge that the majority of victims belong to the older population (p = 0.08); knowledge of where older people, persons with disabilities, and infants reside in the community (p = 0.55); knowledge of dealing with deaf individuals (p = 0.73); knowledge of assistance required by older people, disabled individuals, and infants (p = 0.56); participation in local government preparedness (p = 0.91); perception of the possibility of earthquakes in the local government (p = 0.15); perception that neighbors can save themselves in case of earthquakes (p = 0.38); discussion with people in the municipality/city about natural disasters (p = 0.92); communication with neighbors (p = 0.64); knowledge of the location of fire extinguishers and hydrants in the neighborhood (p = 0.10); awareness of the term "initial fire suppression" (p = 0.08); proximity of houses in the neighborhood (p = 0.52).

The research results on household preparedness for earthquakes, represented by ratings on a Likert scale (1 - unprepared to 5 - completely prepared), provide significant insights into respondents' perception regarding their readiness for earthquakes. The average rating for household preparedness among respondents who are parents is 3.12, while it is lower for non-parents at 2.88. This difference in average ratings indicates a statistically significant dif-

ference (p = 0.04), suggesting different perceptions and preparedness regarding the potential parental obligations and responsibilities. This raises questions about how family status can influence awareness and preparation for earthquakes. It is possible that parents, having responsibilities towards their children, have a greater awareness of the necessity of preparedness for emergencies such as earthquakes. Given these results, education and safety promotion measures can be targeted as additional support for the group that is less prepared, in this case, respondents who are not parents. Additionally, it is important to highlight the practical utility of such results in designing awareness-raising and educational programs on earthquake safety. Different groups may require different approaches and activities to enhance their preparedness. Such research has the potential to contribute to optimizing resources and increasing the effectiveness of safety programs in the community. The results on household preparedness for earthquakes enable a deeper understanding of the dynamics between parents and non-parents in the context of emergency preparedness. This analysis can serve as a basis for designing and implementing mutually supportive and effective safety programs and initiatives (Table 78).

Table 78. *T-Test of Parenthood and Dependent Variables*

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Household preparedness for earthquakes	Assumed equal variances	.207	.650	2.050	395	.041	.232	.113	.009	.455
	Variances are not assumed to be equal			2.057	371.028	.040	.232	.113	.010	.454
Readiness of municipalities/cities for earthquakes	Assumed equal variances	.020	.888	.589	393	.556	.061	.104	-.143	.266
	Variances			.589	364.899	.556	.061	.104	-.143	.266

	are not assumed to be equal									
Perception of house damage	Assumed equal variances	1.213	.271	.554	393	.580	.062	.111	-.157	.281
	Variances are not assumed to be equal			.547	347.281	.585	.062	.113	-.160	.284
Knowledge of geological layers beneath the house	Assumed equal variances	1.807	.180	1.623	394	.105	.216	.133	-.046	.477
	Variances are not assumed to be equal			1.613	357.828	.108	.216	.134	-.047	.479
Perception of the construction of buildings with reinforced structures in the local self-government	Assumed equal variances	.896	.344	1.335	388	.183	.139	.104	-.066	.344
	Variances are not assumed to be equal			1.329	354.463	.185	.139	.105	-.067	.345
Perception of the sufficiency of supplies in case of emergencies	Assumed equal variances	1.566	.212	.223	384	.823	.025	.110	-.192	.241
	Variances are not assumed to be equal			.221	346.437	.825	.025	.111	-.194	.243
Awareness that the majority of the affected and injured individuals belong to the older population	Assumed equal variances	.002	.969	-1.731	389	.084	-.225	.130	-.480	.030
	Variances are not assumed to be equal			-1.727	359.899	.085	-.225	.130	-.481	.031
Understanding where older individuals, persons with disabilities, and infants live within the community.	Assumed equal variances	5.732	.017	-.342	389	.733	-.046	.135	-.312	.219
	Variances are not assumed to be equal			-.337	342.418	.736	-.046	.137	-.316	.223
Knowledge of how to interact with deaf or hard of hearing individuals	Assumed equal variances	1.173	.280	-.727	388	.468	-.091	.125	-.336	.155
	Variances are not			-.722	353.236	.471	-.091	.126	-.338	.156

	assumed to be equal									
Awareness of the assistance needed by older adults, individuals with disabilities, and infants	Assumed equal variances	.381	.537	-.577	388	.564	-.071	.123	-.313	.171
	Variances are not assumed to be equal			-.576	360.921	.565	-.071	.123	-.314	.172
Participation in local government preparations	Assumed equal variances	.158	.691	-.109	388	.913	-.013	.122	-.253	.227
	Variances are not assumed to be equal			-.109	363.766	.913	-.013	.122	-.253	.227
Perception of awareness that an earthquake can occur in the local government	Assumed equal variances	5.908	.016	1.412	390	.159	.178	.126	-.070	.426
	Variances are not assumed to be equal			1.391	341.978	.165	.178	.128	-.074	.430
Perception that neighbors can independently rescue themselves in the event of an earthquake	Assumed equal variances	1.425	.233	.862	388	.389	.092	.107	-.118	.303
	Variances are not assumed to be equal			.853	347.937	.394	.092	.108	-.121	.305
Talking to people in the municipality/city about natural disasters	Assumed equal variances	.997	.319	-.098	390	.922	-.012	.118	-.244	.221
	Variances are not assumed to be equal			-.097	359.895	.923	-.012	.119	-.245	.222
Establishing communication with your neighbors	Assumed equal variances	1.371	.242	1.854	386	.064	.230	.124	-.014	.474
	Variances are not assumed to be equal			1.851	361.363	.065	.230	.124	-.014	.475
Perception of the assistance provided by municipal/city businesses in case of emergencies	Assumed equal variances	.001	.981	1.947	388	.049	.216	.111	-.002	.435
	Variances are not assumed			1.942	361.724	.049	.216	.111	-.003	.435

	to be equal									
Knowledge of the locations of fire extinguishers and hydrants in the neighborhood	Assumed equal variances	1.800	.180	1.624	390	.105	.227	.140	-.048	.501
	Variances are not assumed to be equal			1.612	354.652	.108	.227	.141	-.050	.503
Awareness of the term “Initial Fire Suppression”	Assumed equal variances	.014	.904	-1.707	390	.089	-.236	.138	-.507	.036
	Variances are not assumed to be equal			-1.703	362.647	.089	-.236	.138	-.508	.036
The proximity of houses in the neighborhood	Assumed equal variances	1.812	.179	-.638	389	.524	-.088	.138	-.361	.184
	Variances are not assumed to be equal			-.631	350.543	.528	-.088	.140	-.363	.187

Group statistics					
	Parenthood	N	Mean	Std. Deviation	Std. Error Mean
Household preparedness for earthquakes	1	171	3.12	1.100	.084
	2	226	2.88	1.129	.075
Readiness of municipalities/cities for earthquakes	1	170	2.52	1.022	.078
	2	225	2.46	1.026	.068
Perception of house damage	1	171	2.96	1.155	.088
	2	224	2.90	1.052	.070
Knowledge of geological layers beneath the house	1	171	2.47	1.343	.103
	2	225	2.26	1.287	.086
Perception of the construction of buildings with reinforced structures in the local self-government	1	169	3.05	1.042	.080
	2	221	2.91	1.003	.067
Perception of the sufficiency of supplies in case of emergencies	1	169	2.32	1.120	.086
	2	217	2.29	1.034	.070
Awareness that the majority of the affected and injured individuals belong to the older population	1	170	3.12	1.288	.099
	2	221	3.35	1.262	.085
Knowledge of where older adults, people with disabilities, and infants reside in the community	1	170	2.86	1.403	.108
	2	221	2.90	1.260	.085
Knowledge of how to interact with deaf or hard of hearing individuals	1	170	2.44	1.259	.097
	2	220	2.53	1.191	.080
Awareness of the assistance needed by older adults, individuals with disabilities, and infants	1	170	2.85	1.216	.093
	2	220	2.92	1.198	.081
Participation in local government preparations	1	170	1.94	1.195	.092
	2	220	1.95	1.197	.081
Perception of awareness that an earthquake can occur in the local government	1	171	2.67	1.320	.101
	2	221	2.49	1.170	.079
Perception that neighbors can independently rescue	1	170	3.01	1.096	.084

themselves in the event of an earthquake	2	220	2.91	1.010	.068
Talking to people in the municipality/city about natural disasters	1	171	2.27	1.182	.090
	2	221	2.28	1.145	.077
Establishing communication with your neighbors	1	170	3.44	1.221	.094
	2	218	3.21	1.207	.082
Perception of the assistance provided by municipal/city businesses in case of emergencies	1	171	2.92	1.101	.084
	2	219	2.71	1.078	.073
Knowledge of the locations of fire extinguishers and hydrants in the neighborhood	1	171	2.46	1.415	.108
	2	221	2.24	1.334	.090
Awareness of the term “Initial Fire Suppression”	1	171	2.16	1.369	.105
	2	221	2.39	1.346	.091
The proximity of houses in the neighborhood	1	171	3.01	1.418	.108
	2	220	3.10	1.310	.088

7.2.6. Inferential Statistical Analysis Based on Whether Vulnerable Individuals Reside with the Participant in the Place of Residence

The results of the conducted t-test within the research indicate significant statistical differences between participants who live with vulnerable individuals and those who do not in the analyzed variables. These differences add a deeper dimension to understanding the impact of living with vulnerable individuals on earthquake preparedness. Specifically, in the context of earthquake preparedness, the results show a statistically significant difference (p = 0.04) between these two groups of participants. This may have deeper implications for socio-economic policies and safety programs, considering the need for specific support and education on earthquakes in these segments. Additionally, the analysis revealed a statistically significant difference (p = 0.015) in knowledge of the locations of fire extinguishers and hydrants in the neighborhood between these two groups. This result indicates potential issues in terms of awareness and accessibility of necessary resources for protection in emergency situations, which may be challenging for groups living with vulnerable individuals. Discussion on these results can focus on the necessity of adapting safety programs and education on earthquake preparedness to include the specific needs and challenges of groups close to vulnerable individuals. Furthermore, shaping policies that encourage cooperation and empathy within the community could be a step towards progress in disaster safety.

The research results, presented through ratings on a Likert scale (1 - unprepared to 5 - fully prepared), reveal significant differences between men and women in perception and readiness regarding earthquakes. The average readiness rating for households of men

is 2.67, indicating a certain level of insecurity or unpreparedness. In contrast, women have a higher average rating of 3.03, indicating a higher level of readiness. This difference in average ratings is significant and statistically confirmed. There may be different approaches to preparedness between genders, which could be directed towards different forms of education and counseling. For example, men may value technical aspects of preparedness more, while women may emphasize organizational and family safety aspects. It is interesting to consider factors that may shape these differences, such as educational level, age group, and living environment. Directing effective education and information programs to the specificities of gender groups can contribute to raising the overall level of community safety. These research findings can serve as a basis for designing comprehensive programs and initiatives tailored to different needs and perceptions of different genders to increase awareness and readiness of society for quick and safe response in emergency situations.

On the other hand, no statistically significant association was found with the following variables: household preparedness for earthquakes (p = 0.55); municipality/city preparedness for earthquakes (p = 0.35); perception of house damage (p = 0.62); knowledge of geological layers beneath the house (p = 0.88); perception of the construction of reinforced buildings in the local government (p = 0.36); perception of sufficiency of supplies in emergency situations (p = 0.79); knowledge that the majority of affected and injured people belong to the older population (p = 0.11); knowledge of where older adults, persons with disabilities, and infants live in the community (p = 0.53); knowledge of dealing with deaf or hard of hearing individuals (p = 0.50); knowledge of assistance required by older adults, disabled individuals, and infants (p = 0.81); participation in local government preparedness (p = 0.45); perception of awareness that an earthquake can occur in the local government (p = 0.48); perception that neighbors can save themselves independently in the event of an earthquake (p = 0.65); discussing with people in the municipality/city about natural disasters (p = 0.64); establishing communication with neighbors (p = 0.45); perception that companies in the municipality/city can help in emergency situations (p = 0.53); awareness of the term "initial fire suppression" (p = 0.24); proximity of houses in the neighborhood (p = 0.17) (Table 79).

Table 79. *T-test of Living with Vulnerable Individuals and Dependent Variables*

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Household preparedness for earthquakes	Assumed equal variances	.034	.853	-2.030	395	.043	-.359	.177	-.707	-.011
	Unequal variances			-2.078	56.635	.042	-.359	.173	-.705	-.013
Readiness of municipalities/cities for earthquakes	Assumed equal variances	5.835	.016	-.926	393	.355	-.150	.162	-.469	.169
	Unequal variances			-1.137	65.048	.260	-.150	.132	-.414	.114
Perception of house damage	Assumed equal variances	.280	.597	.493	393	.622	.086	.174	-.256	.427
	Unequal variances			.515	57.401	.609	.086	.167	-.248	.419
Knowledge of geological layers beneath the house	Assumed equal variances	.779	.378	.145	394	.885	.030	.208	-.379	.440
	Unequal variances			.137	54.214	.892	.030	.220	-.412	.472
Perception of the construction of buildings with reinforced structures in the local self-government	Assumed equal variances	1.137	.287	-.907	388	.365	-.147	.162	-.465	.171
	Unequal variances			-.875	54.962	.386	-.147	.168	-.483	.190
Perception of the sufficiency of supplies in case of emergencies	Assumed equal variances	1.135	.287	-.260	384	.795	-.044	.170	-.379	.290
	Unequal variances			-.259	56.203	.796	-.044	.170	-.385	.297
Awareness that the majority of the affected and injured individuals belong to the older population	Assumed equal variances	1.154	.283	1.582	389	.114	.319	.202	-.077	.716
	Unequal variances			1.740	59.661	.087	.319	.184	-.048	.687
Knowledge of where older adults, people with disabilities, and infants reside in the community	Assumed equal variances	.017	.897	.620	389	.535	.130	.210	-.282	.542
	Unequal variances			.610	55.542	.544	.130	.213	-.297	.557
Knowledge of how to	Assumed	.313	.576	-.669	388	.504	-.129	.194	-.510	.251

interact with deaf or hard-of-hearing individuals	equal variances									
	Unequal variances			-.625	54.073	.535	-.129	.207	-.545	.286
Awareness of the assistance needed by older adults, individuals with disabilities, and infants	Assumed equal variances	2.034	.155	-.253	388	.801	-.048	.191	-.424	.328
	Unequal variances			-.229	53.292	.820	-.048	.211	-.471	.374
Participation in local government preparations	Assumed equal variances	.228	.634	-.755	388	.451	-.143	.189	-.515	.229
	Unequal variances			-.717	54.543	.476	-.143	.199	-.542	.256
Perception of awareness that an earthquake can occur in the local government	Assumed equal variances	.901	.343	-.701	390	.484	-.138	.196	-.524	.249
	Unequal variances			-.654	53.984	.516	-.138	.210	-.560	.284
Perception that neighbors can independently save themselves in the event of an earthquake	Assumed equal variances	.010	.920	-.442	388	.659	-.073	.166	-.400	.253
	Unequal variances			-.450	56.715	.655	-.073	.163	-.400	.254
Talking to people in the municipality/city about natural disasters	Assumed equal variances	.024	.878	-.464	390	.643	-.085	.184	-.447	.276
	Unequal variances			-.445	54.759	.658	-.085	.192	-.470	.299
Establishing communication with your neighbors	Assumed equal variances	2.242	.135	-.752	386	.452	-.147	.195	-.530	.237
	Unequal variances			-.805	56.924	.424	-.147	.182	-.512	.218
Perception of the assistance provided by municipal/city businesses in case of emergencies	Assumed equal variances	1.957	.163	-.597	388	.551	-.103	.173	-.444	.237
	Unequal variances			-.543	53.344	.590	-.103	.191	-.486	.279
Knowledge of the locations of fire extinguishers and hydrants in the neighborhood	Assumed equal variances	4.051	.045	-2.443	390	.015	-.528	.216	-.953	-.103
	Unequal variances			-2.627	58.672	.011	-.528	.201	-.930	-.126
Информисаност о изразу „Почетно гашење пожара“	Assumed equal variances	.611	.435	-1.176	390	.240	-.253	.215	-.677	.170
	Unequal variances			-1.192	56.478	.238	-.253	.212	-.679	.172
The proximity of houses in the neighborhood	Assumed equal variances	1.808	.180	-1.375	389	.170	-.295	.215	-.718	.127
	Unequal variances			-1.268	53.691	.210	-.295	.233	-.762	.172

Group statistics					
	Vulnerability	N	Mean	Std. Deviation	Std. Error Mean
Household preparedness for earthquakes	1	45	2.67	1.087	.162
	2	352	3.03	1.121	.060
Readiness of municipalities/cities for earthquakes	1	45	2.36	.802	.120
	2	350	2.51	1.048	.056
Perception of house damage	1	45	3.00	1.044	.156
	2	350	2.91	1.104	.059
Knowledge of geological layers beneath the house	1	45	2.38	1.403	.209
	2	351	2.35	1.304	.070
Perception of the construction of buildings with reinforced structures in the local self-government	1	45	2.84	1.065	.159
	2	345	2.99	1.016	.055
Perception of the sufficiency of supplies in case of emergencies	1	45	2.27	1.074	.160
	2	341	2.31	1.072	.058
Awareness that the majority of the affected and injured individuals belong to the older population	1	45	3.53	1.140	.170
	2	346	3.21	1.290	.069
Knowledge of where older adults, people with disabilities, and infants reside in the community	1	45	3.00	1.348	.201
	2	346	2.87	1.320	.071
Knowledge of how to interact with deaf or hard of hearing individuals	1	45	2.38	1.319	.197
	2	345	2.51	1.208	.065
Awareness of the assistance needed by older adults, individuals with disabilities, and infants	1	45	2.84	1.348	.201
	2	345	2.89	1.187	.064
Participation in local government preparations	1	45	1.82	1.267	.189
	2	345	1.97	1.186	.064
Perception of awareness that an earthquake can occur in the local government	1	45	2.44	1.341	.200
	2	347	2.58	1.226	.066
Perception that neighbors can independently rescue themselves in the event of an earthquake	1	45	2.89	1.027	.153
	2	345	2.96	1.052	.057
Talking to people in the municipality/city about natural disasters	1	45	2.20	1.217	.181
	2	347	2.29	1.154	.062
Establishing communication with your neighbors	1	44	3.18	1.126	.170
	2	344	3.33	1.229	.066
Perception of the assistance provided by municipal/city businesses in case of emergencies	1	45	2.71	1.218	.182
	2	345	2.81	1.076	.058
Knowledge of the locations of fire extinguishers and hydrants in the neighborhood	1	45	1.87	1.254	.187
	2	347	2.39	1.378	.074
Awareness of the term "Initial Fire Suppression"	1	45	2.07	1.338	.199
	2	347	2.32	1.362	.073
The proximity of houses in the neighborhood	1	45	2.80	1.486	.222
	2	346	3.10	1.338	.072

7.2.7. Inferential Statistical Analysis Based on Participants' Ownership of Residential Property

In further research, the impact of property ownership on dependent continuous variables was examined through one-way analysis of variance (ANOVA). Participants were classified into three groups (personal ownership, family member ownership, rented). Using the homogeneity of variance test, the equality of variances in the results for each of the three groups was tested. Based on the Levene's test results, the assumption of variance homogeneity was examined. For variables where the assumption was violated, the "Robust Tests of Equality of Means" table was presented along with the results of two tests, Welsh's and Brown-Forsythe's, which are robust to violations of the assumption of variance equality. In the study, the results of the Welsh's test were used.

According to the results, there is a statistically significant difference between the mean values of the mentioned groups for the following dependent continuous variables: household readiness for earthquakes ($F = 3.03$, $p = 0.04$); perception of house damage ($F = 3.27$, $p = 0.039$); communication with neighbors ($F = 3.96$, $p = 0.020$); knowledge of the location of fire extinguishers and hydrants in the neighborhood ($F = 4.39$, $p = 0.01$).

Subsequent comparisons using Tukey's Honestly Significant Difference (HSD) test indicate that the observed mean value of household readiness for earthquakes significantly ($p < 0.05$) differs between citizens who own their properties (M = 3.17, SD = 1.04) and those who rent properties (M = 2.74, SD = 1.34). Citizens who own their properties to a greater extent assess household readiness for earthquakes. Furthermore, it was found that citizens who rent properties (M = 3.26, SD = 1.21) express a higher degree of concern about house damage due to earthquakes compared to citizens who own their properties (M = 2.78, SD = 1.06). When it comes to communicating with neighbors, citizens who own their properties (M = 3.43, SD = 1.18) compared to citizens who rent their properties (M = 2.84, SD = 1.25). Regarding knowledge of the location of fire extinguishers and hydrants in the neighborhood, citizens who own their properties (M = 2.63, SD = 1.48) compared to citizens who rent their properties (M = 2.19, SD = 1.30) have a greater knowledge of these locations. Citizens who own their properties express a higher level of readiness compared to those who rent properties. This highlights the importance of ownership and

the responsibilities that come with it, which can have significant implications for the development of earthquake preparedness awareness programs. Additionally, it is interesting to note that citizens who rent properties, compared to those who own their properties, express more concern about potential house damage due to earthquakes. This may be a result of different levels of control and involvement in property maintenance, which also affects their perceptions and behaviors. Communication with neighbors and knowledge of the location of fire extinguishers and hydrants are also domains where a significant difference was observed between these two groups. Citizens with their own properties expressed a higher level of communication and knowledge of these locations. These results provide deep insights into the behavior and perception of citizens regarding earthquake preparedness, providing data that can be useful for designing effective educational and awareness campaigns, especially for citizens who rent their properties.

On the other hand, there was no statistically significant difference between the mean values of the mentioned groups for the following dependent variables: municipality/city readiness for earthquakes (F = 1.38, p = 0.25); knowledge of geological layers beneath the house (F = 2.64, p = 0.72); perception of buildings being reinforced concrete structures in the local government (F = 1.69, p = 0.18); perception of sufficiency of supplies in case of emergencies (F = 2.54, p = 0.52); knowledge that the majority of victims and injured belong to the older population (F = 2.36, p = 0.096); knowledge of where older people, persons with disabilities, and infants live in the community (F = 1.64, p = 0.19); knowledge of how to interact with deaf or hard-of-hearing individuals (F = 1.25, p = 0.28); knowledge of the assistance required by older people, individuals with disabilities, and infants (F = 0.37, p = 0.69); willingness to participate in local government preparations (F = 0.14, p = 0.86); perception of awareness that earthquakes can occur in the local government (F = 0.70, p = 0.49); Perception that neighbors can independently rescue themselves in the event of an earthquake (F = 0.56, p = 0.59); discussion with people in the municipality/city about natural disasters (F = 0.34, p = 0.72); perception that companies from the municipality/city can be of assistance in emergencies (F = 0.28, p = 0.75); knowledge of the location of fire extinguishers and hydrants in the neighborhood (F = 2.51, p = 0.82); proximity of houses in the neighborhood (F = 0.79, p = 0.45) (Table 80).

Table 80. *One-way analysis of variance of property ownership and dependent variables.*

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Household preparedness for earthquakes	Between group	7.550	2	3.775	3.033	.049
	Within group	490.360	394	1.245		
	Between group	497.909	396			
Readiness of municipalities/cities for earthquakes	Within group	2.893	2	1.447	1.384	.252
	Between group	409.806	392	1.045		
	Within group	412.699	394			
Perception of house damage	Between group	7.774	2	3.887	3.270	.039
	Within group	465.947	392	1.189		
	Between group	473.722	394			
Knowledge of geological layers beneath the house	Within group	9.072	2	4.536	2.648	.072
	Between group	673.138	393	1.713		
	Within group	682.210	395			
Perception of the construction of buildings with reinforced structures in the local self-government	Between group	3.523	2	1.762	1.695	.185
	Within group	402.220	387	1.039		
	Between group	405.744	389			
Perception of the sufficiency of supplies in case of emergencies	Within group	8.020	2	4.010	2.540	.052
	Between group	433.907	383	1.133		
	Within group	441.927	385			
Awareness that the majority of the affected and injured individuals belong to the older population	Between group	7.641	2	3.820	2.361	.096
	Within group	627.796	388	1.618		
	Between group	635.437	390			
Knowledge of where older adults, people with disabilities, and infants reside in the community.	Within group	5.737	2	2.868	1.646	.194
	Between group	676.084	388	1.742		
	Within group	681.821	390			
Knowledge of how to interact with deaf or hard of	Between	3.729	2	1.865	1.253	.287

hearing individuals	group					
	Within group	575.748	387	1.488		
	Between group	579.477	389			
Awareness of the assistance needed by older adults, individuals with disabilities, and infants	Within group	1.080	2	.540	.370	.691
	Between group	563.956	387	1.457		
	Within group	565.036	389			
Desire to participate in local government preparedness	Between group	.408	2	.204	.142	.867
	Within group	554.566	387	1.433		
	Between group	554.974	389			
Perception of awareness that an earthquake can occur in the local government	Within group	2.173	2	1.086	.707	.494
	Between group	598.103	389	1.538		
	Within group	600.276	391			
Perception that neighbors can independently rescue themselves in the event of an earthquake	Between group	1.252	2	.626	.569	.567
	Within group	425.917	387	1.101		
	Between group	427.169	389			
Talking to people in the municipality/city about natural disasters	Within group	.941	2	.471	.349	.706
	Between group	525.304	389	1.350		
	Within group	526.245	391			
Establishing communication with your neighbors	Between group	11.561	2	5.781	3.962	.020
	Within group	561.704	385	1.459		
	Between group	573.265	387			
Perception of the assistance provided by municipal/city businesses in case of emergencies	Within group	.676	2	.338	.283	.754
	Between group	463.121	387	1.197		
	Within group	463.797	389			
Knowledge of the locations of fire extinguishers and hydrants in the neighborhood	Between group	16.275	2	8.138	4.391	.013
	Within group	720.947	389	1.853		
	Between group	737.222	391			
Awareness of the term “Initial Fire Suppression”?	Within group	9.223	2	4.612	2.514	.082
	Between	713.624	389	1.835		

	group					
	Within group	722.847	391			
The proximity of houses in the neighborhood	Between group	2.928	2	1.464	.794	.453
	Within group	715.599	388	1.844		
	Total	718.527	390			

Descriptives									
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Household preparedness for earthquakes	1	123	3.17	1.046	.094	2.98	3.36	1	5
	2	227	2.93	1.101	.073	2.79	3.08	1	5
	3	47	2.74	1.343	.196	2.35	3.14	1	5
	Total	397	2.98	1.121	.056	2.87	3.10	1	5
Readiness of municipalities/cities for earthquakes	1	122	2.36	1.021	.092	2.18	2.54	1	5
	2	226	2.54	1.002	.067	2.41	2.68	1	5
	3	47	2.55	1.119	.163	2.22	2.88	1	5
	Total	395	2.49	1.023	.051	2.39	2.59	1	5
Perception of house damage	1	123	2.78	1.068	.096	2.59	2.97	1	5
	2	226	2.93	1.075	.072	2.79	3.07	1	5
	3	46	3.26	1.219	.180	2.90	3.62	1	5
	Total	395	2.92	1.097	.055	2.82	3.03	1	5
Knowledge of geological layers beneath the house	1	123	2.42	1.379	.124	2.18	2.67	1	5
	2	227	2.40	1.270	.084	2.23	2.56	1	5
	3	46	1.93	1.306	.193	1.55	2.32	1	5
	Total	396	2.35	1.314	.066	2.22	2.48	1	5
Perception of the construction of buildings with reinforced structures in the local self-government	1	122	3.11	1.038	.094	2.93	3.30	1	5
	2	224	2.91	.996	.067	2.78	3.04	1	5
	3	44	2.93	1.087	.164	2.60	3.26	1	5
	Total	390	2.97	1.021	.052	2.87	3.08	1	5
Perception of the sufficiency of supplies in case of emergencies	1	120	2.15	1.066	.097	1.96	2.34	1	5
	2	221	2.43	1.066	.072	2.29	2.57	1	5
	3	45	2.11	1.049	.156	1.80	2.43	1	4
	Total	386	2.31	1.071	.055	2.20	2.41	1	5
Awareness that the majority of the affected and injured individuals belong to the older population	1	123	3.33	1.252	.113	3.11	3.56	1	5
	2	224	3.28	1.276	.085	3.11	3.45	1	5
	3	44	2.86	1.305	.197	2.47	3.26	1	5
	Total	391	3.25	1.276	.065	3.12	3.38	1	5
Awareness of where older adults, people with disabilities, and infants live within the community	1	123	2.86	1.351	.122	2.62	3.10	1	5
	2	224	2.96	1.296	.087	2.79	3.13	1	5
	3	44	2.57	1.354	.204	2.16	2.98	1	5
	Total	391	2.88	1.322	.067	2.75	3.02	1	5
Knowledge of how to interact with deaf or hard of hearing individuals	1	122	2.37	1.254	.114	2.14	2.59	1	5
	2	224	2.58	1.214	.081	2.42	2.74	1	5
	3	44	2.41	1.148	.173	2.06	2.76	1	5
	Total	390	2.49	1.221	.062	2.37	2.61	1	5
Awareness of the assistance needed by older adults, individuals with disabilities,	1	123	2.93	1.249	.113	2.70	3.15	1	5
	2	224	2.89	1.186	.079	2.74	3.05	1	5
	3	43	2.74	1.197	.183	2.38	3.11	1	5

and infants	Total	390	2.89	1.205	.061	2.77	3.01	1	5
Desire to participate in local government preparedness	1	123	1.98	1.309	.118	1.74	2.21	1	5
	2	223	1.95	1.136	.076	1.80	2.10	1	5
	3	44	1.86	1.173	.177	1.51	2.22	1	5
	Total	390	1.95	1.194	.060	1.83	2.07	1	5
Perception of awareness that an earthquake can occur in the local government	1	123	2.65	1.293	.117	2.42	2.88	1	5
	2	225	2.50	1.214	.081	2.34	2.66	1	5
	3	44	2.66	1.219	.184	2.29	3.03	1	5
	Total	392	2.57	1.239	.063	2.44	2.69	1	5
Perception that neighbors can independently rescue themselves in the event of an earthquake	1	123	2.97	1.078	.097	2.77	3.16	1	5
	2	223	2.98	1.059	.071	2.84	3.12	1	5
	3	44	2.80	.904	.136	2.52	3.07	1	4
	Total	390	2.95	1.048	.053	2.85	3.06	1	5
Talking to people in the municipality/city about natural disasters	1	123	2.24	1.222	.110	2.02	2.45	1	5
	2	225	2.32	1.115	.074	2.17	2.46	1	5
	3	44	2.18	1.225	.185	1.81	2.55	1	5
	Total	392	2.28	1.160	.059	2.16	2.39	1	5
Establishing communication with your neighbors	1	122	3.43	1.185	.107	3.21	3.64	1	5
	2	222	3.34	1.211	.081	3.18	3.50	1	5
	3	44	2.84	1.256	.189	2.46	3.22	1	5
	Total	388	3.31	1.217	.062	3.19	3.43	1	5
Perception of the assistance provided by municipal/city businesses in case of emergencies	1	123	2.85	1.064	.096	2.66	3.04	1	5
	2	223	2.77	1.094	.073	2.62	2.91	1	5
	3	44	2.86	1.173	.177	2.51	3.22	1	5
	Total	390	2.80	1.092	.055	2.69	2.91	1	5
Knowledge of the locations of fire extinguishers and hydrants in the neighborhood	1	123	2.63	1.489	.134	2.37	2.90	1	5
	2	225	2.19	1.303	.087	2.02	2.36	1	5
	3	44	2.25	1.278	.193	1.86	2.64	1	5
	Total	392	2.33	1.373	.069	2.20	2.47	1	5
Awareness of the term “Initial Fire Suppression”?	1	123	2.45	1.415	.128	2.19	2.70	1	5
	2	225	2.16	1.310	.087	1.99	2.33	1	5
	3	44	2.52	1.406	.212	2.10	2.95	1	5
	Total	392	2.29	1.360	.069	2.16	2.43	1	5
The proximity of houses in the neighborhood	1	123	3.07	1.359	.123	2.82	3.31	1	5
	2	224	3.01	1.351	.090	2.84	3.19	1	5
	3	44	3.30	1.391	.210	2.87	3.72	1	5
	Total	391	3.06	1.357	.069	2.93	3.20	1	5

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
Household preparedness for earthquakes	Based on the mean value	2.788	2	394	.063
	Based on the median value	2.518	2	394	.082
	Based on the median value with the attached degrees of freedom	2.518	2	388.608	.082
	Based on the mean value with attached values	2.814	2	394	.061
Readiness of municipalities/cities for earthquakes	Based on the mean value	.561	2	392	.571
	Based on the median value	.084	2	392	.919
	Based on the median value with the attached	.084	2	387.508	.919

	degrees of freedom				
	Based on the mean value with attached values	.657	2	392	.519
Perception of house damage	Based on the mean value	1.386	2	392	.251
	Based on the median value	.815	2	392	.443
	Based on the median value with the attached degrees of freedom	.815	2	389.311	.443
	Based on the mean value with attached values	1.471	2	392	.231
Knowledge of geological layers beneath the house	Based on the mean value	1.182	2	393	.308
	Based on the median value	.980	2	393	.376
	Based on the median value with the attached degrees of freedom	.980	2	345.034	.376
	Based on the mean value with attached values	1.172	2	393	.311
Perception of the construction of buildings with reinforced structures in the local self-government	Based on the mean value	.798	2	387	.451
	Based on the median value	.776	2	387	.461
	Based on the median value with the attached degrees of freedom	.776	2	386.847	.461
	Based on the mean value with attached values	.800	2	387	.450
Perception of the sufficiency of supplies in case of emergencies	Based on the mean value	.141	2	383	.868
	Based on the median value	.190	2	383	.827
	Based on the median value with the attached degrees of freedom	.190	2	376.561	.827
	Based on the mean value with attached values	.307	2	383	.736
Awareness that the majority of the affected and injured individuals belong to the older population	Based on the mean value	.045	2	388	.956
	Based on the median value	.074	2	388	.929
	Based on the median value with the attached degrees of freedom	.074	2	364.506	.929
	Based on the mean value with attached values	.052	2	388	.949
Knowledge of where older adults, people with disabilities, and infants reside in the community	Based on the mean value	.953	2	388	.386
	Based on the median value	.577	2	388	.562
	Based on the median value with the attached degrees of freedom	.577	2	386.823	.562
	Based on the mean value with attached values	.999	2	388	.369
Knowledge of how to interact with deaf or hard of hearing individuals	Based on the mean value	.696	2	387	.499
	Based on the median value	.879	2	387	.416
	Based on the median value with the attached	.879	2	385.650	.416

	degrees of freedom				
	Based on the mean value with attached values	.701	2	387	.497
Awareness of the assistance needed by older adults, individuals with disabilities, and infants	Based on the mean value	.247	2	387	.781
	Based on the median value	.292	2	387	.747
	Based on the median value with the attached degrees of freedom	.292	2	384.920	.747
	Based on the mean value with attached values	.241	2	387	.786
Desire to participate in local government preparedness	Based on the mean value	1.972	2	387	.141
	Based on the median value	.142	2	387	.867
	Based on the median value with the attached degrees of freedom	.142	2	380.212	.867
	Based on the mean value with attached values	1.590	2	387	.205
Perception of awareness that an earthquake can occur in the local government	Based on the mean value	.467	2	389	.628
	Based on the median value	.288	2	389	.750
	Based on the median value with the attached degrees of freedom	.288	2	380.371	.750
	Based on the mean value with attached values	.454	2	389	.635
Perception that neighbors can independently rescue themselves in the event of an earthquake	Based on the mean value	.242	2	387	.785
	Based on the median value	.599	2	387	.550
	Based on the median value with the attached degrees of freedom	.599	2	385.177	.550
	Based on the mean value with attached values	.306	2	387	.737
Talking to people in the municipality/city about natural disasters	Based on the mean value	.496	2	389	.609
	Based on the median value	.069	2	389	.933
	Based on the median value with the attached degrees of freedom	.069	2	379.752	.933
	Based on the mean value with attached values	.258	2	389	.773
Establishing communication with your neighbors	Based on the mean value	.062	2	385	.940
	Based on the median value	.001	2	385	.999
	Based on the median value with the attached degrees of freedom	.001	2	384.978	.999
	Based on the mean value with attached values	.078	2	385	.925
Perception of the assistance provided by municipal/city businesses in case of emergencies	Based on the mean value	.312	2	387	.733
	Based on the median value	.328	2	387	.721
	Based on the median value with the attached	.328	2	386.269	.721

	degrees of freedom				
	Based on the mean value with attached values	.307	2	387	.736
Knowledge of the locations of fire extinguishers and hydrants in the neighborhood	Based on the mean value	4.509	2	389	.012
	Based on the median value	3.874	2	389	.022
	Based on the median value with the attached degrees of freedom	3.874	2	377.388	.022
	Based on the mean value with attached values	5.035	2	389	.007
Awareness of the term “Initial Fire Suppression”?	Based on the mean value	2.244	2	389	.107
	Based on the median value	2.004	2	389	.136
	Based on the median value with the attached degrees of freedom	2.004	2	383.021	.136
	Based on the mean value with attached values	2.796	2	389	.062
The proximity of houses in the neighborhood	Based on the mean value	.439	2	388	.645
	Based on the median value	.185	2	388	.831
	Based on the median value with the attached degrees of freedom	.185	2	387.136	.831
	Based on the mean value with attached values	.478	2	388	.620

Robust Tests of Equality of Means					
		Statistic[a]	df1	df2	Sig.
Household preparedness for earthquakes	Brown-Forsythe	2.637	2	134.886	.075
Readiness of municipalities/cities for earthquakese	Brown-Forsythe	1.284	2	160.835	.280
Perception of house damage	Brown-Forsythe	2.999	2	151.205	.053
Knowledge of geological layers beneath the house	Brown-Forsythe	2.586	2	184.306	.078
Perception of the construction of buildings with reinforced structures in the local self-government	Brown-Forsythe	1.594	2	158.261	.206
Perception of the sufficiency of supplies in case of emergencies	Brown-Forsythe	3.577	2	181.280	.030
Awareness that the majority of the affected and injured individuals belong to the older population	Brown-Forsythe	2.329	2	166.408	.101
Knowledge of where older adults, people with disabilities, and infants reside in the community.	Brown-Forsythe	1.596	2	168.606	.206
Knowledge of how to interact with deaf	Brown-	1.296	2	191.709	.276

or hard of hearing individuals	Forsythe				
Awareness of the assistance needed by older adults, individuals with disabilities, and infants	Brown-Forsythe	.367	2	174.211	.693
Desire to participate in local government preparedness	Brown-Forsythe	.139	2	183.426	.871
Perception of awareness that an earthquake can occur in the local government	Brown-Forsythe	.702	2	180.633	.497
Perception that neighbors can independently rescue themselves in the event of an earthquake	Brown-Forsythe	.626	2	216.903	.536
Talking to people in the municipality/city about natural disasters	Brown-Forsythe	.326	2	162.937	.722
Establishing communication with your neighbors	Brown-Forsythe	3.868	2	162.471	.023
Perception of the assistance provided by municipal/city businesses in case of emergencies	Brown-Forsythe	.270	2	154.330	.764
Knowledge of the locations of fire extinguishers and hydrants in the neighborhood	Brown-Forsythe	4.405	2	194.405	.013
Awareness of the term “Initial Fire Suppression”?	Brown-Forsythe	2.389	2	166.553	.095
The proximity of houses in the neighborhood	Brown-Forsythe	.778	2	167.768	.461
a. Asymptotically F distributed.					

8. DISCUSSION

The research results indicate a high perception of safety and resilience among the majority of respondents regarding the non-material consequences of earthquakes. With as many as 93.3% of respondents claiming they have not experienced negative consequences, we can conclude that most of these residents are in a secure environment. This could be the result of good infrastructure, an effective warning system, or simply better luck with previous earthquakes. On the other hand, 5.5% of respondents report experiencing non-material consequences of earthquakes. This opens up space for exploring the causes and types of consequences they have experienced. It is possible that there are social or economic factors enabling such experiences, as well as the potential for improving warning systems and preparedness. While we have positive research results, practices in other countries tell us that resilience is a process that must be constantly monitored and enhanced.

The most recent example is the earthquake in Turkey, where all the flaws and weaknesses of a modern society regarding earthquake resilience were exposed. Thus, Betül Ergün Konukcu (2023) explains how Istanbul can strengthen its resilience to earthquakes: Istanbul must build urban resilience taking into account its capacity, capability, demands, fragility, and limited resources against potential earthquakes for sustainable city resilience. During the process of building urban resilience, it is important to develop the city's own resilience strategy (Konukcu, 2023). This resilience strategy must be framed in accordance with humanitarian values and natural life, shaped based on prioritizing disaster risk reduction studies in investment programs and implementation projects, focused on raising the quality of urban life within safe, livable, environmentally sensitive, fair, inclusive visions and policies, and ultimately aimed at supporting economic growth, social progress, environmental protection, resource management, and reserve capacity for sustainable resilience (Konukcu, 2023).

The research results clearly indicate a significant divergence in respondents' responses regarding the material consequences of earthquakes. A vast majority, precisely 94.0% of respondents, claim they have not suffered material losses due to earthquakes. These data suggest that most citizens have not experienced significant material consequences during these natural disasters. On the other hand, a smaller number of respondents (4.8%) report material consequences of

earthquakes. This minority necessitates further examination of the nature and extent of material consequences. Possible factors include infrastructure weaknesses or insufficient preparedness measures. The research results reveal significant nuances in respondents' attitudes regarding the preparedness of their households for potential earthquake consequences. With 36.3% of respondents expressing that their household is neither fully prepared nor unprepared, questions arise about the comprehensiveness and risk perception among respondents. Furthermore, 23.5% of respondents believe their household is partially unprepared, while 19.0% believe it is partially prepared. This diversity in attitudes indicates the need for tailored education and support strategies to reduce ambivalence and encourage more effective earthquake preparedness. Additionally, 9.5% of respondents state that their household is absolutely unprepared, while 11.0% claim it is absolutely prepared. These extreme attitudes suggest the existence of a subgroup of citizens requiring special attention and support in strengthening their capacity to cope with potential earthquake risks. Yibin Ao and colleagues (2022) in a study on earthquakes in Wenchuan, Ya'an, and earthquakes in Yibin point out that the level of education of citizens in earthquake-affected areas has a significant positive impact on people's behavior in earthquake preparedness. People not born in rural areas are more likely to take preparedness measures for earthquakes. Additionally, men, young people, and married individuals are more likely to take earthquake preparedness measures in their daily lives (Ao et al., 2022).

The diversity of attitudes among respondents about the preparedness of their municipalities/cities to respond to earthquakes provides valuable insight into the complexity of public perception of this serious challenge. Research results on the assessment of preparedness reveal that the majority of respondents (33.3%) believe their municipality/city is somewhat unprepared to deal with potential earthquakes. This indicates existing concerns and the need to enhance emergency preparedness capacities.

On the contrary, a significant number of respondents (32.8%) hold an ambivalent attitude, not considering their municipality/city as either prepared or unprepared. This ambivalence may result from a lack of information or awareness about specific preparedness measures, highlighting the need for citizen education and awareness. Furthermore, an alarming 17.8% of respondents state that their municipality/city is absolutely unprepared to respond to earthquakes. This sud-

den shift in attitude indicates serious deficiencies in emergency management capacities, requiring urgent recognition and corrective measures at the local level. There is also a smaller but significant portion of respondents (11.8%) who believe their municipality/city is somewhat prepared, while 3.3% agree that the municipality/city is absolutely prepared to respond to earthquakes. These positive attitudes may indicate good practices in planning and preparation in specific locations but also point to the need for sharing these experiences with other communities. Overall, we can say that there is a lack of trust among citizens in the readiness of the local community to respond to earthquakes. A similar conclusion is drawn from research conducted in China, where the results show that residents have less trust in the government and community, and the more help they can receive from outside while preparing measures, the more inclined they are to take disaster preparedness measures (Ao et al., 2022).

Regarding potential house/building damage during earthquakes, the results further reveal a wide range of attitudes among respondents. The largest number of respondents (35.3%) express uncertainty about potential damage, indicating insufficient information or awareness of potential risks. Around 26.8% of respondents believe minor damage could occur, while 9.0% take a more optimistic stance, claiming that their apartment/house would not suffer any damage in the event of an earthquake. On the other hand, 18.3% of respondents express some doubt about potential damage, while 9.5% believe serious damage to their house/building could occur. The large number of respondents who are uncertain about potential damage points to the need for strengthening education and raising awareness about specific earthquake risks. The diversity of attitudes about expected damage indicates the need for revision and optimization of safety protocols. Providing clear guidelines to citizens on how to prepare and respond during and after earthquakes can significantly reduce uncertainty. Respondents expressing doubts or expecting serious damage highlight the need for building resilient communities. This includes infrastructure improvements, as well as implementing measures that help preserve the safety of homes during potential earthquakes. In their research on the resilience of traditional wooden houses in Pokuplje, Croatia, which have resisted time and disasters for almost 400 years, Buršić and Zlatović (2023) found that these houses have greater earthquake resistance, despite being built at a time when knowledge of seismic risks was very low or nonexistent, compared to modern, improperly constructed structures, bridges, roads, and some em-

bankments in the vicinity of Petrinja. Old wooden houses, on the other hand, only had minor cracks in the plaster as a result of earthquakes. The seismic resistance of traditional wooden buildings is the result of high-quality oak wood and proper structural design with carpentry joints that allow for micro-movements (Buršić & Zlatović, 2023). This tells us that the construction method and adherence to measures in line with natural conditions are of utmost importance.

Furthermore, the results of this study reveal concerns regarding the level of awareness among respondents about the geological layers beneath their homes. The majority of respondents, specifically 35.5%, admit a complete lack of information about these layers. This highlights their complete isolation from basic aspects of the area they live in. An additional 22.0% of respondents are only slightly familiar with the geological layers, indicating a tendency towards misinformation and a lack of educational resources in this context. A similar status is held by 22.5% of respondents with a moderate level of knowledge, and this balance suggests uneven access to educational resources on the geological characteristics of their environment. Of interest are the 9.3% of respondents who claim to possess solid knowledge about the geological layers. Additionally, 9.8% emphasize that their knowledge is exceptional—meaning they have a total understanding of the geological aspects of their environment. While these respondents represent a minority, their understanding may result from personal interest, professional engagement, or additional educational efforts. Such knowledge can serve as an example of successful initiatives in raising awareness and educating citizens about their environment. However, compared to the region, significant differences are not noticeable. In a study conducted in Serbia, the largest Percentages of respondents (54.9%) stated that they are not familiar with the geology beneath their homes (Cvetković et al., 2019). However, this is not a consolation; on the contrary, it should be an alarm for us and our neighbors regarding the awareness and knowledge of citizens on this matter.

The results of this study emphasize the importance of assessing the resilience of houses in the event of earthquakes but also reveal a significant lack of activity in this area. The majority of respondents (90.8%) admit they have not checked the resistance of their homes, suggesting a general lack of awareness of the importance of this step. This lack of activity can have serious and far-reaching consequences, especially in the context of emergencies caused by earthquakes in Montenegro. Earthquakes can cause various levels of damage to hous-

es, and checking resilience can be crucial in avoiding potential dangers and minimizing damages. The lack of activity may indicate general insecurity and complacency, which is a problem requiring pragmatic solutions. On the other hand, it is encouraging that 9.3% of respondents express interest in checking the resilience of their homes. This is a positive sign indicating the existence of a group of citizens aware of the need for preventive measures in emergency situations. Highlighting this data can serve as inspiration and an example for other residents to start attending safety improvement workshops.

Moreover, the research results provide valuable insights into the choice of materials when building houses, as well as the applied safety measures in residential buildings, especially in the context of potential earthquakes. Almost three-quarters of respondents used reinforced concrete for building their homes, which is a significant finding considering the advantages of this material in providing stability and resistance to natural disasters. On the other hand, one-fifth of respondents did not choose reinforced concrete for building their homes or are dealing with older structures built at a time when this type of material and construction method was not applied. This data indicates the need for a detailed analysis of the reasons for such material choices, as well as considering potential challenges related to building standards. Regarding safety measures, the majority of respondents did not anchor their furniture to the wall. This discovery indicates the need for additional education on the importance of properly securing furniture to reduce the risk of injuries during tremors. When it comes to the perception of the presence of buildings constructed from reinforced concrete in the local self-government, the results indicate diverse attitudes among respondents. There are variations in assessments of the number of such buildings, reflecting different approaches to urban planning and construction in different parts of the community.

Discussing the importance of material choice during construction is redundant; the major problem lies in the disregard for safety measures during construction. This is evident from the fact that during the earthquake in Nepal in 2015, over 9,000 schools were affected by the earthquake (Paudyal & Bhandary, 2024). The distribution of damage in the 14 most affected administrative districts shows that construction practices were an important factor in increasing the level of damage. The use of inappropriate construction materials, lack of supervision over construction, and disregard for existing construction

regulations during design and construction likely contributed to serious damage to the majority of school buildings. Survey data on damage shows that about 30% of classrooms collapsed, about 13% of classrooms suffered major damage, and about 17% of classrooms suffered minor damage in the 14 most affected districts. This damage report is largely based on secondary data provided by relevant state authorities. Such evidence of losses and damage in earthquake disasters provides an opportunity to learn lessons for future preparedness and to address the challenges of disasters (Paudyal & Bhandary, 2024).

Then, research findings on earthquake prevention and preparedness provide deep insight into the level of readiness and awareness among citizens regarding necessary precautionary measures. Nearly 58.5% of respondents do not possess a complete first aid kit in their households, while 41.5% claim to have a fully equipped first aid kit. This diversity in possession of basic medical equipment suggests the need to raise awareness about the importance of proper preparation for emergencies. Many countries have promoted the idea that households should prepare basic survival items, create a plan, enhance survival skills, and facilitate coping with the aftermath of earthquakes (Russell, Goltz & Bourkue, 1995; Spital et al., 2008; Becker et al., 2012; Jamshidi et al., 2016). However, numerous national and international studies have shown that the level of earthquake preparedness is generally low (Russell, Goltz & Bourkue, 1995; Mileti & Darlington, 1997; Ronan & Johnston, 2005; Azim & Islam, 2016; Cvetković et al., 2019).

Interestingly, 57.5% of those claiming to have a complete first aid kit have not checked its contents. This indicates a lack of proactive approach in refreshing and maintaining necessary medical resources in households, which can be crucial in emergency situations. Regarding the storage of first aid kits in easily accessible places, almost half of the respondents (44.8%) keep their equipment in such locations, while 55.3% do not. This division suggests the need for advice on storage locations for emergency equipment to be easily accessible when needed. When it comes to general emergency supplies, over 70% of respondents have no other reserves besides first aid equipment. Given this, it is necessary to encourage citizens to consider storing additional supplies of food, water, and other basic necessities for emergencies. Even in terms of this type of earthquake resilience, Montenegro finds itself in a similar situation to other earthquake-prone countries. Ronan & Johnston (2005) also found that overall levels of earthquake

preparedness are universally low, including in risk-prone areas (e.g., California, Turkey, and Japan).

The research has shown that only a small number of respondents (18.3%) are familiar with the location of their designated shelter nearby, which mostly indicates unawareness among a significant portion of the community about this important aspect of readiness. This presents a significant challenge, considering that knowledge of safe zone locations is crucial for quick and safe response in earthquake-induced emergencies. Therefore, it is necessary to implement proactive education and information strategies about geological characteristics and safe zones. Educational campaigns, readily available self-education resources, and workshop programs can significantly raise awareness levels and knowledge about community safety.

Another significant aspect of the research relates to uncertainty about routes to shelters. A whole 81.5% of respondents state that they do not know the way to shelters, indicating a clear need for developing detailed evacuation plans and setting up guidelines and markings that citizens can easily follow. Existing obstacles and uncertainties in transportation to shelters, reported by 78.8% of respondents, pose an additional challenge that requires active intervention. The results of Cvetković and colleagues (2019) in their research conducted in Serbia indicate clear gender differences regarding knowledge of shelter locations and routes. A greater number of male respondents stated that they knew the shelters designated for evacuation in case of earthquakes, were better acquainted with obstacles on the way to shelters, had greater awareness of the conditions of secured designated shelters, and were familiar with shelter management (Cvetković et al., 2019).

One of the positive aspects is the discovery that the majority of respondents (79.8%) express an intention to contact neighbors during evacuation. This data indicates a strong sense of community spirit and the importance of developing a support network among neighbors. This solidarity can mean the difference between success and failure in earthquake-induced emergency situations. In a study conducted in Serbia, results showed that women and older individuals are more likely to call neighbors for evacuation (Cvetković et al., 2019).

When considering the condition of shelters, the remaining 87.8% of respondents do not know the condition of the shelters designated for

them. This illustrates the need for systematic monitoring and updating of shelter information, which would contribute to their effectiveness and safety. Overall, the research results emphasize the necessity of action on various fronts. Educational and informative activities should focus on raising awareness about shelter locations, developing evacuation plans, and removing obstacles on the way to shelters. Strong community support and collaboration with neighbors can contribute to creating safer and more prepared communities. Combined efforts and collaboration between governmental institutions, non-governmental organizations, and the community itself are key to improving overall readiness and safety in earthquake-induced emergency situations. The importance of citizen awareness for earthquake response is highlighted by a study conducted by Araci et al. (2023) after the earthquake that occurred on February 6, 2023, in Kahramanmaras, Turkey, and its impact on educational activities in the region. The study group consisted of 42 volunteer teachers from eleven different Turkish provinces at various education levels who experienced the earthquake on February 6, 2023, centered in Kahramanmaras, and participated in educational activities in the same area after the earthquake. Teachers' recommendations for improving earthquake education and awareness can significantly aid future preparedness and crisis management (Araci et al., 2023).

The research indicates alarming low levels of knowledge among respondents regarding shelter management, where even 90.5% did not know who manages these facilities. This represents a serious deficiency in preparation and citizen awareness of basic safety aspects in emergency situations. Additionally, the results show uncertainty among respondents regarding which individuals require special care in emergencies. Nearly 55% of respondents are unsure about this, indicating the need for broader awareness of vulnerable groups and their specific needs. Respondents who stated they had no knowledge that the elderly population constitutes the majority of victims in emergencies make up 11.5%. This clearly indicates the need for education and empathy-building efforts to increase awareness of the vulnerability of elderly individuals in such circumstances. During the earthquake in Indonesia, Lestari and Anugrahini (2023) conducted a study focusing on the Cupek community in the Sigar Penjalin village, North Lombok province, which demonstrated its resilience and survival capability after the earthquake. Despite limited external assistance in the first hours after the earthquake, the community quickly activated its resilience capacities, relying on its social capital and col-

lective actions for support and recovery. The main goal of the research was to enhance understanding of resilience in small communities, particularly emphasizing the importance of social capital in disaster contexts (Lestari & Anugrahini, 2023).

When it comes to the ability of family members to evacuate independently during earthquakes, the results show significant differences among respondents. The majority (73.5%) claim that they have no family members who would be unable to evacuate independently, while only 26.6% state otherwise. This division indicates the need for a differentiated approach in providing information and training to ensure that every family is adequately prepared.

The research results on knowledge of details about the elderly, handicapped individuals, and infants in the community indicate significant variations among respondents, revealing key aspects of awareness and preparedness for emergency situations. Firstly, the majority of participants claim to have a good understanding of where these groups reside, suggesting a general awareness of the environment and populations requiring special attention. However, concerning data emerges from the fact that a large number of respondents have no knowledge of how to assist deaf or hearing-impaired individuals, while a similar Percentages possesses very little or fair knowledge. This underscores the need for broader education on assisting these groups in emergencies.

Second, the results indicate that a larger portion of respondents have never been active in participating in local government disaster preparedness efforts. Only 13.0% have participated to a very small extent, while 20.5% contributed to preparations to some extent. These data underscore the need to encourage broader citizen engagement in local disaster preparedness and planning efforts.

Third, a significant portion of respondents expresses insufficient understanding of the earthquake potential in their municipality/city, where even 27.0% believe that people are not adequately aware of this danger. This inadequate awareness can pose a serious problem in emergency situations, emphasizing the importance of education and information about natural disasters. The results also show that a larger portion of respondents (39.3%) are confident that their neighbors can independently rescue themselves in the event of an earthquake. This suggests a certain level of trust in the community's ability to deal

with emergencies, while only 25.6% believe that their local government has a reliable person working on disaster preparedness. The research also reveals a lack of communication and education about natural disasters in the community, as a significant number of respondents (33.8%) never discuss this important topic with people in their municipality/city. These data highlight the need for improving communication and broader access to education about emergency situations.

Fourth, the study reveals a worryingly low rate of training among respondents for responding to emergency situations (79.5%). This indicates a lack of preparedness among individuals to effectively respond in the event of a disaster. In the final research results, the lack of information about the existence and use of firefighting equipment, as well as the low level of possession of fire extinguishers in respondents' homes, is also evident. These findings emphasize the urgency of implementing educational campaigns and increasing awareness of safety in the community.

The research results indicate significant inequality in the level of training and interest among respondents in responding to emergency situations. The majority of respondents, specifically 68.8%, have not undergone training for responding to emergency situations, which presents a serious challenge in building societal resilience to potential disasters. Interestingly, nearly one-third of respondents, or 31.3%, expressed no interest in such training. This data points to the need for developing adequate and appealing training programs that will motivate the broader community to acquire necessary knowledge and skills for effectively responding to emergency situations. Regarding research addressing citizens' training for responding to these situations, Devi & Sharma (2015) found that less than half of adults had adequate earthquake preparedness practice in Nepal. Becker et al. (2012) found that household earthquake preparedness remains at a modest level despite the importance of preparation (e.g., Napier, Whanganui, and Timaru in New Zealand).

Additionally, the research results reveal that 56.8% of respondents acquired relevant knowledge and skills through informal education systems. This underscores the potential of such programs in providing useful information and preparing the community for emergency situations. However, it is concerning that 43.3% of respondents did not have access to such informal education formats. These data indicate

the importance of promoting informal training programs to increase the number of trained individuals in the community. It is also necessary to identify factors contributing to low interest in training and work on overcoming them, perhaps through raising awareness of the importance of personal and collective preparedness.

In comparison with research conducted in Serbia, Cvetković and colleagues (2019), the results are largely consistent, with some minor or major deviations in certain segments. Demographic data mostly align, with differences observed in education. While in the research in Serbia, the majority of respondents had secondary education, in Montenegro, higher education, including master's and doctoral degrees, was dominant. When it comes to marital status, certain deviations are also present, with the biggest difference noticeable in the employment segment. In Serbia, the majority of respondents are unemployed, while in Montenegro, ¼ of respondents are unemployed.

In terms of household preparedness, we have almost identical data, while minor deviations are observed in the opinions of respondents about the preparedness of the local community to respond to earthquakes. Also, data on knowledge of geological layers are almost identical in both studies. A larger number of respondents in Serbia possess, test, and keep a first aid kit easily accessible. Also, citizens in Serbia are significantly better prepared in terms of supplies in case of earthquake danger (Cvetković et al., 2019). However, a significant difference is observed in the opinion about the supplies possessed by the local community. While in Serbia, 40% of the population believes that these supplies are sufficient, in Montenegro, only 8.3% of respondents share this opinion. Overall, the data are similar in many segments, but what is important is that the data indicate that serious work needs to be done in both Serbia and Montenegro to prepare and make the population and communities resilient to the danger that earthquakes can pose.

9. RECOMMENDATIONS FOR ENHANCING COMMUNITY RESILIENCE TO EARTHQUAKE RESPONSE

Generally speaking, based on everything presented, it can reliably be said that the resilience of citizens to respond to natural disasters

caused by earthquakes in the Republic of Montenegro is at a very low level. Therefore, based on the results, certain recommendations have been provided to enhance resilience considering the various demographic, socio-economic, and psychological characteristics of citizens. The most significant step towards improving preparedness involves designing and implementing specific curricular topics and developing practical skills in primary and secondary education relevant to responding in such situations.

In addition to the formal education system, at the community level, it is possible to organize seminars, courses, and training sessions for citizens living in disaster-prone areas on a bimonthly basis. The state could also invest certain funds to equip the stocks of the most vulnerable citizens with the aim of preventing more serious consequences. Furthermore, more attention should be paid to improving legal regulations in the context of enhancing citizens' resilience to respond to earthquakes.

It is necessary to conduct a more detailed analysis of the nature and extent of the material consequences of earthquakes. Such research can provide insight into specific areas that are particularly exposed to risk and where efforts need to be focused on planning and reducing potential risks. Strengthening infrastructure and developing better preparedness plans can significantly reduce the likelihood and impact of the material consequences of earthquakes. These measures should be a central part of crisis management strategies. Public education on safety measures and preparedness plans can increase self-sufficiency and reduce the number of people experiencing material consequences.

Educational campaigns should focus on specific earthquake hazards and measures individuals can take to prepare for potential consequences. This may include instructions on safe behavior during and after earthquakes. An individualized approach in creating preparedness plans can increase the likelihood that citizens will take concrete steps to prepare their households. This includes identifying specific risks at the local level and adapting plans to those needs. Understanding the reasons why some consider their households completely unprepared can help identify key areas for improvement. This may include an analysis of resource availability, the comprehensiveness of information, and risk perception.

For municipalities/cities that respondents consider absolutely unprepared, efforts should be directed towards improving infrastructure, coordination, and citizen care in the event of earthquakes. To reduce ambivalence, it is advisable for municipalities/cities to develop personalized preparedness plans. This includes analyzing specific hazards and developing appropriate strategies. Educational campaigns should aim to raise awareness of earthquake hazards and the importance of urban planning and preparation for them.

Municipalities/cities that are assessed as absolutely unprepared should immediately take steps to improve their capacities for managing emergencies. Emergency intervention, including the evaluation of existing plans, training, and infrastructure improvements, is crucial to increasing resilience to potential earthquakes. Ambivalence in attitudes may result from a lack of information. Therefore, it is crucial to conduct extensive educational campaigns on preparedness measures, behavior during earthquakes, and provide accurate information about local capacities for managing emergencies. Municipalities/cities with positive results should share their experiences and practices with unprepared communities. This knowledge exchange can contribute to improving overall preparedness at the national level.

Local authorities should actively conduct educational campaigns focusing on specific risks and preparedness measures for earthquakes, as well as safe behavior in the event of earthquakes. Optimizing and updating safety plans at the local level plays a crucial role in guiding citizens and eliminating uncertainties regarding earthquake risks. Proactive investment in improving infrastructure and buildings can increase earthquake resilience, reducing the risk of damage. Direct effective and accessible educational programs that inform citizens about the geological aspects of their environment. These programs should be available in different languages and formats, including online resources, workshops, programs, and local educational initiatives.

Organize public awareness campaigns that emphasize the importance of knowing the geological characteristics of one's living space. Such campaigns can include informative flyers, notices in public places, and special informational events in the community. Encourage active involvement of local communities in promoting education on geological aspects. Local communities can be perfect ambassadors for the public and facilitate a broader understanding of common issues and risks related to earthquakes.

Enhancing educational content on geological aspects in school curricula. It is necessary to ensure that the educational system is up-to-date and includes modern and accurate geological knowledge. Provide easy access to information on safety measures that citizens can apply in the event of earthquakes. This information should be available in community languages and include specific steps individuals can take to protect themselves.
Raising awareness of the importance of house resilience assessments through public campaigns. These campaigns need to be active, informative, and human-centered to inspire citizens to take preventive measures. Organize local workshops and educational programs explaining the process of house resilience assessments and what it means for residents' safety. Develop programs that provide financial rewards for citizens who actively engage in assessing and improving the resilience of their homes.

Research has provided valuable insights into citizens' attitudes and activities regarding the resilience of their homes to earthquakes. The results clearly indicate widespread unawareness among the majority of citizens about the importance of proactive steps in ensuring home safety in the event of earthquakes. With the majority of respondents not having assessed the resilience of their homes, there is an evident need for intensified efforts in education and awareness-raising on this crucial issue. However, a positive signal comes from a small number of respondents who have expressed interest in assessing the resilience of their homes. These citizens represent an encouraging minority, but their engagement indicates a willingness to take preventive measures. By supporting and encouraging this group, we could achieve a more proactive approach to home safety.

To strengthen community resilience to earthquakes, efforts need to be directed towards citizen education, organizing local initiatives, and providing practical tools and information. Activities in this field will contribute to building a safer living and working environment, reducing potential earthquake risks and consequences.
Organize educational campaigns highlighting the benefits of reinforced concrete in house construction. This may encourage greater use of this material among citizens, especially in earthquake-prone areas. Develop and implement programs informing about the importance of proper furniture anchoring. Such campaigns can significantly contribute to reducing the risk of injuries during earthquakes.

Increase the level of supervision over the implementation of building standards, while simultaneously implementing measures to improve them. This is crucial for ensuring the safety of residential buildings.

Implement educational programs on proper use of first aid equipment and providing basic medical interventions. Encourage citizens to regularly check and refresh the contents of their first aid kits, developing awareness of the importance of maintaining readiness.
Optimal placement of first aid kits in easily accessible locations in the home is crucial for an effective response to emergencies. Citizens should be aware of the importance of preparedness and the ability to provide first aid if needed. One of the most important steps in this direction is focusing attention on spaces that are easily accessible and familiar in the home, where the first aid kit should be placed. Accordingly, one proposal is to establish guidelines for the optimal placement of first aid kits. These guidelines should include recommended locations, as well as methods of labeling and organizing contents. Placing the kit in a visible location, easily accessible in case of an emergency, can mean the difference between a quick response and potential complications.

Additionally, encourage citizens to consider storing additional supplies of food, water, and other basic necessities. Preparedness for long-term emergencies can be crucial, and having enough resources for at least seven days can significantly help ensure safety and well-being in unforeseen circumstances. Organizing first aid courses in the community is another important aspect of emergency preparedness. Training citizens in basic medical interventions can be critical, especially when professional help is not immediately available. Information campaigns on the importance of regularly checking and refreshing the contents of first aid kits should also be an integral part of public awareness. With all these measures, developing detailed guidelines for the placement of first aid kits in easily accessible locations within households is necessary. These guidelines should include suggestions for specific locations in the home where the kit should be kept, as well as information on how to update and expand the contents according to needs.

As a ultimate goal, it is important to encourage citizens to develop a habit of maintaining additional supplies of food, water, and other necessities for at least seven days. This preventive measure can be a lifesaver in the event of natural disasters, humanitarian crises, or other

unexpected events. Citizens need to be informed and encouraged to actively participate in raising their preparedness and ability to provide assistance independently in emergencies.

Developing proactive education strategies on geological characteristics, safe zones, and earthquake procedures. Implementing educational campaigns, self-education resources, and workshops to increase awareness and knowledge about community safety. Organizing campaigns to inform citizens about shelter locations nearby and promote awareness of their importance. Developing detailed evacuation plans and providing clear guidance and signage for routes to shelters.

Developing a system for systematic monitoring and updating of shelter status information. This will help increase the efficiency and safety of shelters, providing citizens with accurate information on where to take refuge in emergencies. Encouraging citizens to develop a habit of maintaining additional supplies of food, water, and basic necessities for at least seven days. Encouraging communication and collaboration among neighbors to create a support network within the community. Conducting evacuation drills to prepare citizens for emergency situations. Organizing first aid courses in the community to enable citizens to provide basic medical interventions in emergencies.

Developing guidelines for placing first aid kits in easily accessible locations within households. Providing clear information on steps to take in emergency situations. These recommendations represent steps towards building awareness, education, and collective action to improve community readiness for earthquakes and other emergencies. Organizing workshops and campaigns on the role and responsibilities of shelter management. Developing educational materials on the needs of vulnerable groups during emergencies. Campaigns emphasizing the demographic structure of victims and providing information on prevention measures. Developing personalized resources for families to improve their ability to evacuate independently.

Developing and implementing educational programs on proper handling of deaf, hard of hearing, elderly, and infants during emergencies. Organizing workshops and courses for citizens to improve knowledge of the needs of vulnerable groups and create a more inclusive community. Encouraging greater citizen participation in local disaster preparedness. Organizing events, campaigns, and training

sessions to increase awareness and motivate citizens to actively contribute to community preparedness for emergencies.
Conducting awareness campaigns on potential earthquake hazards and other natural disasters in the community. Organizing regular evacuation drills to prepare citizens for emergencies. Developing and implementing an effective communication system between local authorities and citizens, providing them with accurate information and guidance. Engaging emergency experts and providing resources needed to develop and implement preparedness plans.
Increasing communication among citizens on safety issues and preparedness for emergencies. Organizing regular meetings or events where the community can be informed and ask questions about safety. Organizing first aid training and basic emergency response skills.

Encouraging citizens to acquire basic knowledge of firefighting equipment and how to react properly in case of fire. Installing clear signage and information about the locations of fire extinguishers, hydrants, and other safety resources in the community. Conducting campaigns to inform citizens about the existence and proper use of these resources. Conducting campaigns explaining the importance of "Initial Fire Suppression" and promoting it as a key step in controlling fires before the arrival of firefighting assistance. Organizing workshops and training sessions to familiarize citizens with basic principles of action in the first moments of a fire. Informing citizens about local government activities related to disaster preparedness, emphasizing the role and responsibility of local government in providing community security.

Regularly updating citizens on plans and measures taken by local government to improve preparedness for emergencies. These recommendations build on identified challenges and aim to improve awareness, education, and preparedness of the community for emergencies caused by earthquakes, laying the foundation for building a more resilient society.

10. CONCLUDING REMARKS

Taking into account the comprehensive research, the results show a high degree of safety and resilience of the majority of respondents to the non-material consequences of earthquakes. However, there is a small portion of respondents who have experienced such consequences, which directs attention to the need for additional research and improvement of preventive measures. It is recommended that continuous efforts be made to raise awareness and allocate resources to fully protect the community from potential earthquake risks and their consequences.

Although the majority of respondents claim they have not suffered material consequences of earthquakes, there is a small number of people who have experienced such losses. These data indicate the effectiveness of safety measures, but also emphasize the need for further research and improvement of preventive measures to enhance community safety and readiness for potential future earthquakes.
Respondents' attitudes towards household preparedness for potential earthquake consequences are complex and varied. Personalized education strategies, preparedness plans, and research into the causes of low preparedness can be key in building sustainable community resilience to the challenges that earthquakes may bring. An effective response to these challenges requires a holistic approach focused on raising awareness, adaptable plans, and understanding the individual needs of citizens.

Respondents' views on the readiness of municipalities/cities to respond to earthquakes present a diverse landscape, indicating wide perceptions and varying degrees of security feelings in different communities. Research results indicate differences in the capacities of municipalities/cities, with some expressing a lack of resources and response plans, while other areas emphasize the need to focus on caring for citizens and redirecting additional resources to improve earthquake response capabilities. Some communities express concerns about the preparedness of their local authorities to respond to earthquakes, which can have significant implications for citizens' security perceptions. The difference in approaches between municipalities and cities is precisely the factor that highlights the need for personalized and tailored strategies for managing these challenges. The importance of developing specific preparedness measures that best suit the needs and resources of a particular community is revealed. Examining po-

tential house damages during earthquakes reveals challenges in understanding and public reactions to these issues. Different perceptions regarding possible consequences, from uncertainty to optimism, illustrate a wide range of attitudes among citizens. Some express readiness to face potential damages, while others express some doubt and uncertainty.

There is a need for targeted approaches to education and raising awareness about earthquake risks, with a focus on building more resilient communities. Training and educational programs on safety during earthquakes could significantly contribute to increasing readiness and security. Additionally, it is important to develop mechanisms for rapid and effective action, as well as to direct resources towards building response capacity to earthquakes. Overall strategies for managing this challenge are crucial for building resilience and municipalities/cities' capacity for earthquakes. These strategies should encompass coordinated efforts to improve infrastructure, targeted educational campaigns, and regular simulations of earthquake-induced emergencies. Active involvement of all levels of society, including the government sector, non-governmental organizations, and the civilian population, in the preparation process and improvement of earthquake response systems is necessary. Only integrated and coordinated efforts can guarantee an adequate response and saving lives in the event of these natural disasters.

The research results remind us of the necessity of broader education about the geological aspects of our living space. The lack of information about geological characteristics could have serious direct consequences in earthquake situations, where a deep understanding of geological layers is essential for safety. Proactive approaches in education and information about geological characteristics should become the pinnacle of our efforts. Public education campaigns, accessible and simple self-education resources, as well as community participation in educational and workshop programs, are means that can significantly contribute to the development of public awareness about this challenge. Proactively spreading knowledge about geological aspects helps create a culture of anticipation and adaptability.

Education should cover areas such as identifying safe places during earthquakes, evacuation plans, and first aid procedures. The goal is to enable citizens to react quickly and efficiently in emergency situations. Through educational and informative initiatives, we can raise

awareness of the importance of precautionary measures and reduce the risk of human casualties and injuries in the event of earthquakes. It is also important to emphasize the need for ongoing monitoring and education of citizens about best practices in the construction sector. This activity should be continuous and aimed at informing the public about the latest developments and standards in construction that can increase the resilience of residential buildings to earthquakes. The government sector, engineering organizations, and educational institutions can collaborate to provide current information and advice that will contribute to citizen safety.

Implementation of recommendations derived from such research can significantly contribute to building more resilient and safer residential communities. These steps in critical areas such as geological education and awareness-raising, planning and raising standards in construction, will enable communities to respond more effectively to potential hazards during earthquakes and other natural disasters. Such an approach ensures that not only emergency procedures are improved but also that a culture of safety and responsibility is fostered within the broader community.

The main findings on shelter management, the needs of vulnerable groups, demographic vulnerability, and families' ability for self-evacuation point to the need for a comprehensive approach to enhancing community safety. Firstly, the alarmingly high Percentages of those unaware of who manages shelters underscores the seriousness of the issue. The absence of this basic information can significantly impede effective response and reduce shelter capacity in emergencies. Urgent organization of educational programs, campaigns, and distribution of informative materials is recommended to inform the wider public about this crucial point in the evacuation process.

Secondly, uncertainty among respondents regarding the individuals requiring special care during emergencies (54.8%) indicates a lack of information about the specific needs of vulnerable groups. This requires targeted campaigns that provide clear guidelines and training to ensure proper treatment of people with special needs during evacuations and shelter stays. Thirdly, the knowledge that a significant number of respondents have no knowledge that the elderly constitute the majority of victims in emergencies points to the need to raise awareness of demographic vulnerability. Education should emphasize

the role of older persons in the community, the need for specific protective measures, and support during emergencies.

Fourthly, differences in attitudes towards the ability of family members to evacuate independently (73.5% vs. 26.6%) indicate variations in family preparedness. A personalized approach to providing information and resources is recommended to adequately prepare each family for emergencies, taking into account their specific needs and limitations. In order to effectively reduce vulnerability and increase community resilience, it is necessary to establish cooperation between authorities, non-governmental organizations, and the local community. Integrating these findings into existing emergency strategies can significantly contribute to building a sustainable and safe environment. Comprehensive education, information, and timely action are key elements in creating a resilient society that can successfully address the challenges of emergencies.

The scientific and social implications of research on community resilience to earthquakes can be significant for the development of strategies, policies, and practices that contribute to citizen safety and preparedness: identifying a small portion of respondents who have experienced material consequences of earthquakes indicates the need for additional research and improvement of preventive measures; continuous efforts to raise awareness and allocate resources are recommended to fully protect the community from potential risks and their consequences; attitudes of respondents towards household preparedness vary, indicating the need for personalized education strategies; educational programs and preparedness plans can be key in building sustainable community resilience to earthquake challenges; diverse landscape of attitudes towards municipalities/cities readiness highlights the need for targeted management strategies; the importance of developing specific preparedness measures tailored to the needs and resources of specific communities is revealed.

11. CONTRIBUTIONS

11.1. Anonymous Survey on Earthquake Response Resilience in Montenegro

Dear all,
This research aims to investigate the attitudes, knowledge, and opinions of citizens regarding the resilience of local communities in Montenegro to earthquakes as a natural disaster. The research is organized by Mr. Goran Grozdanić, a doctoral student at the Faculty of Geography in Belgrade. The obtained results will serve to identify potential deficiencies in earthquake response resilience (both of state institutions and citizens themselves) and to raise resilience to a higher level.
The questionnaire is anonymous. It is not important to know who individually filled out the questionnaire, but it is crucial to determine which areas of local community resilience in emergencies need further improvement.
The questionnaire is not a knowledge test, there are no right or wrong answers, and the subject of interest is solely your opinion on the questions asked.

I. GENERAL SECTION

1. Circle your gender: a) male b) female;
2. How old are you_____ (write the number);
3. Your education level is (circle the answer):
a) elementary; b) secondary/three-year; c) secondary/four-year; d) higher; e) undergraduate; f) master's; g) doctorate; h) other: _____.
4. Your profession is_____(write). You graduated from _____(write the name of the faculty/high school).
5. What was your overall grade average during secondary education? (circle the answer):
a) sufficient; b) good; c) very good; d) excellent; e) outstanding;
During primary education:
a) sufficient; b) good; c) very good; d) excellent; e) outstanding.
6. Education of your parents (circle):

Mother - a) incomplete primary b) primary; c) secondary; d) higher; e) undergraduate; f) master's; g) doctorate.
Father - a) incomplete primary b) primary; c) secondary; d) higher; e) undergraduate; f) master's; g) doctorate.

7. What is your marital status? (circle the answer)

a) single b) in a relationship c) married; d) divorced; e) widowed

8. Do you have children? a) yes b) no. If the answer to the previous question is yes, for each child
write down their gender and age?
1.(gender)(age)_2._____(gender)(age) 3.
_(gender)(age) 4.(gender)____(age).

9. At your residence address, you live in:
a) an apartment up to 35m2; b) an apartment 35m2-60m2; c) an apartment 60m2-80m2; d) an apartment 80m2-100m2; e) an apartment over 100m2;
f) a house up to 60m2; g) a house 60 m2-100 m2; h) a house 100 m2-150m2; i) a house 150m2-200m2; j) a house over 200m2.

10. If you live in a building:
a) on which floor do you live? _____ b) how many apartments are there in your building? _____ (write the numbers).

11. The house/apartment at your residence address is:
a) yours; b) owned by a family member; c) owned by a third party from whom you rent;

12. At your residence address, you live together with (multiple answers possible):
a) father; b) mother; c) brother; d) sister; e) husband; f) wife; g) son; h) daughter; i) grandparents. Write down the number of household members ____.

13. Your residence is in _____(place), _____(municipality).

14. Do you currently live with or care for someone with a disability, including elderly persons who require constant attention and care?
a) yes; b) no.

15.Do you have a disability yourself:
a) yes; b) no.

16. What are your approximate average household incomes:
a) up to 450 euros; b) from 450 to 700; c) from 700 to 1,000; d) over 1,000 euros.

17. What is your nationality (circle):
a) Montenegrin, b) Serbian; c) Croatian; d) Roma; e) Albanian; f) Bosniak.

18. Are you employed?
a) yes, b) no.
If you are employed, where do you work:
a) private sector; b) public sector; c) own business; d) something else_____(write). How many members of your household are employed: _____.

19. If you are not employed, do you:
a) have an internship; b) volunteer; c) actively seek employment; d) not attempt to find employment; e) pensioner; f) supported individual; g) attend school/university.

20. Have you experienced any non-material consequences of the earthquake?
a) yes; b) no.
If yes, please specify what_____ (write). Have you experienced any material consequences of the earthquake?
a) yes; b) no.
If yes, please specify what_____ (write).

II. PERCEPTION OF READINESS

Answers (circle the response that best reflects reality):

1. How do you rate your household's readiness to respond to an earthquake on a scale of 1 to 5? (1- insufficient; 5- excellent).
1 2 3 4 5

2. How do you rate the readiness of your municipality/city to respond to an earthquake on a scale of 1 to 5? (1- insufficient; 5- excellent).
1 2 3 4 5

3. Do you think your house (apartment) will be damaged in the event of an earthquake (intensity of 6 or stronger on the MCS scale)? (1- not at all; 5- quite likely).
1 2 3 4 5

4. Do you know the geological layers (soil composition) beneath your house? (1- not at all; 5- very well).
1 2 3 4 5

5. Have you checked the earthquake resistance of your house?
Yes No

6. Is your house built of reinforced concrete?
Yes No

7. Have you anchored your furniture to the walls?
Yes No

8. Do you think that buildings in your local municipality are built of reinforced concrete? (1 – none are; 5 – all are built of reinforced concrete).
1 2 3 4 5

9. Do you possess a first aid kit in your household?
Yes No

10. Have you checked the contents of the first aid kit, if you have one?
Yes No

11. Do you keep your first aid kit in an easily accessible place?
Yes No

12. Do you have any other emergency supplies?
Yes No

13. Do you think your emergency supplies are sufficient in case of an emergency? (1- insufficient; 5- very sufficient).
1 2 3 4 5

14. Does your local municipality have emergency supplies?
Yes No

15. Do you know the location of the designated shelter nearby?
Yes No

16. Do you know the way to the shelter?
Yes No

17. Are there any obstacles on the way to the shelter?
Yes No Not sure

18. Will you call neighbors when you evacuate?
Yes No

19. Do you know the condition of the shelters?
Yes No

20. Do you know who manages the shelters?
Yes No

21. Do you know which people require special care in emergencies, i.e., during earthquakes?
Yes No Not sure

22. Do you know that the majority of casualties and injuries are among the elderly population?
Yes No

23. Is there anyone in your family who couldn't evacuate alone in case of an earthquake?
Yes No

24. Do you know where elderly people, people with disabilities, and infants live in your community?
Yes No

25. Do you know how to communicate with deaf or hearing-impaired individuals?
Yes No

26. Do you know what assistance elderly, disabled, and infants require?
Yes No

27. Have you participated in any way in preparing the local municipality for disasters?
No Yes, completely

28. Do you think residents of your municipality/city are aware that earthquakes can occur in your local municipality? (1- not at all aware; 5- completely aware)
1 2 3 4 5

29. Do you think your neighbors can self-rescue in case of an earthquake (and to what extent)? (1 - cannot at all; 5- definitely can)
1 2 3 4 5

30. Does your local municipality have a reliable person working on disaster preparedness measures?
Yes No

31. Do you talk to people in your municipality/city about natural disasters?
1 2 3 4 5

32. Do you know someone who can advise you on disaster preparedness?
Yes No

33. Do you communicate with your neighbors? (1- not at all; 5- with everyone)
1 2 3 4 5

34. Do you think companies in your municipality/city are helpful in emergencies?
1 2 3 4 5

35. Do you know how to handle a fire extinguisher?
Yes No

36. Do you have a fire extinguisher in your house/apartment for initial fire suppression?
Yes No

37. Do you know where the fire extinguishers and hydrants are in your neighborhood?
1 2 3 4 5

38. Have you used a hydrant or fire hose?
Yes No

39. Have you heard of the term "initial fire suppression"?
Yes No

40. Are houses in your neighborhood close to each other (less than 1 meter apart)? (1- none are close; 5- all are very close)
1 2 3 4 5

41. Can fire trucks access any street in your neighborhood?
Yes No

42. Do you often see improperly parked cars?
1 2 3 4 5

43. Have you received any training on how to act in emergencies?
Yes No

44. If not, would you like to undergo training for responding to natural disasters caused by earthquakes?
Yes No

45. Have you acquired or are you acquiring knowledge and skills relevant to earthquake response through informal education?
Yes No

12. REFERENCES

Able, E., & Nelson, M. (1990). Circles of Care: Work and Identity in Women's Lives, Albany, NY: SUNY Press.

Adger, W.C. (2000).Social and ecological resilience are they related? *Progress in Human Geography*, 24(3), 347-364.

Alexander, D. E. (2002). *Principles of emergency planning and management*. Oxford University Press on Demand.

Ali, Z. S. (2013). Media myths and realities in natural disasters. *European Journal of Business and Social Sciences*, *2*(1), 125-133.

Anđelković, B., & Kovač, M. (2016). *Socijalni kapital: Nevidljivo lice otpornosti*. Srbija, Beograd: UNDP Srbija.

Ao Y., Tan L., Tan L., Zhong J. (2020). Householdsearthquake disaster preparedness behavior: The role of trust in and help from stakeholders.

Applied Geography, *31*(1), 46 - 52.

Arachi,F., Bozkaya, H., Cengiz, E., Kuzey, M. (2023). Education in Disaster Situations: The Impact of the Kahramanmaras earthquake on teachers experiences

Baker, E. J. (2011). Household preparedness for the aftermath of hurricanes in Florida.

Baker, L. R., & Baker, M. D. (2010). Disaster preparedness among families of children with special health care needs. *Disaster medicine and public health preparedness*, *4*(03), 240 – 245.

Becker, J. S., Paton, D., Johnston, D. M., & Ronan, K. R. (2012). A model of household preparedness for earthquakes: how individuals make meaning of earthquake information and how this influences preparedness. *Natural Hazards*, *64*(1), 107 - 137.

Becker, J. S., Paton, D., Johnston, D. M., & Ronan, K. R. (2013). Salient beliefs about earthquake hazards and household preparedness. *Risk Analysis*, *33*(9), 1710 - 1727.

Becker, N. (2009). Raising preparedness by risk analysis of post - disaster homelessness and improvement of emergency shelters. *Disaster Prevention and Management*, *18*(1), 49 - 54.

Becker, S. (2000). Environmental disaster education at the university level: an integrative approach. *Safety science*, *35*(1), 95 - 104.

Below, R., Wirtz, A., & Guha-Sapir, D. (2009). *Disaster category classification and peril terminology for operational purposes* (No. UCL-Université Catholique de Louvain).

Betul Ergun Konokcu (2023). Istanbul Resilience Approach Against Earthquake

Bimal., P. (2011). *Environmental hazards and disasters: contexts, perspectives and management*. Kansas: State University. Wiley – Blackwell.

Bolt, Bruce (2020). Eartquake. *Encyclopedia Britannica*. Pristupljeno: 15.04.2020. Dostupno na: https://www.britannica.com/science/earthquake-geology

Boon, H. J., Cottrell, A., King, D., Stevenson, R. B., & Millar, J. 2012. Bronfenbrenner's bioecological theory for modeling community resilience to natural disasters. Natural Hazards, 60 (2): 381–408.

Bošković, D., Cvetković, V. (2017). Procena rizika u sprečavanju izvršenja krivičnih dela eksplozivnim materijama. Beograd: Kriminalističko-policijska akademija.

Bourdieu, P. (1990). Structures, habitus, practices. *The logic of practice*, 52-65.

Božović, A. (2003). Seizmičnost pobuđena akumulacijama. Vodoprivreda 0350-0519,35, 205-206.

Briguglio, L., Cordina, G., Farrugia, N., & Vella, S. (2009). Economic vulnerability and resilience: concepts and measurements. *Oxford development studies*, *37*(3), 229-247.

Brouwer, R., & Van Ek, R. (2004). Integrated ecological, economic and social impact assessment of alternative flood control policies in the Netherlands. *Ecological economics*, *50*(1-2), 1-21.

Bruneau, M., Chang, S. E., Eguchi, R. T., Lee, G. C., O'Rourke, T. D., Reinhorn, A. M. & Von Winterfeldt, D. (2003). A framework to quantitatively assess and enhance the seismic resilience of communities. *Earthquake spectra*, *19*(4), 733-752

Buckle, P. (1998). Re-defining community and vulnerability in the context of emergency management. Australian Journal of Emergency and Management, 1998/199, 21- 29.

Burić Mihailo (2003). Geografsko – istorijski atlas Crne Gore: Formiranje crnogorske teritorije: Prevalis – Duklja – Zeta – Crna Gora. Filozofski fakultet, Institut za Geografiju.

Bursić Š. M., Zlatović (2023). Quality of the traditional timberhouses in Croatia Proven in the M6. 2020 zear, Petrinja earthquake.

Cannoodt, L., Mock, C., & Bucagu, M. (2012). Identifying barriers to emergency care services. *The International journal of health planning and management, 27*(2), e104-e120.
Carter, W. N. (2008). Disaster management: A disaster manager's handbook. Asian development bank.
Centre for Research on the Epidemiology of Disasters [CRED] (2015). *The human cost of natural disasters: A global perspective*. Brussels, Belgium: CRED.
Chadha, RK., at. al (2007). Disasters due to natural hazards. Nat Hazards 40:501– 502. doi:10.1007/s11069-006-9010-4
Chevalier, A., Harmon, C., O'Sullivan, V., & Walker, I. (2013). The impact of parental income and education on the schooling of their children. *IZA Journal of Labor Economics, 2*(1), 1-22.
Combs, J. P., Slate, J. R., Moore, G. W., Bustamante, R. M., Onwuegbuzie, A. J., & Edmonson, S. L. (2010). Gender differences in college preparedness: A statewide study. The Urban Review, 42(5), 441-457.
Comerio, M. C. (2014). Disaster recovery and community renewal: Housing approaches. *Cityscape, 16*(2), 51-68.
Cred Crunch, (2018). *Earthquakes in Europe*. Cred Crunch Issue No. 51.
Cui, K., Han, Z., & Wang, D. (2018). Resilience of an earthquake-stricken rural community in southwest China: Correlation with disaster risk reduction efforts. *International journal of environmental research and public health, 15*(3), 407.
Cuny, Frederick C. (1994). Disasters and Development. https://hdl.handle.net/1969.1/159887
Cutter SL (1996) Vulnerability to environmental hazards. Prog Hum Geogr 20(4):529–539. doi:10.1177/030913259602000407
Cutter, S. L., Barnes, L., Berry, M., Burton, C., Evans, E., Tate, E., & Webb, J. (2008). A place-based model for understanding community resilience to natural disasters. *Global environmental change, 18*(4), 598-606.
Cvetković V., Milojković B. i Stojković D. (2014), Analiza geoprostorne i vremenske distribucije zemljotresa kao prirodnih katastrofa, Vojno delo(str.166-185).
Cvetković, V. (2013). Interventno-spasilačke službe u vanrednim situacijama. Beograd, Zadužbina Andrejević.
Cvetković, V. (2014). Zaštita kritične infrastrukture od posledica prirodnih katastrofa. U *Sedma međunarodna znastveno-stručna konferencija,, Dani kriznog upravljanja". Hrvatska: Velika Gorica* (Vol. 22, pp. 1281-1295).

Cvetković, V. (2014). *Zaštita kritične infrastrukture od posledica prirodnih katastrofa*. Paper presented at the Sedma međunarodna znastveno-stručna konferencija ,,Dani kriznog upravljanja", Hrvatska.
Cvetković, V. (2014b). The impacts of climate changes on the risk of natural disasters. Skopje: International yearbook of the Faculty of security, 51-60.
Cvetković, V. (2015). Spremnost građana za reagovanje na prirodnu katastrofu izazvanu poplavom u Republici Srbiji. (doktorska disertacija). Beograd. Fakultet za bezbednost.
Cvetković, V. (2015a). Citizens preparedness for responding to natural disaster caused by flood in Serbia - Spremnost građana za reagovanje na prirodnu katastrofu izazvanu poplavom u Republici Srbiji.
Cvetković, V. (2016). Influence of employment status on citizen preparedness for response to natural disasasters. *NBP – Journal of criminalistics and law, 21*(2), 46-95.
Cvetković, V. (2016). Influence of employment status on citizen preparedness for response to natural disasasters. *NBP – Journal of criminalistics and law, 21*(2), 46-95.
Cvetković, V. (2016). Policija i prirodne katastrofe. Beograd (Instant system): Zadužbina Andrejević.
Cvetković, V. (2016b). Influence of Income Level on Citizen Preparedness for Response to Natural Disasters. Vojno delo, 66(4), 100-127.
Cvetković, V. (2016c). The relationship between educational level and citizen preparedness for responding to natural disasters. Journal of the Geographical Institute “Jovan Cvijić” SASA, 66(2), 237-253.
Cvetković, V. (2016c). Uticaj demografskih, socio-ekonomskih i psiholoških faktora na preduzimanje preventivnih mera. Kultura Polisa, 13(32), 393-404.
Cvetković, V. (2017). Krizne situacije–pripremljenost države, lokalne zajednice i građana. Vojno delo, 69(7), 122-136
Cvetković, V. (2017). *Metodologija istraživanja katastrofa i rizika - teorije, koncepti i metode*, str. 57-61. Beograd: Zadužbina Andrejević.
Cvetković, V. (2017). Metodologija istraživanja katastrofa i rizika: teorije, koncepti i metode. *Beograd: Zadužbina Andrejević.*
Cvetković, V. (2017). Metodologija naučnog istraživanja katastrofa – teorije, koncepti i metode. Zadužbina Andrejević, Beograd.

Cvetković, V. (2017). Metodologija naučnog istraživanja katastrofa – teorije, koncepti i metode. Zadužbina Andrejević, Beograd.
Cvetković, V. (2017a). Metodologija istraživanja katastrofa i rizika: teorije, koncepti i metode. In: Beograd: Zadužbina Andrejević, Instant system.
Cvetković, V. (2019). Upravljanje rizicima i sistemi zaštite i spasavanja od katastrofa. Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama, Beograd.
Cvetković, V. (2020). Upravljanje rizicima u vanrednim situacijama. Beograd: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.
Cvetković, V. (2021). Bezbednosni rizici i katastrofe. Beograd: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.
Cvetković, V. (2021). Pravni i bezbednosni aspekti upravljanja rizicima od prirodnih i antropogenih katastrofa. Izdavač: Pravni fakultet u Novom Sadu i Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.
Cvetković, V. (2022). Taktika zaštite i spasavanja u katastrofama. Beograd: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.
Cvetković, V. (2023). A Predictive Model of Community Disaster Resilience based on Social Identity Influences (MODERSI). *International Journal of Disaster Risk Management*, 5(2), 57-80.
Cvetković, V. (2023). Integrisano upravljanje rizicima od katastrofa: pripremljenost, ublažavanje, odgovor i oporavak. Beograd: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.
Cvetković, V. (2023). Istorijiski razvoj Naučno-stručnog društva za upravljanje rizicima u vanrednim situacijama. Beograd: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.
Cvetković, V. (2023). Otpornost na katastrofe – Vodič za prevenciju, reagovanje i oporavak. Beograd: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.
Cvetković, V. (2023). Otpornost na katastrofe – Vodič za prevenciju, reagovanje i oporavak. Beograd: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.
Cvetković, V. (2023). Spremnost srednjih škola Sliva Zapadne Morave u Republici Srbiji za smanjenje rizika od katastrofa i upravljanje u vanrednim situacijama. Beograd: Fenomena.

Cvetković, V. (2023d). A Predictive Model of Community Disaster Resilience based on Social Identity Influences. International Journal of Disaster Risk Management, 5(2), 57-80.

Cvetkovic, V. M. (2019). Risk Perception of Building Fires in Belgrade. *International Journal of Disaster Risk Management, 1*(1), 81-91.

Cvetkovic, V. M. ., Nikolic, A., & Ivanov, A. (2023). The role of social media in teh process of informing the public about disaster risks. Journal of Liberty and International Affairs, 9(2), 104-119. https://doi.org/10.47305/JLIA2392121c. In SCOPUS - Q3 - Political science and International Relations.

Cvetković, V. M., & Bošković, N. (2021). Konceptualne osnove i dimenzije otpornosti na katastrofe: Conceptual bases and dimensions of resilience to disasters. *Zbornik radova Naučno-stručnog društva za upravljanje rizicima u vanrednim situacijama i Međunarodnog instituta za istraživanje katastrofa (Collection of Papers, Scientific-Professional Society for Disaster Risk Management and International Institute for Disaster Research*, 175-191.

Cvetković, V. M., & Filipović, M. (2018). Ispitivanje uloge porodice u edukaciji dece o prirodnim katastrofama. *Nauka, bezbednost, policija, 23*, 71-85.

Cvetković, V. M., & Jovanović, M. (2020). Ispitivanje faktora uticaja na percepciju javnosti o mitski zasnovanom ponašanju ljudi u uslovima katastrofa.

Cvetković, V. M., & Šišović, V. (2023). Capacity Building in Serbia for Disaster and Climate Risk Education. *Available at SSRN 4575350*.

Cvetković, V. M., & Šišović, V. (2024). Understanding the Sustainable Development of Community (Social) Disaster Resilience in Serbia: Demographic and Socio-Economic Impacts. Sustainability, 16(7), 2620. https://www.mdpi.com/2071-1050/16/7/2620.

Cvetković, V. M., & Stanišić, J. (2015). Relationship between demographic and environmental factors and knowledge of secondary school students on natural disasters. *Journal of the Geographical Institute Jovan Cvijic Sasa, 65*(3), 323-340.

Cvetković, V. M., Dragašević, A., Protić, D., Janković, B., Nikolić, N., & Milošević, P. (2022a). Fire safety behavior model for residential buildings: Implications for disaster risk reduction. *International Journal of Disaster Risk Reduction*, 102981.

Cvetković, V. M., Lipovac, M., & Milojković, B. (2016). Knowledge of secondary school students in Belgrade as an element of flood preparedness. *Teme, 40*(4), 1259-1273;

Cvetković, V. M., Öcal, A., & Ivanov, A. (2019). Young adults' fear of disasters: A case study of residents from Turkey, Serbia and Macedonia. International Journal of Disaster Risk Reduction, 101095.

Cvetković, V. M., Romanić, S., & Beriša, H. (2023). Religion Influence on Disaster Risk Reduction: A case study of Serbia. *International Journal of Disaster Risk Management, 5*(1), 66-81.

Cvetković, V. M., Ronan, K., Shaw, R., Filipović, M., Mano, R., Gačić, J., & Jakovljević, V. (2019). Household earthquake preparedness in Serbia: A study of selected municipalities. Acta Geographica, 59(2), 28-42. doi:10.3986/ags.5445

Cvetković, V. M., Tanasić, J., Ocal, A., Kešetović, Ž., Nikolić, N., & Dragašević, A. (2021). Capacity Development of Local Self-Governments for Disaster Risk Management. *International journal of environmental research and public health, 18*(19), 10406.

Cvetković, V., & Andrejević, T. (2016). Qualitative research on the readiness of citizens to respond to natural disasters - Kvalitativno istraživanje pripremljenosti građana za reagovanje na prirodne katastrofe. Serbian Science Today, 1(3).

Cvetković, V., & Andrić, K. (2023). Comparative Analysis of Disaster Risk Management Systems in Germany, USA, Russia and China. *Preprints, 2023020267 (doi: 10.20944/preprints202302.0267.v1).*

Cvetković, V., & Čaušić, L. (2022). Zbirka propisa iz oblasti vanrednih situacija. Beograd: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.

Cvetković, V., & Čaušić, L. (2022). Zbirka propisa iz oblasti vanrednih situacija. Beograd: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.

Cvetković, V., & Filipović, M. (2017a). Concept of disaster resilience - Koncept otpornosti na katastrofe. *Ecologica*.

Cvetković, V., & Filipović, M. (2017b). Ispitivanje znanja učenika o pravilnom načinu postupanja za vreme prirodnih katastrofa-Research into students knowledge of the proper way of acting during natural disasters. Bezbjednost, policija i gradjani, 13(2), 105-120.

Cvetković, V., & Filipović, M. (2017b). Posledice prirodnih katastrofa: faktori uticaja na percepciju građana Srbije - Consequences of

natural disasters: factors of influence on Serbian citizens perception. *Ecologica*.
Cvetković, V., & Filipović, M. (2018). Koncept otpornosti na katastrofe - Theory of disaster resilience. *Ecologica, 25*(89), 202-207.
Cvetković, V., & Jovanović, M. (2021). Mitovi o katastrofama: istine i zablude. Beograd: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.
Cvetković, V., & Nikolić, M. (2021). Uloga društvenih mreža u smanjenju rizika od katastrofa: studija slučaja Beograd. *Bezbednost*, 63 (1), 25-42.
Cvetković, V., & Todorović, S. (2021). Comparative analysis of disaster risk management policies in the region of south-east Europe - Komparativna analiza politike upravljanja rizicima od katastrofe u regionu jugoistočne Evrope.
Cvetković, V., Andrić, K., Ivanov, A. (2023). Comparative Analysis of Disaster Risk Management Systems in Germany, USA, Russia And China. Macedonia. International academic conference, Temporary security ripples or new world arcitecture of security, Dojran, N. Macedonia, September 4-7 2023.
Cvetković, V., Bošković, D., Janković, B., & Andrić, S. (2019). Percepcija rizika od vanrednih situacija. Kriminalističko-policijska akademija, Beograd.
Cvetković, V., Bošković, D., Janković, B., & Andrić, S. (2019). Percepcija rizika od vanrednih situacija. Kriminalističko-policijska akademija, Beograd.
Cvetković, V., Bošković, D., Janković, B., & Andrić, S. (2019). Percepcija rizika od vanrednih situacija - Disaster risk perception. In: Kriminalističko-policijski univerzitet u Beogradu.
Cvetković, V., Bošković, N., & Ocal, A. (2021). Individual citizens' resilience to disasters caused by floods: a case study of Belgrade. *PREPRINT (Version 2) available at Research Square [https://doi.org/10.21203/rs.3.rs-923368/v2]*.
Cvetković, V., Bošković, N., & Ocal, A. (2021). Individual citizens' resilience to disasters caused by floods: a case study of Belgrade. *Academic Perspective Procedia*, 4(2), 9-20.
Cvetković, V., Čvorović, M., & Beriša, H. (2023a). The Gender Dimension of Vulnerability in Disaster Caused by the Corona Virus (Covid-19). *NBP, 28*(2), 32-54.
Cvetković, V., Dragićević, S., Petrović, M., Mijalković, S., Jakovljević, V., & Gačić, J. (2015). Knowledge and perception of secondary school students in Belgrade about earthquakes as natural dis-

asters. Polish journal of environmental studies, 24(4), 1553-1561.
Cvetković, V., Filipović, M. & Gačić, J. (2018). Teorijski okvir istraživanja u oblasti katastrofa. *Ecologica*, *25*(91), 545.
Cvetković, V., Filipović, M. (2017). Pripremljenost za prirodne katastrofe – preporuke za unapređenje pripremljenosti. Zadužbina Andrejević, Beograd.
Cvetković, V., Filipović, M., & Gačić, J. (2019). Zbirka propisa iz oblasti upravljanja rizicima od katastrofa. Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama, Beograd.
Cvetković, V., Filipović, M., i Gačić, J. (2019).*Zbirka propisa iz oblasti upravljanja rizicima od katastrofa*. Beograd, Srbija: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.
Cvetković, V., Gačić, J. (2016). Evakuacija u prirodnim katastrofama. Beograd: Zadužbina Andrejević, 2016.
Cvetković, V., Ivković, T. (2022). Social Resilience to Flood Disasters: Demographic, Socio-economic and Psychological Factors of Impact". 12th International Conference of the International Society for the Integrated Disaster Risk Management, Cluj-Napoca, Romania, 21-23 September 2022. Hosted by Babeş-Bolyai University of Cluj-Napoca (Romania), Research Institute for Sustainability and Disaster Management based on High Performance Computing and Faculty of Environmental Science and Engineering.
Cvetković, V., Kevin, R., Shaw, R., Filipović, M., Mano, R., Gačić, J., & Jakovljević, V. (2018). Household earthquake preparedness in Serbia – a study from selected municipalities. Acta Geographica, 59(1), 27-43.
Cvetković, V., Kevin, R., Shaw, R., Filipović, M., Mano, R., Gačić, J., & Jakovljević, V. (2019). Household earthquake preparedness in Serbia – a study from selected municipalities. *Acta Geographica*, *59*(2), 27-43.
Cvetković, V., Marković, K. (2021). Examining the impact of demographic and socio-economic factors on the level of employee preparedness for a disaster caused by fires: A case study of Electrical power distribution in Serbia. International Scientific Conference 30 Years of Independent Macedonian State 13-15 September 2021, Ohrid

Cvetković, V., Martinović, J. (2021). Upravljanje u nuklearnim katastrofama. Beograd: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.
Cvetković, V., Martinović, J. (2021). Upravljanje u nuklearnim katastrofama. Beograd: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.
Cvetković, V., Milašinović, S., & Gostimirović, L. (2018). Istorijiski razvoj policijskog obrazovanja u Srbiji. Visoka poslovna tehnička škola, Doboj.
Cvetković, V., Milašinović, S., & Lazić, Ž. (2018). Examination of citizens' attitudes towards providign support to vulnerable people and voluntereeing during disasters. Journal for social sciences, TEME, 42(1), 35-56.
Cvetković, V., Milojković, B., & Stojković, D. (2014). Analiza geoprostorne i vremenske distribucije zemljotresa kao prirodnih katastrofa - Analysis of geospatial and temporal distribution of earthquakes as a natural disaster. Vojno delo, 2(2014), 166-185.
Cvetković, V., Nikolić, N., Nenadić, R. U., Ocal, A., & Zečević, M. (2020). Preparedness and Preventive Behaviors for a Pandemic Disaster Caused by COVID-19 in Serbia. International Journal of Environmental Research and Public Health, 17(11), 4124.
Cvetković, V., Nikolić, N., Nenadić, R. U., Ocal, A., & Zečević, M. (2020). Preparedness and Preventive Behaviors for a Pandemic Disaster Caused by COVID-19 in Serbia. *International journal of environmental research and public health*, *17*(11), 4124.
Cvetković, V., Nikolić, N., Nenadić, R. U., Ocal, A., & Zečević, M. (2020). Preparedness and Preventive Behaviors for a Pandemic Disaster Caused by COVID-19 in Serbia. *International journal of environmental research and public health*, *17*(11), 4124.
Cvetković, V., Öcal, A., & Ivanov, A. (2019). Young adults' fear of disasters: A case study of residents from Turkey, Serbia and Macedonia. International Journal of Disaster Risk Reduction, 35, 101095.
Cvetković, V., Öcal, A., & Ivanov, A. (2019). Young adults' fear of disasters: A case study of residents from Turkey, Serbia and Macedonia. *International Journal of Disaster Risk Reduction*, 101095.
Cvetković, V., Radonjić, S. (2022). Ugrožavanje bezbednosti lokalnih zajednica u vanrednim situacijama izazvanim poplavama. *Politika nacionalne sigurnosti,* 13 (22), 81-105.

Cvetković, V., Rikanović, S., Knežević, S. (2022). Resilience of society in disasters caused by nuclear accidents. IAI Academic Conference Proceedings, Budapest Conference, 5 May 2022.

Cvetković, V., Roder, G., Öcal, A., Tarolli, P., & Dragićević, S. (2018). The Role of Gender in Preparedness and Response Behaviors towards Flood Risk in Serbia. International Journal of Environmental Research and Public Health, 15(12), 2761.

Cvetković, V., Roder, G., Öcal, A., Tarolli, P., & Dragićević, S. (2018). The Role of Gender in Preparedness and Response Behaviors towards Flood Risk in Serbia. International Journal of Environmental Research and Public Health, 15(12), 2761.

Cvetković, V., Romanić, S., & Beriša, H. (2023). Religion Influence on Disaster Risk Reduction: A Case Study of Serbia. *International Journal of Disaster Risk Management* 2023, 5 (1), 67–81.

Cvetković, V., Romanić, S., Beriša, H. (2023). Religion Influence on Disaster Risk Reduction: A case study of Serbia. *International Journal of Disaster Risk Management*, 5 (1), 66-81.

Cvetković, V., Šišović, V. (2024). Community Disaster Resilience in Serbia. Belgrade: Scientific-Professional Society for Disaster Risk Management.

Cvetković, V., Šišović, V. (2024). Community Disaster Resilience in Serbia. Beograd: naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.

Cvetković, V., Vujanović, S., Ivanov, A. (2023). Reducing the Risk of Disasters Caused by Epidemics. International Academic Institute, academic conference, Syracuse University, Florence, Italy, 20. june 2023.

Cvetković, V.M., Tanasić, J.; Ocal, A., Živković-Šulović, M., Ćurić, N., Milojević, S., Knežević, S. (2023). The Assessment of Public Health Capacities at Local Self-Governments in Serbia. *Lex localis – Journal of Local Self Government*, 21(4), 1201-1234.

Davidson, D. J., & Freidenburg, W. R. (1996). Gender and environmental risk concerns: a review and analysis of available research. Environment and Behavior 28, 302-339.

Davidson, D. J., & Freidenburg, W. R. (1996). Gender and environmental risk concerns: a review and analysis of available research. *Environment and Behavior, 28*, 302 -339

De Goyet, C. D. V. (2000). Stop propagating disaster myths. *Disaster Prevention and Management: An International Journal*. Dostupno na: https://www.emerald.com/insight/content/doi/10.1108/dpm.2000.07309eaa.002/full/html

Delaney, P. L., & Shrader, E. (2000). Gender and post-disaster reconstruction: The case of Hurricane Mitch in Honduras and Nicaragua. *Decision review draft. Washington, DC: LCSPG/LAC Gender Team, The World Bank*.

Deria, A., Ghannad, P., & Lee, Y.-C. (2020). Evaluating implications of flood vulnerability factors with respect to income levels for building long-term disaster resilience of low-income communities. *International Journal of Disaster Risk Reduction, 48*, 101608.

Devi, A. W., & Sharma, D. (2015). Awareness on earthquake preparedness: A key to safe life. International Journal of Nursing Research and Practice

Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks (2007). *Official Journal of the European Union, L288*, 27-34.

Đorđević, M. (2018). Zemljotresi u 21. veku. Vojno delo, 70(2), 253-259.

Drabek, T. E. (1969). Social processes in disaster: Family evacuation. Social problems, 16(3), 336-349.

Dragićević, S., & Filipović, D. (2009). Prirodni uslovi i nepogode u planiranju i zaštiti prostora. Beograd: Univerzitet u Beogradu, Geografski fakultet.

Drury, J., Novelli, D., & Stott, C. (2013). Psychological disaster myths in the perception and management of mass emergencies. *Journal of Applied Social Psychology*, *43*(11), 2259-2270.

Durkin, M., Aroni, S., & Coulson, A. (1983). Injuries in the Coalinga earthquake. The Coalinga earthquake of May 2.

Earth. Avalon PublishingISBN-139780786742554

Edwards, M. (1993). Social location and self-protective behavior: Implications for earthquake preparedness. International Journal of Mass Emergencies and Disasters, 11(3), 293-303.

Emergency events Database [EMDAT] (2019). *OFDA/CRED International Disaster Database.* Brussels, Belgium: Université Catholique de Louvain.

Endress, M. (2015) The Social Constructedness of Resilience.Social Sciences. 4 (3): 533–545.

Etkin D, Haque E, Bellisario L, Burton I (2004) An assessment of natural hazards and disasters in Canada. The Canadian natural hazards assessment project. Public safety and emergency preparedness Canada and environment Canada, Ottawa

Faupel, C. E., Kelley, S. P., & Petee, T. (1992). The impact of disaster education on household preparedness for Hurricane Hugo. International Journal of Mass Emergencies and Disasters, 10(1), 5-24.
FEMA. (2009). Personal Preparedness in America: Findings from the Citizen Corps National Survey. In.
Filipović, M. (2017). Preparedness for natural disasters caused by earthquakes. Bezbednost, Beograd, 59(2), 114-129.
Finnis, K. K., Johnston, D. M., Ronan, K. R., & White, J. D. (2010). Hazard perceptions and preparedness of Taranaki youth. Disaster Prevention and Management, 19(2), 175-184. doi:10.1108/09653561011037986
FM Global: Commercial Property Insurance, (2019). 2019 resilience index annual report. Rhode Island, USA. FM Global: Commercial Property Insurance.
Foster, K. A. (2006). A case study approach to understanding regional resilience. A working paper for building resilience network. Institute of urban regional development. University of California.
Fuko, M. (2005). *Hrestomatija 1926–1984–2004*. Novi Sad: Vojvođanska sociološka asocijacija.
Gad-el-Hak, M. (2010). Facets and scope of large-scale disasters. *Natural Hazards Review*, *11*(1), 1-6.
Gavrilović, L., Milanović-Pešić, A., & Urošev, M. (2012).A hydrological analysis of the greatest floods in Serbia in the 1960–2010 period. *Carpathian Journal of Earth and Environmental Sciences*, *7*(4), 107-116.
Gerzina, N., Carević, I. (2019). Opšta geologija. Univerzitet u Beogradu, Rudarsko – geološki fakultet.
Glavatović, B., (2005). Osnovi geonauka. Podgorica.
Gore, 1:200.000. FSD, Republičkog zavoda za geološka istraživanja,
Grozdanić, G., Cvetković, V. (2024). Istraživanje višestrukih faktora koji utiču na otpornost zajednice na georizike izazvane zemljotresima: Uvidi iz Crne Gore. Beograd: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.
Gunderson, L.H. (2000). Ecological resilience: In theory and application. *Annual review of ecology and systematics*, 31(1), 425-439
Hall, P, Lamont, M. (2013) Social Resilience in the Neoliberal Era. Cambridge: Cambridge University Press.
Hallegatte, S. (2014). *Economic resilience: definition and measurement*. The World Bank.

Han, Z., Wang, H., Du, Q., & Zeng, Y. (2017). Natural hazards preparedness in Taiwan: A comparison between households with and without disabled members. Health security, 15(6), 575-581.

Hegney, D. G., Buikstra, E., Baker, P., Rogers-Clark, C., Pearce, S., Ross, H., & Watson-Luke, A. (2007). Individual resilience in rural people: a Queensland study, Australia. *Rural and remote health*, *7*(4), 1-13.

Heller, K., Alexander, D. B., Gatz, M., Knight, B. G., Rose, T. 2005: Social and personal factors as predictors of earthquake preparation: The role of support provision, network discussion, negative affect, age, and education.JournalofAppliedSocialPsychology35-2.

Herak, D., Herak, M., & Trifunac, M. (2011). Kraljevo earthquake-Reduced damage by asymmetric radiation. *Izgradnja*, *65*(5-6), 241-245.

Holling, C.S. (1973). Resilience and stability of ecological systems. Annual Review of Ecology and Systematics, 4, 2-23.

Hollis, G. E. (1975). The effect of urbanization on floods of different recurrence interval. *Water Resources Research*, *11*(3), 431-435.

https://www.astronomija.org.rs/nauka/geologija/4339-kako-se-meri-snaga%20zemljotresa

https://www.chiefscientist.qld.gov.au/publications/understanding-floods/flood-consequences

https://www.nationalgeographic.rs/vesti/5288-kako-se-meri-zemljotres.html

https://www.rts.rs/page/stories/ci/story/124/%D0%94%D1%80%D1%83%D1%88%D1%82%D0%B2%D0%BE/983820/

Hurnen, F., & McClure, J. (1997). The effect of increased earthquake knowledge on perceived preventability of earthquake damage. Australas. J. Disaster Trauma Stud.(3).

Husejnbačić, Ć. (2007). Sigurnosni rizici s prekograničnim efektima i postizanje otpornosti na katastrofe. *Godišnjak Fakulteta političkih nauka,* (2), 131-144.

Ikeda, K. (1995). Gender differences in human loss and vulnerability in natural disasters: a case study from Bangladesh. Indian Journal of Gender Studies, 2(2), 171-193.

Inal, E., Altıntaş, K. H., & Doğan, N. (2019). General disaster preparedness beliefs and related sociodemographic characteristics: The example of Yalova University, Turkey. *Turkish Journal of Public Health, 17*(1), 1-15.

Index, C. R. (2014). City resilience framework. *The Rockefeller Foundation and ARUP*.

Internal Security Strategy for EU: Towards a European Security model, Bruxeles, 8 March 2010.
ISDR, (2005). World Conference on Disaster Reduction 18-22 January 2005, Kobe, Hyogo, Japan. *Building the Resilience of Nations and Communities to Disasters*. Geneva: United Nations. Preuzeto sa www.unisdr.org.
Ivanov, A., Cvetković, V. (2016). Prirodni katastrofi – geoprostorna i vremenska distribucija. Univerzitet „Sv. Kliment Ohridski"- Bitola, Fakultet za bezbednost, Skoplje.
Ivanović, S., (1991). Zemljotresi fenomen prirode. Titograd.
Jakovljević, V., Cvetković, V., & Gačić, J. (2015). Prirodne katastrofe i obrazovanje. Beograd: Fakultet bezbednosti, Univerzitet u Beogradu.
Jakovljević, V. & Đarmati, Š. (1998). *Civilna zaštita u Saveznoj Republici Jugoslaviji*. Beograd: Studentski trg.
Johnson, R., Johnston, M., & Peters, E. (1989). At a competitive disadvantage? The fate of the elderly in collective flight. Paper presented at the annual meeting of the North Central Sociological Association, Akron, OH.
Johnston, D., Becker, J., & Paton, D. (2012). Multi-agency community engagement during disaster recovery: Lessons from two New Zealand earthquake events. Disaster Prevention and Management, 21(2), 252-268. doi:10.1108/09653561211220034
Jonkman, S. N., & Kelman, I. (2005). An analysis of the causes and circumstances of flood disaster deaths. *Disasters*, *29*(1), 75-97.
Joshi, A., Tomer, M., Lal, S., Chopra, S., Singh, S., Prajapati, S., . . . Sandeep. (2016). Estimation of the source parameters of the Nepal earthquake from strong motion data. Natural Hazards, 83, 867-883.
Käser, M., Maduz, L., Prior, T., & Roth, F. (2019). *Individual Disaster Preparedness: Explaining disaster-related Information Seeking and Preparedness Behavior in Switzerland* (pp. 1-34). ETH Zurich.
Keating, A., Campbell, K., Szoenyi, M., McQuistan, C., Nash, D., & Burer, M. (2017). Development and testing of a community flood resilience measurement tool. *Natural Hazards and Earth System Sciences Discussions*, *17*(1), 77-101.
Kellenberg, D. K., & Mobarak, A. M. (2008). Does rising income increase or decrease damage risk from natural disasters? Journal of urban economics, 63(3), 788-802.
Kešetović, Ž. & Milašinović, S. (2012). Upravljanje krizama i katastrofama–pouke iz prošlosti. *Kultura polisa*, *18*, 251-270.

Klein, R. J., Nicholls, R. J., & Thomalla, F. (2003). Resilience to natural hazards: How useful is this concept?. *Global environmental change part B: environmental hazards*, *5*(1), 35-45.

Kljajić, N., Popović, V., & Grujić, B. (2016).Protection against detrimental effects from waters in the Republic of Serbia. *Economics of Agriculture*, *63*(2), 585-600.

Kohn, S., Eaton, J. L., Feroz, S., Bainbridge, A. A., Hoolachan, J., & Barnett, D. J. (2012). Personal disaster preparedness: an integrative review of the literature. Disaster medicine and public health preparedness, 6(03), 217-231.

Kumiko, F., & Shaw, R. (2019). Preparing International Joint Project: Use of Japanese Flood Hazard Map in Bangladesh. *International Journal of Disaster Risk Management*, 1(1), 62-80.

Lestari, I. A., Anugrahini, T., (2023). Social capital fot community reseilience in responding to the 2018 earthquake in the Cupek community, Lambok.

Levin, S., (2015). Ecological resilience. *Enciclopedia Britannica*. Preuzeto 31.03.2020. sa adrese: https://www.britannica.com/science/ecological-resilience

Lješević, M. (2012). Strukturna geomorfologija sa uvodom u geomorfološki metod. Univerzitet Crne Gore, Filozofski fakultet Nikšić. Institut za geografiju, Filozofskog fakulteta, Nikšić. Geografko društvo Crne Gore.

Logan, J. R. (2006). The impact of Katrina: Race and class in storm-damaged neighborhoods.

Lowe, S. R., Sampson, L., Gruebner, O., & Galea, S. (2015). Psychological resilience after Hurricane Sandy: the influence of individual-and community-level factors on mental health after a large-scale natural disaster. *PloS one*, *10*(5).

Maguire, B, Hagan P. (2007) Disasters and communities: understanding socialresilience. *The Australian Journal of Emergency Management*, 22(2): 16–20.

Manić, M. & Bulajić, B. (2011). Karakteristike jakog kretanja tla registrovanog za vreme Kraljevačkog zemljotresa od 03.11.2010. *Izgradnja* 65. 197-218.

Mano-Negrin, R., & Sheaffer, Z. (2004). Are women "cooler" than men during crises? Exploring gender differences in perceiving organisational crisis preparedness proneness. Women in Management Review, 19(2), 109-122.

Martin, R. (2012). Regional economic resilience, hysteresis and recessionary shocks. *Journal of economic geography*, *12*(1), 1-32.

Mathbor, G. 2007. 'Enhancement of Community Preparedness for Natural Disasters'. International Social Work, 50(3): 357-369.
Matić, L. (2009). Darvinova teorija evolucije. *Arhe*, (12), 223-228.
Mayunga, J. S. (2007). Understanding and applying the concept of community disaster resilience: a capital-based approach. *Summer academy for social vulnerability and resilience building*, *1*(1), 1-16.
Mc Guire, R.K. (2004). Seismic hazard and rysk analysis. Colorado.
Mehta, M. (2007). Gender matters: Lessons for disaster risk reduction in South Asia.
Melick, M. E., & Logue, J. N. (1985). The effect of disaster on the health and well-being of older women. The International Journal of Aging and Human Development, 21(1), 27-38.
Merz, B., Kreibich, H., Schwarze, R., & Thieken, A. (2010). Review article" Assessment of economic flood damage". *Natural Hazards and Earth System Sciences*, *10*(8), 1697.
Mijalković, S., & Cvetković, V. (2013). Vulnerability of critical infrastructure by natural disasters. In *Belgrade, International Scientific Conference, National Critical Infrastructure Protection, Regional Perspective, Book of Abstracts*.
Mijalković, S., & Cvetković, V. (2014). Viktimizacija ljudi prirodnim katastrofama: geoprostorna i vremenska distribucija posledica. *Temida*, 17(4).
Miladinović, S., Cvetković, V., & Milašinović, S. (2017). Upravljanje u kriznim situacijama izazvanim klizištima. Kriminalističko-policijska akademija, Beograd.
Miladinović, S., Cvetković, V., & Milašinović, S. (2017). Upravljanje u kriznim situacijama izazvanim klizištima. Kriminalističko-policijska akademija, Beograd.
Milašinović, S., & Kešetović, Ž. (2011). Krizni menadžment u istorijskoj perspektivi. Beograd: Kriminalističko policijska akademija.
Mileti, D.S. (1999). *Disaster by design: A reassessment of natural hazards in the United States*. Washington DC: Joseph Henry.
Milivojević, J., Kokić-Arsić, A., Aleksić, A., Grubor S. & Savović, (2011). Scenario katastrofe i opstanak ljudske zajednice. U: Arsovski, S., Lazić, M., & Stefanović, M. *Zbornik radova 6. nacionalne konferencije o kvalitetu života (str. 43-54)*. Kragujevac: Mašinski fakultet ; Centar za kvalitet.
Miller, K. E., & Rasmussen, A. (2010). War exposure, daily stressors, and mental health in conflict and post-conflict settings:

Bridging the divide between trauma-focused and psychosocial frameworks. *Social science & medicine*, *70*(1), 7-16.
Mirković, M., Pavlović, R., 2002: Tumač geomorfološke karte Republike Crne
Mirza, M. M. Q., & Hofer, B. (2007). Floods in Bangladesh: History, dynamics and rethinking the role of the Himalayas. *Environmental Conservation*, *34*(4), 348
Mishra, S., & Suar, D. (2007). Do lessons people learn determine disaster cognition and preparedness? Psychology & Developing Societies, 19(2), 143-159.
Mulilis, J.-P. (1999). Gender and Earthquake Preparedness: A Research Study of Gender Issues in Disaster Management: Differences in Earthquake Preparedness Due to Traditional Stereotyping or Cognitive Appraisal of Threat?
Murphy, R. (1994). Rationality and Nature: A Sociological Inquiry into a Changing Relationship. New York: Boulder, CO: Westview Press.
Murrell, S. A., & Norris, F. H. (1984). Resources, life events, and changes in positive affect and depression in older adults. American Journal of Community Psychology, 12(4), 445-464.
Muttarak, R. and Pothisiri, W. (2013). The role of education on disaster preparedness: case study of 2012 Indian Ocean earthquakes on Thailand's Andaman Coast. Ecology and Society 18(4): 51–59.
Myers, M. (1994). 'Women and children first' Introducing a gender strategy into disaster preparedness. Gender & Development, 2(1), 14-16.
Najafi, M., Ardalan, A., Akbarisari, A., Noorbala, A. A., & Jabbari, H. (2015). Demographic determinants of disaster preparedness behaviors amongst Tehran inhabitants, Iran. *PLoS currents*, *7*.
National Geographic Srbija, (2015). Kako se meri jačina zemljotresa? Pristupljeno: 15.04.2020. Dostupno na:
Nguyen, K. V., & James, H. (2013). Measuring household resilience to floods: a case study in the Vietnamese Mekong River Delta. *Ecology and Society*, *18*(3).
Nikolić, N., Cvetković, V., Ivanov, A. (2023). Upravljanje ljudskim resursima u oblasti ekološke sigurnosti. Beograd: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.
Noel, G. E. (1990). The role of women in health-related aspects of emergency management: a Caribbean perspective. Paper pre-

sented at the The Gendered Terrain of Disaster: Through the Eyes of Women., Westport, Conn.
Norris, F. H. (1992). Epidemiology of trauma: frequency and impact of different potentially traumatic events on different demographic groups. Journal of consulting and clinical psychology, 60(3), 409.
Norris, F. H., Friedman, M. J., Watson, P. J., Byrne, C. M., Diaz, E., Kaniasty, K. (2002): 60,000 disaster victims speak: Part I. An empiricalreview of the empirical literature, 1981–2001. Psychiatry: Interpersonal and biological processes 65-3. Dostupno na: https://doi.org/10.1521/psyc.65.3.207.20173
Norris, F. H., Stevens, S. P., Pfefferbaum, B., Wyche, K. F., & Pfefferbaum, R. L. (2008). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American journal of community psychology*, *41*(1-2), 127-150.
Öcal, A., Cvetković, V. M., Baytiyeh, H., Tedim, F. M. S., & Zečević, M. (2020). Public reactions to the disaster COVID-19: a comparative study in Italy, Lebanon, Portugal, and Serbia. Geomatics, Natural Hazards and Risk, 11(1), 1864-1885.
Office of the Queensland Chief Scientist, (2018). What are the consequences of floods? Pristupljeno: 11.04.2020. Dostuno na:
Oraskes, N., (2003). Plate Tectonics: An Insider's History Of The Modern Theory of the
Ozga-Zielinska, M. (1989). Droughts and floods—their definition and modeling. In *Baltimore Symposium*.
Palm, R. (1995). Communicating to a diverse population. Paper presented at the National Science and Technology Conference on Risk Assessment and Decision Making for Natural Hazards, Wash .C.
Pantelić-Miralem, S. (2015). Odbrana od poplava. *Inženjerska Komora Srbije*.
Parker, D., & Chan , N. W. (1997). Reducing vulnerability following flood disasters: issues and practices. Ashgate Publishing.
Paštar, A. (2019). *Uticaj seizmičke ugroženosti Republike Srbije na aseizmičko projektovanje građevinskih objekata* (master rad) Beograd. Filozofski fakultet. Dostupno na: https://fedorabg.bg.ac.rs/fedora/get/o:19754/bdef:Content/download
Paton, D., & Johnston, D. (2006). Disaster Resilience. An integrated approach, Charles C. *Thomas, Springfield, IL*.

Pavićević, O. (2016). Koncept otpornosti u sociologiji. Sociologija, 58(3), 432-449.
Pavićević, O., Bulatović, A., Ilijić, Lj. (2019). *Otpornost asimetrije makro–diskursa i mikro procesa*. Beograd. Institut za kriminološka i sociološka istraživanja.
Pearce, L. D. R. (2000). *An integrated approach for community hazard, impact, risk and vulnerability analysis: HIRV*. University of British Columbia.
Pećnik, L., & Sindik, J. (2013). Neki aspekti psihološke antropologije žene. *Zbornik radova Međimurskog veleučilišta u Čakovcu*, *4*(2), 99-105.
Pelling, M., Maskrey, A., Ruiz, P., Hall, P., Peduzzi, P., Dao, Q. H., Mouton, F., Herold, C & Kluser, S. (2004). Reducing disaster risk: a challenge for development.
Perić, J., & Cvetković, V. (2019). Demographic, socio-economic and phycological perspective of risk perception from disasters caused by floods: case study Belgrade. *International Journal of Disaster Risk Management*, 1(2), 31-43.
Pernar, M. (2010). Love and intimacy. *Medicina Fluminensis: Medicina Fluminensis*, *46*(3), 234-241.).
Perrings, C. 1998. Resilience in the dynamics of economy-environment systems, Environmental and Resource Economics 11(3–4): 503–520
Petit, F. D. P., Bassett, G. W., Black, R., Buehring, W. A., Collins, M. J., Dickinson, D. C., ... & Phillips, J. A. (2013). *Resilience measurement index: An indicator of critical infrastructure resilience* (No. ANL/DIS-13-01). Argonne National Lab.(ANL), Argonne, IL (United States).
Petrović D., Manojlović P. (2003): Geomorfologija. Univerzitet u Beogradu – Geografski fakultet, Beograd.
Petrović, A., Kostadinov, S & Dragićević, S. (2014). The Inventory and Characterization of Torrential Flood Phenomenon in Serbia. Polish Journal of Environmental Studies, 23(3), 823-830.
Petrović, D., Manijlović, P. (2003). Geomorfologija, Geografski fakultet, Beograd.
Phillips, B. D. (1990). Gender as a variable in emergency response. Paper presented at the The Loma Prieta Earthquake: Studies in Short Term Impacts., Boulder CO.
Podgorica (1-55)
Porfiriev, B. N. (2005). Issues in the definition and delineation of disasters and disaster areas. In *What is a Disaster?* (pp. 69-88). Routledge.

Pravilnik o tehničkim normativima za izgradnju objekata visokogradnje u seizmičkim područjima ("Sl. list SFRJ", br. 31/81, 49/82, 29/83, 21/88 i 52/90)

Preet, V. (2006). Natural hazards and disaster management. *A supplementary Textbook in Geography Class IX on unit, 11*: Natural hazards and disaster

Prohaska, S., Đukić, D., Bartoš-Divac, V., Todorović, N., & Božović, N. (2014). Karakteristike jakih kiša koje su prouzrokovale čestu pojavu poplava na teritoriji Srbije u periodu april-septembar 2014. godine. *Vodoprivreda*, 46(267-272), 15-26.

Radio televizija Srbije (RTS), (2011). Kraljevo godinu dana posle. Pristupljeno:17.04.2020. Dostupno na:

Radojičić, B., (2008). Geografija Crne Gore, prirodna osnova. Knjiga I. CANU

Radojičić, B., (2015). Crna Gora, Geografski enciklopedijski leksikon. CANU.

Radovanović, S. (2008). Seizmološka izučavanja u Srbiji. Materijali i konstrukcije, 51(2), 66-74.

Radusonović, S., Pajović, M. (2005). Povezanost geološke građe sa mogućim nastankom katastrofa i hazarda na prostoru Crne Gore. Studija.

Reid, M. (2013). Disasters and social inequalities. *Sociology Compass, 7*(11), 984-997.

Republički seizmološki zavod (RSZ), (n.d.). O zavodu - Istorijat. Pristupljeno 14.04.2020.Dostupno na: http://www.seismo.gov.rs/O%20zavodu/Istorijatl.htm

Ristić, R., Polovina, S., Malušević, I., & Milčanović, V. (2017). Srbija i bujične poplave: tri godine posle katastrofe u maju 2014. godine. *Vodoprivreda*, 49(288-290), 245-252.

Rodríguez, H., Kennedy, P., Quarantelli, E. L., Ressler, E., & Dynes, R. (2009). Handbook of disaster research: Springer Science & Business Media.

Ronan, K. R., & Johnston, D. M. (2001). Correlates of hazard education programs for youth. *Risk Analysis, 21*(6), 1055 - 1064.

Rose, A. (2004). Defining and measuring economic resilience to disasters. *Disaster Prevention and Management: An International Journal.*

Russell, L. A., Goltz, J. D., & Bourque, L. B. (1995). Preparedness and hazard mitigation actions before and after two earthquakes. Environment and behavior, 27(6), 744-770.

Russell, L. A., Goltz, J. D., & Bourque, L. B. (1995). Preparedness and hazard mitigation actions before and after two earthquakes. *Environment and Behavior*, *27*(6), 744- 770.

Rüstemli, A., & Karanci, A. N. (1999). Correlates of earthquake cognitions and preparedness behavior in a victimized population. The Journal of Social Psychology, 139(1), 91-101.

Sattler, D. N., Kaiser, C. F., & Hittner, J. B. (2000). Disaster Preparedness: Relationships Among Prior Experience, Personal Characteristics, and Distress1. Journal of Applied Social Psychology, 30(7), 1396-1420.

Savić, A. (2019). Proaktivne mere zaštite od zemljotresa. *Zbornik radova Fakulteta tehničkih nauka u Novom Sadu*, 34(08), 1470-1473.

Schanze, J. (2006). Flood risk management–a basic framework. In *Flood risk management: hazards, vulnerability and mitigation measures* (pp. 1-20). Springer, Dordrecht.

Schulze, K., Lorenz, D. F., Wenzel, B., & Voss, M. (2015). Disaster Myths and their Relevance for Warning Systems. In *ISCRAM*.

Shaluf, I. M. (2007). Disaster types. *Disaster Prevention and Management: An International Journal*.

Shapira, S., Aharonson-Daniel, L., Shohet, I. M., Peek-Asa, C., & Bar-Dayan, Y. (2015). Integrating epidemiological and engineering approaches in the assessment of human casualties in earthquakes. Natural Hazards, 78, 1447-1462.

Shim, Jae & Kim, Chun-II. (2015). Measuring Resilience to Natural Hazards: Towards Sustainable Hazard Mitigation. *Sustainability*.7.

Smith, D. L., & Notaro, S. J. (2009). Personal emergency preparedness for people with disabilities from the 2006-2007 Behavioral Risk Factor Surveillance System. Disability and health journal, 2(2), 86-94.

Smith, K. (2003). *Environmental hazards: assessing risk and reducing disaster*. Routledge.

Spittal, M. J., McClure, J., Siegert, R. J., & Walkey, F. H. (2008). Predictors of two types of earthquake preparation: survival activities and mitigation activities. Environment and behavior, 40(6), 798-817.

Stanković, Č. (2011). Kako se meri snaga zemljotresa? Astronomski magazin. Pristupljeno: 15.04.2020. Dostupno na:

Stanković, M. (2016). Geološki procesi u zemljinoj kori i na površini. Beograd.

Stefanović, M., Gavrilović, Z., & Bajčetić, R. (2014). Lokalna zajednica i problematika bujičnih poplava. OEBS, Misija u Srbiji.

Stojanović, R. (1984). Zaštita i spasavanje ljudi i materijalnih dobara u vanrednim situacijama. *Vojnoizdavački zavod, Beograd*.

Summers, J. K., Harwell, L. C., Smith, L. M., & Buck, K. D. (2018). Measuring community resilience to natural hazards: the natural hazard resilience screening index (NaHRSI)—development and application to the United States. *GeoHealth*, *2*(12), 372-394.

Svrdlin, M. (2019). *Rodna dimenzija ugroženosti građana od prirodnih katastrofa izazvanih poplavama 2014. godine: studija slučaja Svilajnac*. (master disertacija). Beograd. Fakultet bezbednosi. Preuzeto sa: https://fedorabg.bg.ac.rs/fedora/get/o:20424/bdef:Content/get

Szalay, L. B., Inn, A., Vilov, S. K., & Strohl, J. B. (1996). Regional and Demographic Variations in Public Perceptions Related to Emergency Preparedness. . Bethesda. Md.: Institute for Comparative Social and Cultural Studies Inc.

Thouret, J. C. (1999). Urban hazards and risks; consequences of earthquakes and volcanic eruptions: an introduction. *GeoJournal*, 131-135.

Tierney, K. (2003). Disaster beliefs and institutional interests: Recycling disaster myths in the aftermath of 9-11. *Research in social problems and public policy*, *11*, 33-51.

Tohan, M. M., Kabir, A., Hoque, M. Z., & Roy, T. (2023). Demographic predictors of disaster preparedness behaviour: Sylhet and Sunamganj, Bangladesh. *Environmental Hazards*, 1-19.

Tomić, D., Šaljić, E., & Milićević, M. (2018). Seizmološki hazardi i mogućnost odgovora-studija slučaja humanitarna katastrofa u Nepalu. *Vojno delo, 70(7), 65-79*.

Tomio, J., Sato, H., Matsuda, Y., Koga, T., & Mizumura, H. (2014). Household and Community Disaster Preparedness in Japanese Provincial City: A Population-Based Household Survey. Advances in Anthropology, 2014.

Turner BLII, Kasperson RE, Matson PA et al (2003) A framework for vulnerability analysis in sustainability. science. Proc Natl Acad Sci USA 100:8074–8079. doi:10.1073/pnas.1231335100

Turner, R. H., Nigg, J. M., & Young, B. S. (1981). *Community response to earthquake threat in southern California*. Los Ange-

les: Institute for Social Science Research. University of California.
Twigg, J. (2009). Characteristics of a disaster-resilient community: a guidance note (version 2).
United Nations (UN), (2010). Srbija, Kraljevo Earthquakes Situation Report No. 1. Belgrade: UN Office of the Resident Coordinator.
United nations development programme (UNDP), (2016). Human Development Report 2016: *Risk Proofing the Western Balkans: Empowering People to Prevent Disasters*. Sarajevo, UNDP.
United Nations Office for Disaster Risk Reduction (UNDRR), (2009). Terminologija - Smanjenje rizika od katastrofa. Švajcarska, UNDRR.
United Nations Office for Disaster Risk Reduction (UNDRR), (2010). Earthquakes caused the deadliest disasters in the past decade.
United Nations Office for Disaster Risk Reduction (UNDRR), (2017). Disaster Resilience Scorecard for Cities. Working Document, Geneva, UNISDR.
Ur Rahman, I., Jian, D., Junrong, L., & Shafi, M. (2021). Socio-economic status, resilience, and vulnerability of households under COVID-19: Case of village-level data in Sichuan province. *PloS one*, *16*(4), e0249270.
Vibhas, S., Adu, G. B., Ruiyi, Z., Anwaar, M. A., & Rajib, S. (2019). Understanding the barriers restraining effective operation fof flood early warning systems. *International Journal of Disaster Risk Management*, 1(2), 1-17.
Wagnild, G. (2003). Resilience and successful aging: Comparison among low and high income older adults. In (Vol. 29, pp. 42-49): SLACK Incorporated Thorofare, NJ.
Walker, J, Cooper, M. (2011) Genealogies of resilience: From systems ecology to the political economy of crisis adaptation,Security Dialogue, 42(2): 143–160.
Washington Department of Natural Resources, (2020). Earthquakes and Faults, What to do before, during, and after an earthquake. Prisutpljeno: 16.04.2020. Dostupno na: https://www.dnr.wa.gov/programs-and-services/geology/geologic-hazards/earthquakes-and-faults#what-to-do-before,-during,-and-after-an-earthquake.1
Wenger, D. E., & Friedman, B. J. (1986). Local and national media coverage of disaster: A content analysis of the print media's treatment of disaster myths.

Wildavsky, A. B. (1988). *Searching for safety* (Vol. 10). Transaction publishers.

Wisner, B., & Luce, H. R. (1993). Disaster vulnerability: scale, power and daily life. *GeoJournal*, *30*(2), 127-140.

World Health Organization (WHO), (2002). *Floods: Climate change and adaptation strategies for human health*. Report on a WHO meeting. London, United Kingdom

Zavod za hidrometeorologiju i seizmologiju Crne Gore (ZHMSCG). http://www.seismo.co.me/web

Zelenakova, M., Ganova, L., Purcz, P., Horský, M., Satrapa, L., Blišťan, P., & Diaconu, D. C. (2017). Mitigation of the Adverse Consequences of Floods for. *Natural Hazards Review*.

Zhou, H., Wang J,A., Shi, P., Pan, D, H (2008). Influence of river network change in 1980 - 2005 on flood hazard in Shenzhen City, China

13. AUTHORS BIOGRAPHY

Vladimir M. Cvetković was born on February 8, 1987 in Kragujevac. He received his doctorate at the Faculty of Security of the University of Belgrade, defending his thesis in 2016 entitled „*Citizens' Preparedness to respond to a Natural Disaster caused by a Flood in the Republic of Serbia*“, which earned him the academic title of Ph.D. - Security Sciences. In 2012, he defended his master's thesis at the Criminalistics and Police Academy in Belgrade, „*Management in Emergency Situations caused by the Misuse of Weapons of Mass Destruction*“, with which he obtained the title of Master Criminologist, and he graduated from the Academy in 2010 as the best student of his generation with an average grade of 10.00. with which he earned the title of graduate criminologist. He graduated from the High School of Internal Affairs (police officer) in Sremska Kamenica in 2006, as the best student of his generation and holder of Vuk's diploma, and from the elementary school "Sveti Sava" in Batočina in 2002 as holder of Vuk's diploma.

Employment and Teaching Experience

Since 2017, he has been employed at the Faculty of Security of the University of Belgrade as an assistant professor at the Department of Management Studies in Emergency Situations and Environmental Security, where he is engaged as a teacher in the following subjects: Risk Management in Emergency Situations, Protection and Rescue System, Risk Assessment Methodology and creation of protection and rescue plans against natural and other disasters, Management of protection and rescue activities in emergency situations and System of prevention and reduction of risks from natural and other disasters.

In the period from 2013 to 2017, he was employed at the Criminalistics and Police Academy, now the University, as an associate in the title of assistant for the following subjects: Safety in emergency situations, Risk management in emergency situations, Prevention and suppression of fires, accidents and explosions, and Information systems in emergency situations. At the same institution and subjects, in the period from 2011 to 2013, he was employed as a teaching assistant. During 2006, he was employed in the Ministry of Internal Affairs of the Republic of Serbia as a police officer.

Scientific Research Work

He has carried out numerous scientific researches and published more than 250 scientific papers in national and international journals and anthologies, including 14 scientific monographs, 8 papers in journals on the

SCI/SSCI list and a doctoral dissertation in the period from 2011 to 2020. His narrower research interests include security, emergency situations, risk management and civil protection. He uses English and German language. He reviewed more than 50 scientific papers in domestic journals (NBP, Bezbednost, Serbian Science Today, etc.) and in international journals (Geomatics, Natural Hazards and Risk, International Journal of Architectural Heritage, etc.). He participated in numerous national and international scientific conferences in the country and abroad, as well as in international and national projects listed below.

- ❖ International research project "Horizon 2020 project DAREnet - Danube river region Resilience Exchange network targeting the Call topic: SEC-21-GM-2016/2017: Pan European Networks of practitioners and other actors in the field of security".
- ❖ The scientific research project "National security of the Republic of Serbia and security integration", which in the period 2014-2015 implemented by the Criminalistics and Police Academy in Belgrade and headed by prof. Dr. Mladen Bajagić.
- ❖ The scientific research project "Management of the police organization in the prevention and suppression of security threats in the Republic of Serbia", implemented during the period 2015-2018, by the Criminalistics and Police Academy in Belgrade and headed by prof. Dr. Dane Subošić.
- ❖ Scientific research project "Development of institutional capacities, standards and procedures for combating organized crime and terrorism in conditions of international integration" (number 179045), financed by the Ministry of Education, Science and Technological Development of the Republic of Serbia and implemented by the Criminalistics and Police Academy in Belgrade in the period 2011- in 2016.

Professional Engagements

- ❖ Chief and responsible editor of the international magazine *International Journal of Disaster Risk Management*.
- ❖ President and founder of the Scientific-Professional Society for Risk Management in Emergency Situations, as an organization that is particularly important for the protection and rescue system of the Republic of Serbia.
- ❖ The organizer of the seminar "Student safety in school facilities", catalog number 9 from the Catalog of professional development programs for teachers, educators and professional associates of ZUOV (Institution for Improvement of Education and Upbringing) for the school years 2014/2015, 2015/2016 and 2016/2017.
- ❖ Manager and implementer of basic security training in the area of emergency situations on Stara Planina in 2019.

- ❖ Manager and implementer of the Second, basic safety training in the field of protection and rescue in emergency situations in Ovčar Banja in 2019.
- ❖ Participated in the realization of special forms of teaching (training) (2011–2017), such as: basic police training for students of the first year of basic academic and professional studies (handling and manipulation of police officers' firearms); basic police and security training for emergency situations for students of the second year of basic academic and professional studies; summer, field training at the Training Center "Mitrovo Polje" of the Ministry of Internal Affairs of the Republic of Serbia in Goča for students of the third year of basic academic and second year professional studies of the Criminal Police Academy, now the University.
- ❖ Secretary of the Department of Security Sciences at the Criminal Police Academy, now the University, in the period from 2011 to 2015.

Awards and Acknowledgements

- ❖ Winner of the "Danubius Young Scientist Award 2017" award for the best young scientist in Serbia, awarded by the Austrian Ministry of Science, Research and Economics (BMFWW) and the Institute for the Danube Region and Central Europe (IDM) for outstanding achievements in science.
- ❖ He is the winner of the scholarship for talents of the Ministry of Education of the Republic of Serbia – Grant by the Fund for Young talents of the Republic of Serbia for the undergraduate students of final years (2009/10).
- ❖ He received an OSCE scholarship for doctoral studies at the Faculty of Security in 2015.
- ❖ He is the winner of the scholarship "Eurobank EFG tuition fees for the best students of Serbia" within the project "Let's invest in European values", due to special emphasis in the field of criminological and police-security studies in 2009.
- ❖ He received several commendations for the best student of the first, second and third years at the Criminalistics and Police Academy in Belgrade in 2007, 2008 and 2009.
- ❖ He is the winner of the Silver Badge for the first student in the rank of graduated students (average 10.00) at the Criminalistics and Police Academy in Belgrade in 2010.
- ❖ During his primary school education, he was awarded six special diplomas for outstanding results achieved in competitions in physics, history, Serbian and German languages, biology and technical education, as well as Vuk's diploma.

Trainings and Certificates

❖ Completed the basic specialist course for inspectors in the field of civil protection and risk management in 2014.
❖ In 2012, he completed the four-month basic course for a firefighter-rescuer in the Emergency Situations Administration for the city of Belgrade, after which he earned the title of firefighter-rescuer.
❖ Passed the professional fire protection exam in 2012.
❖ Passed the professional risk assessment exam in the protection of persons, property and business in 2018.
❖ Passed the expert exam of disaster risk assessment and preparation of protection and rescue plans in emergency situations in 2018.
❖ Regional Workshop on Human Resources Development in Podgorica, Montenegro from 30 October to 3 November 2017, organized by International Atomic Energy Agency and Ministry of Sustainable Development and Toursm of Montenegro.
❖ Training on project design, proposal development and project management for EU Horizon 2020 Programme, European training Academy in cooperation with UNDP in Belgrade, from 4 to 12 October, 2017.
❖ Certificate, DCAF,s Border Security Programme certifies that Mr. Vladimir Cvetkovic has successfully participated in the seventh Future Leaders Training which took place in Andermatt, Switzerland, Geneva Centre for The Democratic Control of Armed Forces (DCAF), 2011.
❖ Certificate of Participation, Weapons of Mass Destruction Crime Scene Operations Course, United States of America, Department of Defense International Counterproliferation Program, 2011.
❖ Stručna praksa u Sektoru za vanredne situacije 2011. godine.
❖ Certificate, Sixth Regional Course in International Humanitarian Law, BU Faculty of Political Sciences, 2009.
❖ Certificate of appreciation in recognition of the valuable contribution as a Participant of the NATO SPS Leadership Roundtable on Information-Related Hybrid Threats in South – East Europe, 6-12 October 2019, Republic of North Macedonia.
❖ Certificate that has successfully completed training on project design, proposal development and project management for EU Horizon 2020 programme, EUTA and UNDP.
❖ Certificate that has successfully completed IAEA Regional Workshop on Human Resource Devellopment, 30 October – 3 November 2017, organized by International Atomic Energy Agency (IAEA) and Ministry of Sustainable Development and Tourism of Montenegro.
❖ Certificate of completion on-line e-learning course on: Overview of Nuclear Security Threats and Risks; Nuclear Security Threats and Risks (4 modules); Introduction to and Overview of IAEA Nuclear Security Series Publications; Nuclear Security Disciplines course on Physical Protection of Nuclear Material and Nuclear Facilities.
❖ Chosen as a demonstrator in the Traffic Safety course in 2009 during his studies at the Criminalistics and Police Academy in Belgrade.

Published papers and books

Published papers and books

Cvetković, M. V. (2016). The impact fo demographic factors on the expetation of assistance from the police inn natural disaster. *Serbian Science Today, 1*(1), 8-17.

Bošković, D., & Cvetković, V. (2016). Procena rizika u sprečavanju izvršenja krivičnih dela eksplozivnim materijama - Risk assessment in preventing the execution of crimes with explosive materials. In: Kriminalističko-policijska akademija, Beograd.

Cvetković, M. V., Lipovac, M., & Milojković, B. (2016). Inquiring of knowledge of secondary school students as an element of flood preparedness. *Journal for social sciences, TEME*.

Cvetković, V. (2015a). Citizens preparedness for responding to natural disaster caused by flood in Serbia - Spremnost građana za reagovanje na prirodnu katastrofu izazvanu poplavom u Republici Srbiji.

Cvetković, V. (2015b). Faktori uticaja na znanje i percepciju učenika srednjih škola u Beogradu o prirodnim katastrofama izazvanim klizištima - Factors of influence to the knowledge and perception of secondary school students in Belgrade about natural disasters caused by l. *Bezbednost, 1*(1/2015), 32-51.

Cvetković, V. (2015c). Fenomenologija prirodnih katastrofa – teorijsko određenje i klasifikacija prirodnih katastrofa. *Bezbjednost, policija i građani, 11*(3 – 4), 311-335.

Cvetković, V. (2015d). Spremnost građana za reagovanje na prirodnu katastrofu izazvanu poplavom u Republici Srbiji.

Cvetković, V. (2015). Spremnost građana za reagovanje na prirodnu katastrofu izazvanu poplavom u Republici Srbiji. Beograd: Univerzitet u Beogradu-Fakultet bezbednosti.

Cvetković, V. (2015e). Spremnost za reagovanje na prirodnu katastrofu - pregled literature. *Bezbjednost, policija i građani, 1*, 165-183.

Cvetković, V. (2016a). Influence of employment status on citizen preparedness for response to natural disasters. *NBP - Journal of Criminalistics and Law, 20*(2), 49-94.

Cvetković, V. (2016b). Influence of Income Level on Citizen Preparedness for Response to Natural Disasters. *Vojno delo, 66*(4), 100-127.

Cvetković, V. (2016a). Policija i prirodne katastrofe - Police and natural disaster. *Beograd: Zadužbina Andrejević*.

Cvetković, V. (2016c). The relationship between educational level and citizen preparedness for responding to natural disasters. *Journal of the Geographical Institute "Jovan Cvijić" SASA, 66*(2), 237-253.

Cvetković, V. (2016b). Strah i poplave u Srbiji: spremnost građana za reagovanje na prirodne katastrofe. *Zbornik matice srpske za društvena istraživanja, 155*(2), 2016.
Cvetković, V. (2016c). Uticaj demografskih, socio-ekonomskih i psiholoških faktora na preduzimanje preventivnih mera. *Kultura Polisa, 13*(32), 393-404.
Cvetković, V. (2016d). Uticaj motivisanosti na spremnost građana Republike Srbije da reaguju na prirodnu katastrofu izazvanu poplavom. *Vojno delo, 3*, 2016.
Cvetković, V. (2016e). Komparativna analiza ocene efikasnosti reagovanja policije, vojske i vatrogasno-spasilačkih jedinica u prirodnim katastrofama - Comparative analysis assessment reactions eficiency of police, military and fire rescue unit in natural disaster. In: Academy of Criminalistic and Police Studies, Belgrade.
Cvetković, V. (2017). Krizne situacije–pripremljenost države, lokalne zajednice i građana. *Vojno delo, 69*(7), 122-136.
Cvetković, V. (2017a). Metodologija istraživanja katastrofa i rizika: teorije, koncepti i metode. In: Beograd: Zadužbina Andrejević, Instant system.
Cvetković, V. (2017b). Uticaj personalnih i sredinskih faktora na očekivanje pomoći od interventno-spasilačkih službi i humanitarnih organizacija za vreme prirodnih katastrofa - Influence of personal and environmental factors on the help expectation from the first responde. *Bezbednost,* In-press.
Cvetković, V. (2019a). Risk Perception of Building Fires in Belgrade. *International Journal of Disaster Risk Management, 1*(1), 81-91.
Cvetković, V. (2019b). Strengthening Integrated Disaster Risk Management System in Serbia - DISARIMES - Jačanje sistema integrisanog upravljanja rizicima od katastrofa u Srbiji. *Preprints*.
Cvetković, V. (2019c). Upravljanje rizicima i sistem zaštite i spasavanja od katastrofa: Praktikum - Risk management and system of protection and rescue against disasters: Practicum. In: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.
Cvetković, V. (2020). Upravljanje rizicima u vanrednim situacijama. In: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama ….
Cvetković, V. (2021). Bezbednosni rizici i katastrofe - Security risks and disasters. In: Scientific-Professional Society for Disaster Risk Management.
Cvetković, V. (2022). Taktika zaštite i spasavanja u katastrofama (Disaster protection and rescue tactics). In: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama, Beograd.
Cvetković, V. (2023a). Istorijski razvoj Naučno-stručnog društva za upravljanje rizicima u vanrednim situacijama. In: Beograd: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.
Cvetković, V. (2023b). Otpornost na katastrofe - Vodič za prevenciju, reagovanje i oporavak. In: Beograd: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.

Cvetković, V. (2023c). A Predictive Model of Community Disaster Resilience based on Social Identity Influences. *Preprint*.
Cvetković, V. (2023d). A Predictive Model of Community Disaster Resilience based on Social Identity Influences. *International Journal of Disaster Risk Management, 5*(2), 57-80.
Cvetković, V. (2023e). Spremnost srednjih škola Sliva Zapadne Morave u Republici Srbiji za smanjenje rizika od katastrofa i upravljanje u vanrednim situacijama. In: Fenomena i Naučno-stručno društvo za upravljanje rizicima u vanrednim ….
Cvetković, V. (2024). Integrisano upravljanje rizicima od katastrofa: pripremljenost, ublažavanje, odgovor i oporavak - Integrated Disaster Risk Management: Preparedness, Mitigation, Response, and Recovery. In: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama ….
Cvetković, V., Adem, O., & Aleksandar, I. (2019). Young adults' fear of disasters: A case study of residents from Turkey, Serbia and Macedonia. *International Journal of Disaster Risk Reduction, 35*, 101095.
Cvetković, V., & Andrejević, T. (2016). Qualitative research on the readiness of citizens to respond to natural disasters - Kvalitativno istraživanje pripremljenosti građana za reagovanje na prirodne katastrofe. *Serbian Science Today, 1*(3).
Cvetković, V., & Andrić, K. (2023). Comparative Analysis of Disaster Risk Management Systems in Germany, USA, Russia and China. *Preprints, 2023020267 (doi: 10.20944/preprints202302.0267.v1)*.
Cvetković, V., Babić, S., & Gačić, J. (2017). Influence of religiousness level on citizen preparedness for response to natural disasters caused by floods. *Vojno delo*(4), In-press.
Cvetković, V., Bošković, D., Janković, B., & Andrić, S. (2019). Percepcija rizika od vanrednih situacija - Disaster risk perception. In: Kriminalističko-policijski univerzitet u Beogradu.
Cvetković, V., Bošković, N., & Ocal, A. (2021). Individual citizens' resilience to disasters caused by floods: a case study of Belgrade. *PREPRINT (Version 2) available at Research Square [https://doi.org/10.21203/rs.3.rs-923368/v2]*.
Cvetković, V., & Čaušić, L. (2022). Zbirka propisa iz oblasti vanrednih situacija. In: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.
Cvetković, V., Čvorović, M., & Beriša, H. (2023a). The Gender Dimension of Vulnerability in Disaster Caused by the Corona Virus (Covid-19). *NBP, 28*(2), 32-54.
Cvetković, V., Čvorović, M., & Beriša, H. (2023b). The Gender Dimension of Vulnerability in Disaster Caused by the Corona Virus (Covid-19). *PREPRINT (Version 1) available at Research Square https://doi.org/10.21203/rs.3*.

Cvetković, V., Čvorović, M., & Beriša, H. (2023c). The Gender Dimension of Vulnerability in Disaster Caused by the Coronavirus (Covid-19). *NBP Journal of Criminalistics and Law, 28*(2), 32-54.
Cvetković, V., Dragašević, A., Protić, D., Janković, B., Nikolić, N., & Predrag, M. (2021). Fire Safety Behavior Model for Residential Buildings: Implications for Disaster Risk Reduction. *SSRN Electronic Journal*.
Cvetković, V., & Filipović, M. (2017a). Ispitivanje uloge porodice u edukaciji dece o prirodnim katastrofama - Examination of the family role in education children about disaster. *NBP - nauka, bezbednost i policija,* In-press.
Cvetković, V., & Filipović, M. (2017b). Ispitivanje znanja učenika o pravilnom načinu postupanja za vreme prirodnih katastrofa- Research into students knowledge of the proper way of acting during natural disasters. *Bezbjednost, policija i gradjani, 13*(2), 105-120.
Cvetković, V., & Filipović, M. (2017c). Ispitivanje znanja učenika o pravilnom načinu postupanja za vreme prirodnih katastrofa - Research into students' knowledge of the proper way of acting during natural disasters. *Bezbjednost, policija i građani, 13*(2), 105-121.
Cvetković, V., & Filipović, M. (2017d). Posledice prirodnih katastrofa: faktori uticaja na percepciju građana Srbije. *Ecologica, 24*(87), 572-578.
Cvetković, V., & Filipović, M. (2017e). Pripremljenost za reagovanje na rizike od prirodnih katastrofa: preporuke za unapređenje bezbednosti građana - Preparedness for responding to natural disaster risks - recommendations for improving citizens security. In: Beograd: Zadužbina Andrejević - Instant system.
Cvetković, V., & Filipović, M. (2018). Koncept otpornosti na katastrofe - Theory of disaster resilience. *Ecologica, 25*(89), 202-207.
Cvetković, V., & Filipović, M. (2019). Percepcija rizika o zemljotresima u Republici Srbiji - teorijsko-empirijska studija - Earthquake risk perception in Serbia: theoretical-empirical study. *Vojno delo, 71*(2), 142-157.
Cvetković, V., Filipović, M., & Gačić, J. (2018). Teorijski okvir istraživanja u oblasti katastrofa - Theoretical framework of research in the field of disasters. *Ecologica, 91*.
Cvetković, V., Filipović, M., & Gačić, J. (2019). Zbirka propisa iz oblasti upravljanja rizicima u vanrednim situacijama - Collection of regulations in the area of disaster risk management. In: Naučno-stručno društvo za upravljanje rizicima u oblasti vanrednih situacija ….
Cvetković, V., Filipović, M., & Jakovljević, V. (2017). A survey of subjective opinions of population about seismic resistance of residential buildings - Ispitivanje subjektivnog mišljenja populacije o seizmičkoj otpornosti stambenih zgrada. *J. Geogr. Inst. Cvijic, 67*(3), 265-278.
Cvetković, V., Filipović, M., & Janjić, V. (2018). Upravljanje rizicima u oblasti nuklearne bezbednosti - Risk management in the field of nuclear security. In: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.

Cvetković, V., Filipović, M., Popović, D., & Ostojić, G. (2017). Činioci uticaja na znanje o prirodnim katastrofama. *Ecologica, 24*(85), 121-126.
Cvetković, V., & Gačić, J. (2016). Evakuacija u prirodnim katastrofama. In: Beograd: Zadužbina Andrejević.
Cvetković, V., Gačić, J., & Jakovljević, V. (2015). Geoprostorna i vremenska distribucija šumskih požara. *Vojno delo, 67*(2), 108-127.
Cvetković, V., Gačić, J., & Jakovljević, V. (2015a). Geoprostorna i vremenska distribucija šumskih požara kao prirodnih katastrofa- Geospatial and temporal distribution of forest fires. *Vojno delo, 2*, 108-127.
Cvetković, V., Gačić, J., & Jakovljević, V. (2015b). Impact of climate change on the distribution of extreme temperatures as natural disasters - Uticaj klimatskih promena na distribuciju ekstremnih temperatura kao prirodnih katastrofa. *Vojno delo, 67*(6), 21-42.
Cvetković, V., Gačić, J., & Jakovljević, V. (2015c). Klimatske promene i nacionalna odbrana - Climate change and national defense. *Vojno delo, 67*(5), 181-203.
Cvetković, V., Gačić, J., & Jakovljević, V. (2015d). Uticaj statusa regulisane vojne obaveze na spremnost građana za reagovanje na prirodnu katastrofu izazvanu poplavom u Republici Srbiji - Impact of the status of military obligations on preparedness for flood disaster in Serbia. *Ecologica, 22*(80), 584-590.
Cvetković, V., Gačić, J., & Petrović, D. (2015). Spremnost studenata Kriminalističko-policijske akademije za reagovanje na prirodnu katastrofu izazvanu poplavom u Republici Srbiji - Prepadness of students academy of criminalistics and police studies for responding to natural disasters. *Ecologica, 22*(78), 302-308.
Cvetković, V., Giulia, R., Adem, O., Marina, F., Bojan, J., & Eric, N. (2018). Childrens and youths' knowledge on forest fires: Discrepancies between basic perceptions and reality. *Vojno delo, 70*(1), 171-185.
Cvetković, V., & Grbić, L. (2021). Public perception of climate change and its impact on natural disasters. *Journal of the Geographical Institute Jovan Cvijic, 71*(1), 43-58.
Cvetković, V., Jakovljević, V., Gačić, J., & Filipović, M. (2017). Obuka građana za reagovanje u vanrednim situacijama. *Ecologica, 24*(88), 856-882.
Cvetković, V., & Janković, B. (2020). Private security preparedness for disasters caused by natural and anthropogenic hazards. *International Journal of Disaster Risk Management, 2*(1), 23-33.
Cvetković, V., Janković, B., & Milojević, S. (2016). Security among students in school buildings during natural disasters - Bezbednost učenika od posledica prirodnih katastrofa u školskim objektima. *Ecologica*, in-press.
Cvetković, V., & Jovanović, M. (2020). Ispitivanje faktora uticaja na percepciju javnosti o mitski zasnovanom ponašanju ljudi u uslovima katastrofa - Examination of the factors that influence public perception of mythically-based human behavior in disaster conditions. *Glasnik Srpskog ge-*

ografskog društva - Bulletin of the Serbian Geographica Society, 100(2), 161-179.
Cvetković, V., & Jovanović, M. (2021). Mitovi o katastrofama: istine i zablude. In: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama, Beograd.
Cvetković, V., & Katarina, A. (2019). Edukacija građana o smanjenju rizika od katastrofa korišćenjem multimedijalnih sadržaja – društvene igre, kompjuterske igrice i simulacije. *Vojno delo, 71*(6), 122-151.
Cvetković, V., Kevin, R., Shaw, R., Filipović, M., Mano, R., Gačić, J., & Jakovljević, V. (2019). Household earthquake preparedness in Serbia – a study from selected municipalities. *Acta Geographica, 59*(2), 27-43.
Cvetković, V., & Kezunović, A. (2021a). Bezbednosni aspekti zaštite kritične infrastrukture u antropogenim katastrofama: studija slučaja Beograda (Security aspects of critical infrastructure protection in anthropogenic disasters: a case study of Belgrade). In *Zbornik radova*: Fakultet organizacionih nauka, Univerzitet u Beogradu.
Cvetković, V., & Kezunović, A. (2021b). Security Aspects of Critical Infrastructure Protection in Anthropogenic Disasters: A Case Study of Belgrade. *Research Squares - Preprint*, 10-21203.
Cvetković, V., & Martinović, J. (2021). Upravljanje u nuklearnim katastrofama (Nuclear Disaster Management). In: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama, Beograd.
Cvetković, V., & Miladinović, S. (2017). Ispitavanje stavova i znanja učenika o klizištima kao prirodnim opasnostima - Testing of attitudes and knowledge of students on natural hazards as landslides. *Ecologica, 24*(85), 115-121.
Cvetković, V., & Miladinović, S. (2018). Spremnost sistema zaštite i spasavanja Republike Srbije za implementaciju integrisanog upravljanja rizicima od katastrofa – preporuke za sprovođenje istraživanja - rizicima od katastrofa. Ključne reči: katastrofe, spremnost, sistem, integrisano upra. *Ecologica, 25*(92), 995-1001.
Cvetković, V., & Milašinović, S. (2017). Theory of vulnerability and disaster risk reduction. *Kultura Polisa, 33*(2), 217-228.
Cvetković, V., Milašinović, S., & Gostimirović, L. (2016). The impact of age on flood preparedness in Serbia. *International Journal of Humanities and Social Science, 6*(10).
Cvetković, V., Milašinović, S., & Gostimirović, L. (2017). Istorijski razvoj policijskog obrazovanja u Srbiji. In: Visoka poslovna tehnička škola Doboj.
Cvetković, V., Milašinović, S., & Lazić, Ž. (2018). Examination of citizens' attitudes towards providign support to vulnerable people and volunteereing during disasters. *Journal for social sciences, TEME, 42*(1), 35-56.
Cvetković, V., & Milojković, B. (2016). Uticaj demografskih faktora na nivo informisanosti građana o nadležnostima policije u prirodnim katastrofama. *Bezbednost, 58*(2), 5-35.

Cvetković, V., & Nikolić, A. (2023). The Role of Social Media in the Process of Informing the Public About Disaster Risks. *Preprint*, 10-20944.
Cvetković, V., Nikolić, A., & Ivanov, A. (2023). The Role of Social Media in the Process of Informing the Public About Disaster Risks. *Journal of Liberty and International Affairs, 9*(2), 104-119.
Cvetković, V., & Nikolić, M. (2021). The role of social networks in disaster risk reduction: a case study Belgrade - Uloga društvenih mreža u smanjenju rizika od katastrofa: studija slučaja Beograd. *Bezbednost, 61*(3), 25-42.
Cvetković, V., Nikolić, N., & Lukić, T. (2024). Exploring Students' and Teachers' Insights on School-Based Disaster Risk Reduction and Safety: A Case Study of Western Morava Basin, Serbia. *Preprint*, 2024040472.
Cvetković, V., Nikolić, N., Nenadić, R. U., Ocal, A., & Zečević, M. (2020). Preparedness and Preventive Behaviors for a Pandemic Disaster Caused by COVID-19 in Serbia. *International Journal of Environmental Research and Public Health, 17*(11), 4124.
Cvetković, V., Nikolić, N., Ocal, A., Martinović, J., & Dragašević, A. (2022). A Predictive Model of Pandemic Disaster Fear Caused by Coronavirus (COVID-19): Implications for Decision-Makers. *International Journal of Environmental Research and Public Health, 19*, 652.
Cvetković, V., Noji, E., Filipović, M., Marija, M. P., Želimir, K., & Nenad, R. (2018). Public Risk Perspectives Regarding the Threat of Terrorism in Belgrade: Implications for Risk Management Decision-Making for Individuals, Communities and Public Authorities. *Journal of Criminal Investigation and Criminology/Revija za kriminalistiko in kriminologijo, 69*(4), 279-298.
Cvetković, V., Öcal, A., Lyamzina, Y., Noji, E., Milošević, G., & Jovanović, M. (2020). Public Risk Perception of Nuclear Power in Serbia: Fear of Exposure to Radiation vs. Social Benefits. *Advance.Preprint*, advance-13082240.
Cvetković, V., Öcal, A., Lyamzina, Y., Noji, E., Nikolić, N., & Milošević, G. (2021). Nuclear Power Risk Perception in Serbia: Fear of Exposure to Radiation vs. Social Benefits. *ENERGIES, 14*, 2464.
Cvetković, V., Pavlović, S., & Janković, B. (2021). Private security preparedness for disasters caused by fires. *Journal of Criminalistic and Law, NBP, 26*(1), 35-59.
Cvetković, V., Pavlović, S., & Janković, B. D. (2021). Factors of influence on preparedness of the private security members for fire emergencies. *NBP-Journal of Criminalistics and Law, 26*(1), 35-59.
Cvetković, V., & Petrović, D. (2015). Integrisano upravljanje u prirodnim katastrofama - Integrated natural disaster management. In *Suprotstavljanje savremenom organizovanom kriminalu i terorizmu* (pp. 291-325): Kriminalisticko-policijska akademija, Beograd.
Cvetković, V., & Planić, J. (2022). Earthquake risk perception in Belgrade: implications for disaster risk management. *International Journal of Disaster Risk Management, 4*(1), 69-89.

Cvetković, V., Radovanović, M., & Milašinović, S. (2021). Komunikacija o rizicima od katastrofa: stavovi građana Srbije (Disaster Risk Communications: attitudes of Serbian citizens. *Sociological review/Sociološki pregled, 55*(4), 1610-1647.

Cvetković, V., Ristanović, E., & Gačić, J. (2018). Citizens Attitudes about the Emergency Situations Caused by Epidemics in Serbia - Stavovi građana o vanrednim situacijama izazvanim epidemijama: studija slučaja Srbije. *Iranian Journal of Public Health, 47*(8), 1213-1214.

Cvetković, V., Roder, G., Tarolli, P., Öcal, A., Ronan, K., & Dragićević, S. (2017). Flood risk perception and preparedness: a gendered perspective in Serbia. *Disasters*.

Cvetković, V., Roder, G. O. A., Tarolli, P., & Dragićević, S. (2018). The Role of Gender in Preparedness and Response Behaviors towards Flood Risk in Serbia. *Int. J. Environ. Res. Public Health, 15*(12), 2761.

Cvetković, V., Romanić, S., & Beriša, H. (2023a). Religion Influence on Disaster Risk Reduction: A case study of Serbia. *Preprint*.

Cvetković, V., Romanić, S., & Beriša, H. (2023b). Religion Influence on Disaster Risk Reduction: A case study of Serbia. *International Journal of Disaster Risk Management, 5*(1), 66-81.

Cvetković, V., & Sandić, M. (2016). The fear of natural disaster caused by flood. *Ecologica, 23*(82), 202-209.

Cvetković, V., & Šišović, V. (2024a). Understanding Community (Social) Disaster Resilience in Serbia: Demographic and Socio-Economic Impacts. *Preprints 2024, 2024020950.*, 2024020950.

Cvetković, V., & Šišović, V. (2024b). Understanding the Sustainable Development of Community (Social) Disaster Resilience in Serbia: Demographic and Socio-Economic Impacts. *Sustainability, 16*(7), 2620.

Cvetković, V., & Stanišić, J. (2015). Relationship between demographic and environmental factors with knowledge of secondary school students on natural disasters. *Journal of the Geographical Institute Jovan Cvijic, 65*(3), 323-340.

Cvetković, V., & Stojković, D. (2015). Knowledge and perceptions of secondary school students in Kraljevo about natural disasters - Znanje i percepcija učenika srednje škole u Kraljevu o prirodnim katastrofama. *Ecologica, 22*(77), 42-49.

Cvetković, V., Tanasić, J., Ocal, A., Živković-Šulović, M., Ćurić, N., Milojević, S., & Knežević, S. (2023). The Assessment of Public Health Capacities at Local Self-Governments in Serbia. *Lex localis - Journal of Local Self Government, 21*(4), 1201-1234.

Cvetković, V., Tanasić, J., Živković-Šulović, M., & Milojević, S. (2023). State of Public Health at the Local Level in Serbia: Longitudinal Research. *Preprint*.

Cvetković, V., & Todorović, S. (2021). Comparative analysis of disaster risk management policies in the region of south-east Europe - Komparativna analiza politike upravljanja rizicima od katastrofe u regionu jugoistočne Evrope. *International yearbook, Faculty of Security Studies*, 0-20544.

Cvetković, V., Tomašević, K., & Milašinović, S. (2019). Bezbednosni rizici klimatskih promena: studija slučaja Beograda. *Sociološki pregled (Sociological Review), 53*(2), 596-626.
Cvetković, V., Vučić, S., & Gačić, J. (2015). Climate change and national defense - Klimatske promene i nacionalna odbrana. *Vojno delo, 67*(5), 181-203.
Cvetkovic, V. M. (2016a). The Impact of Demographic, Socio-Economic and Psychological Factors on Preventative Measures. *Kultura Polisa, 13*, 393.
Cvetkovic, V. M. (2016b). The Relationship Between Educational Level and Citizen Preparedness to Respond to Natural Disasters. *JOURNAL OF THE GEOGRAPHICAL INSTITUTE JOVAN CVIJIC SASA, 66*(2), 237-253.
Cvetković, V. M. (2015). Factors of influence to the knowledge and perception of secondary school students in Belgrade about natural disasters caused by landslides. *Bezbednost, Beograd, 57*(1), 32-50.
Cvetković, V. M. (2016a). Fear and floods in Serbia: Citizens preparedness for responding to natural disaster. *Zbornik Matice srpske za drustvene nauke, 155*(2), 303-324.
Cvetković, V. M. (2016b). The impact of the level of motivation on the preparedness of citizens of the Republic of Serbia to respond to natural disaster caused by flood. *Vojno delo, 68*(3), 141-171.
Cvetković, V. M. (2016c). Influence of Employment Status on Citizen Preparedness for Response to Natural Disasters. *NBP–Nauka, bezbednost, policija, 21*(2), 73-94.
Cvetković, V. M. (2016d). Marital status of citizens and floods: Citizen preparedness for response to natural disasters. *Vojno delo, 68*(8), 89-116.
Cvetković, V. M. (2016e). Spremnost građana za reagovanje na prirodnu katastrofu izazvanu poplavom u Republici Srbiji. *Univerzitet u Beogradu*.
Cvetković, V. M. (2016f). Strah i poplave u Srbiji: spremnost građana za reagovanje na prirodne katastrofe. *Zbornik Matice srpske za društvene nauke*(155-156), 303-324.
Cvetković, V. M. (2017a). Crises: Readiness of state, local community and citizens. *Vojno delo, 69*(7), 122-136.
Cvetković, V. M. (2017b). Metodologija istraživanja katastrofa i rizika: teorije, koncepti i metode. In: Zadužbina Andrejević.
Cvetković, V. M. (2017c). Perception of risks from natural disasters caused by floods. *Vojno delo, 69*(5), 160-175.
Cvetković, V. M. (2017d). Prepreke unapređenju spremnosti za reagovanje u prirodnim katastrofama - Obstacles to improving readiness for responding in natural disasters. *Vojno delo, 69*(2), 132-150.
Cvetković, V. M. (2017e). Spremnost građana za reagovanje u prirodnim katastrofama izazvanim poplavama u Srbiji. *Vojno delo, 69*(1), 153-190.
Cvetković, V. M. (2018). Public perception of preparedness for biospheric disasters caused by epidemics: Implications for the risk management process. *Bezbednost, Beograd, 60*(3), 5-25.

Cvetković, V. M. (2019). First aid disaster kit for a family: A case study of Serbia. *Archibald Reiss Days, 9*(1).
Cvetković, V. M. (2021). Tanasic´ J, Ocal A, et al. *Capacity development of local self-governments for disaster risk management. IJERPH, 18*(19), 10406.
Cvetković, V. M. (2023). A Predictive Model of Community Disaster Resilience based on Social Identity Influences (MODERSI). *International Journal of Disaster Risk Management, 5*(2), 57-80.
Cvetković, V. M., Babić, S., & Gačić, J. (2017). Religiousness level and citizen preparedness for natural disasters. *Vojno delo, 69*(4), 253-262.
Cvetković, V. M., & Bošković, N. (2021). Konceptualne osnove i dimenzije otpornosti na katastrofe: Conceptual bases and dimensions of resilience to disasters. *Zbornik radova Naučno-stručnog društva za upravljanje rizicima u vanrednim situacijama (Collection of Papers, Scientific-Professional Society for Disaster Risk Management and International Institute for Disaster Research*, 175-191.
Cvetkovic, V. M., Boškovic, N., & Öcal, A. (2021). Individual citizens' resilience to disasters caused by floods: a case study of Belgrade. *Academic Perspective Procedia, 4*(2), 9-20.
Cvetković, V. M., Bugarski, T., & Martinović, J. (2022). The predictive model of citizens' attitudes about the risks of introducing death penalty in the Serbian criminal justice system. *NBP. Nauka, bezbednost, policija, 27*(2), 7-43.
Cvetković, V. M., Bugarski, T., Ristivojević, B., Milošević, G., & Martinović, J. (2021). The Predictive Model of Citizens' Attitudes About the Risks of Introducing the Death Penalty in the Legal System: A Case Study of Serbia.
Cvetković, V. M., Dragićević, S., Petrović, M., Mijalković, S., Jakovljević, V., & Gačić, J. (2015). Knowledge and perception of secondary school students in Belgrade about earthquakes as natural disasters - Znanje i percepcija učenika srednjih škola u Beogradu o zemljotresu kao prirodnoj katastrofi. *Polish journal of environmental studies, 24*(4), 1553-1561.
Cvetković, V. M., & Filipović, B. (2020). The survey of citizen attitudes toward preparedness for disasters caused by wildfires: Case study: Prijepolje. *Žurnal za bezbjednost i kriminalistiku, 2*(2), 11-24.
Cvetkovic, V. M., & Filipovic, M. (2018). Examination of Students' Attitudes about the Introduction of a Course" Safety Culture" in Secondary Schools. *Kultura Polisa, 15*, 277.
Cvetković, V. M., & Filipović, M. (2017). *Pripremljenost za reagovanje na rizike od prirodnih katastrofa*: Zadužbina Andrejević.
Cvetković, V. M., & Filipović, M. (2018a). Ispitivanje percepcije rizika o požarima u stambenim objektima-demografski i socio-ekonomski faktori uticaja. *Vojno delo, 70*(5), 82-98.
Cvetković, V. M., & Filipović, M. (2018b). Ispitivanje uloge porodice u edukaciji dece o prirodnim katastrofama. *NBP-Journal of Criminalistics and Law, 23*(1).

Cvetković, V. M., & Filipović, M. (2018c). The role of the family in reducing risks of natural disasters - Uloga porodice u smanjenju rizika od katastrofa. *Nauka, bezbednost, policija (NBP), 23*(1), 71-85.
Cvetković, V. M., Filipović, M., Gačić, J., Jakovljević, V., Ronan, K., Shaw, R., & Mano, R. (2019). Pripravljenost gospodinjstev na potrese v Srbiji: Študija izbranih občin. *Acta Geographica Slovenica, 59*(2), 27-42.
Cvetković, V. M., Gačić, J., & Jakovljević, V. (2015). Impact of the status of military obligations on preparedness for flood disaster in Serbia. *Ecologica, 22*(80), 584-590.
Cvetković, V. M., Gačić, J., & Jakovljević, V. (2016). Geospatial and temporal distribution of forest fires as natural disasters. *Vojno delo, 68*(2), 108-127.
Cvetković, V. M., Gačić, J., & Petrović, D. (2015). Prepadness of students academy of Criminalistics and police studies for responding to natural disasters caused by floods in Serbia. *Ecologica, 22*(78), 302-308.
Cvetković, V. M., Jakovljević, V., Gačić, J., & Filipović, M. (2017). Obuka građana za reagovanje u vanrednim situacijama.
Cvetković, V. M., Janković, B., & Milojević, S. (2016). Bezbednost učenika od posledica prirodnih katastrofa u školskim objektima. *Ecologica, 84*, 809-814.
Cvetković, V. M., & Jovanović, M. (2020). Examination of the factors that influence public perception of mythically-based human behavior in disaster conditions. *Preprints*.
Cvetković, V. M., Lipovac, M., & Milojković, B. (2017). Knowledge of secondary school students in Belgrade as an element of flood preparedness. *Journal for social sciences - TEME, 15*(4), 1259-1273.
Cvetković, V. M., & Marković, K. (2021). Examining the Impact of Demographic and Socio-Economic Factors on the Level of Employee Preparedness for a Disaster Caused by Fires: A Case Study of Electrical Power Distribution in Serbia.
Cvetkovic, V. M., & Martinović, J. (2020). Innovative solutions for flood risk management. *International Journal of Disaster Risk Management, 2*(2), 71-100.
Cvetković, V. M., & Milojković, B. (2016). The influence of demographic factors on the level of citizen awareness of police responsibilities in natural disasters. *Bezbednost, Beograd, 58*(2), 5-31.
Cvetković, V. M., Öcal, A., Lyamzina, Y., Noji, E. K., & Milošević, G. (2020). Public Risk Perception of Nuclear Power in Serbia: Fear of Exposure to Radiation vs. *Authorea Preprints*, 10-31124.
Cvetkovic, V. M., Ocal, A., Lyamzina, Y., Noji, E. K., Nikolic, N., & Milosevic, G. (2021). Nuclear Power Risk Perception in Serbia: Fear of Exposure to Radiation vs. Social Benefits. *ENERGIES, 14*(9).
Cvetković, V. M., Radovanović, M., & Milašinović, S. (2021). Komunikacija o rizicima od katastrofa: stavovi građana Srbije. *Socioloski Pregled, 55*(4), 1610-1647.

Cvetković, V. M., Radovanović, M. P., & Milašinović, S. M. (2021). Disaster risk communication: Attitudes of Serbian citizens. *Socioloski Pregled, 55*(4), 1610-1647.

Cvetković, V. M., & Šišović, V. (2023). Capacity Building in Serbia for Disaster and Climate Risk Education. *Available at SSRN 4575350*.

Cvetković, V. M., & Svrdlin, M. (2020). The vulnerability of women from the consequences of a natural disaster: A case study of Svilajnac. *Bezbednost, Beograd, 62*(3), 43-61.

Cvetković, V. M., Tanasić, J., Ocal, A., Kešetović, Ž., Nikolić, N., & Dragašević, A. (2021). Capacity Development of Local Self-Governments for Disaster Risk Management. *International Journal of Environmental Research and Public Health, 18*(19), 10406.

Cvetković, V. M., & Todorović, S. (2020). Comparative Analysis of Disaster Risk Management Policies in the Region of South-East Europe.

Cvetković, V. M., Vujanović, S., & Ivanov, A. (2023). Reducing the Risk of Disasters Caused by Epidemics.

Cvetković, V. M. S. L. Ž. (2017). Examination of citizens attitudes towards providing support to vulnerable people and volunteering during natural disasters - Ispitivanje stavova građana o pružanju pomoći ugroženim ljudima i volontiranju za vreme prirodnih katastrofa. *TEME - Journal of social science*, In-press.

Filipović, B., & Cvetković, V. (2020). Istraživanje stavova građana o pripremljenosti za katastrofe izazvane šumskim požarima: studija slučaja Prijepolje - Research on citizens attitudes about preparedness for disasters caused by forest fires: a case study of Prijepolje.

Filipović, M., & Cvetković, M. V. (2017). Rizici privatizacije vodnih resursa u uslovima njihove nestašice - Risks privatization of water resources in terms of their scarcity. *Serbian Science Today*.

Filipović, M., & Cvetković, V. (2019). Projekat,,Prirodne Albanije" kao pretnja teritorijalnom integritetu Republike Srbije. *Vojno delo, 71*(4), 114-125.

Filipović, M., & Cvetković, V. M. (2019). The project" Natural Albania" as a threat to the territorial integrity of the Republic of Serbia. *Vojno delo, 71*(4), 114-125.

Gačić, J., Jović, J. S., Terzić, N., Cvetković, V., Terzić, M., Stojanović, D., & Stojanović, G. (2019). Gender differences in stress intensity and coping strategies among students - Future emergency relief specialist. *Vojnosanitetski pregled. Military-medical and pharmaceutical review, 78*(5).

Gačić, J., Jović, S. J., Terzić, N. S., Cvetković, V. M., Terzić, M. T., Stojanović, D. G., & Stojanović, G. R. (2021). Gender differences in stress intensity and coping strategies among students, future emergency relief specialists. *Vojnosanitetski pregled, 78*(6), 635-641.

Grozdanić, G., Cvetković, V., Lukić, T., & Ivanov, A. (2024). Comparative Analysis and Prediction of Sustainable Development in Earthquake Preparedness: A Cross-Cultural Perspective on Montenegro, North Macedonia, and Serbia. *Preprint*, https-doi.

Grozdanić, G., Cvetković, V., Lukić, T., & Ivanov, A. (2024). Sustainable Earthquake Preparedness: A Cross-Cultural Comparative Analysis in Montenegro, North Macedonia, and Serbia. *Sustainability, 16*, 3138.

Ivanov, A., Babanoski, K., & Cvetković, V. (2023). The NATO expansion in Europe – alliance of liberal states. *Security Horizons, the strategic and security concept for the countries of southeast europe*.

Ivanov, A., & Cvetković, V. (2016). Prirodne katastofe - geoprostorna i vremenska distribucija - Natural disasters - Geospatial and temporal distribution. In: Fakultet za bezbednost, Skopje.

Jakovljević, V., Cvetković, V., & Gačić, J. (2015). Prirodne katastrofe i obrazovanje. In: Univerzitet u Beogradu, Fakultet bezbednosti.

Jakovljević, V., Cvetković, V. M., & Gačić, J. (2015). Prirodne katastrofe i obrazovanje, Fakultet bezbednosti. In: Univerzitet u Beogradu, Fakultet bezbednosti, Beograd.

Janković, B., & Cvetković, V. (2016). Mesto i uloga Fronteks-a u sprovođenju nove politike granične bezbednosti Evropske unije. *Evropsko zakonodavstvo, 15*(56-57), 266-276.

Janković, B., & Cvetković, V. (2020). Public perception of police behaviors in the disaster COVID-19 – the Case of Serbia. *Policing An International Journal of Police Strategies and Management, 43*(6), 979-992.

Janković, B., Cvetković, V., & Aleksandar, I. (2019). Perceptions of private security: A case study of students from Serbia and North Macedonia. *Journal of Criminalistic and Law, NBP, 24*(3), 59-72.

Janković, B., Cvetković, V., & Ivanov, A. (2023). The role of the polce of Montenegro in combating fan hooliganism. *Security Horizons, THE STRATEGIC AND SECURITY CONCEPT FOR THE COUNTRIES OF SOUTHEAST EUROPE*.

Janković, B., Cvetković, V., Ivanović, Z., Ivanov, A., Jovanović, S., & Otašević, B. (2023). Sustainable development of trust and police presence in schools: Implications for school safety policy. *Journal of Liberty and International Affairs, 9*(3).

Janković, B., Cvetković, V., Ivanović, Z., Petrović, S., & Otašević, B. (2023). Sustainable Development of Trust and Presence of Police in Schools: Implications for School Safety Policy. *Preprints*. *https://doi.org/10.20944/preprints202309.0683.v1*.

Janković, B., Cvetković, V., Milojević, S., & Ivanović, Z. (2021). Relations between police and private security officers: a case study of Serbia. *Security journal, 35*, 531-548.

Janković, B., Cvetković, V., Vučković, G., & Milojević, S. (2019a). Uticaj akutnog mentalnog stresa na perfomanse gađanja: implikacije na obuku pripadnika bezbednosnih službi. Vojno delo, u štampi. *Vojno delo, 71*(6), 112-121.

Janković, B., Cvetković, V., Vučković, G., & Milojević, S. (2019b). Uticaj akutnog mentalnog stresa na performanse gađanja: implikacije na obuku pripadnika bezbednosnih službi - The Impact of Acute Mental Stress on

Shooting Performance: Implications for Security Training. *Vojno delo, 71*(6), 112-121.
Janković, B., & Cvetković Vladimir, M. (2020). *Public perception of police behaviors in the disaster COVID-19–The case of Serbia. Policing: An International Journal, 43 (6), 979-992. doi: 10.1108*. Retrieved from
Janković, B., & Cvetković, V. M. (2022). Attitudes of members of private security about the police. *Bezbednost, Beograd, 64*(2), 5-21.
Krnjić, I., & Cvetković, V. (2021). Uloga mutlimedijalnih sadržaja u edukaciji mladih o katastrofama - The role of multimedia content in educating young people about disasters. In *Pravni i bezbednosni aspekti upravljanja rizicima od prirodnih i antropogenih katastrofa - Legal and security aspects of natural and man-made disaster risk management* (Vol. 1): Scientific-Professional Society for Disaster Risk Management, Belgrade and ….
Krnjić, I., & Cvetković, V. M. (2021). Investigating students attitudes and preferences towards disaster learning multimedia to enhance preparedness.
Kutub, J., Cvetković, V., & Huq, S. (2017). Assessment of Women's Vulnerability and their Coping Mechanism Living in Flood prone Areas: A Case Study of Belkuchi Upazila, Sirajganj. *Serbian Science Today*, In-press.
Lipovac, M., & Cvetković, V. (2015). Problemi u implementaciji evropskih standarda u Republici Srbiji u oblasti integrisanog sistema zaštite i spasavanja u vanrednim situacijama - broj 112 za hitne pozive -*Evropsko zakonodavstvo, 53*.
Lipovac, M., & Cvetković, V. M. (2015). Integrisani sistem zaštite i spasavanja u vanrednim situacijama-sistem'Broj 112 za hitne pozive'. *Evropsko zakonodavstvo, 14*(54), 300-306.
M Cvetković, V., Dragasevic, A., Protić, D., Janković, B., Nikolic, N., & Milošević, P. (2022). Fire safety behavior model for residential buildings: Implications for disaster risk reduction.
Miladinović, S., Cvetković, V. M., & Milašinović, S. (2018). *Upravljanje rizicima u kriznim situacijama izazvanim klizištima*: Kriminalističko-policijska akademija.
Milojević, S., Janković, B., & Cvetković, V. (2015). Prediction Model of Effective Studies at the Academy of Criminalistics and Police Studies. *NBP – Journal of criminalistics and law, 1,* 135-149.
Mumović, N., & Cvetković, V. (2019). Činioci uticaja na donošenje odluka o sprovođenju evakuacije u uslovima katastrofa izazvanih požarima u stambenim objektima: studija slučaja Beograda - Factors influencing decision-making on evacuation in the context of induced fire disasters. *Vojno delo, 71*(7), 142-163.
Nikolić, N., Cvetković, M. V., Zečević, M., Mano, R., & Milašinović, S. (2019). Human Resource Management in Environmental Protection in Serbia. *Preprints, 2019120361,* 10-20944.

Nikolić, N., Cvetković, V., & Ivanov, A. (2023). Human resource development for environmental security and emergency management. In: Scientific-Professional Society for Disaster Risk Management, Belgrade.

Nikolić, N., Cvetković, V., & Zecevic, M. (2020). Human resource management in environmental protection in Serbia. *Bulletin of the Serbian Geographical Society*.

Nikolić, N. C. V., & Zečević, M. (2020). Human Resource Management in Environmental Protection in Serbia. *Bulletin of the Serbian Geographical Society*, *100*(1), 51-72.

Ocal, A., Cvetković, V., Baytiyeh, H., Tedim, F., & Zečević, M. (2020). Public reactions to the disaster COVID-19: A comparative study in Italy, Lebanon, Portugal, and Serbia. *Geomatics, Natural Hazards and Risk*, *11*(1), 1864-1885.

Perić, J., & Cvetković, V. M. (2019). Demographic, socio-economic and phycological perspective of risk perception from disasters caused by floods: case study Belgrade. *International Journal of Disaster Risk Management*, *1*(2), 31-45.

Planić, J., & Cvetković, V. (2021). Earthquake Risk Perception in Belgrade: Implications for Disaster Risk Management.

Planić, J., & Cvetković, V. (2022). Fenomenološke i etiološke dimenzije katastrofa izazvanih zemljotresom: Phenomenological and etiological dimensions of earthquake disasters. *Zbornik radova Naučno-stručnog društva za upravljanje rizicima u vanrednim situacijama (Collection of Papers, Scientific-Professional Society for Disaster Risk Management and International Institute for Disaster Research*, 140-156.

Radovanović, M., & Cvetković, V. (2022). Komunikacija o rizicima od katastrofa: Disaster risk communication. *Zbornik radova Naučno-stručnog društva za upravljanje rizicima u vanrednim situacijama (Collection of Papers, Scientific-Professional Society for Disaster Risk Management and International Institute for Disaster Research*, 269-321.

Sandić, M., Mlađan, D., & Cvetković, V. (2016). Spremnost građana loznice za prirodne katastrofe izazvane zemljotresima u Loznici. *Ecologica, 81*, 40-48.

Sretenović, D., Cvetković, V. M., & Milkovski, V. (2024). Taktika zaštite i spasavanja iz ruševina u urbanim srednima - Tactics of search and resque operations in urban environments. *Zbornik radova Naučno-stručnog društva za upravljanje rizicima u vanrednim situacijama (Collection of Papers, Scientific-Professional Society for Disaster Risk Management and International Institute for Disaster Research*, 78-105.

Sultana, O., Cvetković, V., & Kutub, J. (2017). Problems of inhabitants of Muktagacha town in Mymenssingh district in terms of urban services important for security in natural disaster. *Vojno delo*, In-press.

Sultana, O., Cvetković, V. M., & Kutub, J. R. (2018). Problems of inhabitants of Muktagacha Town in Mymensingh District in terms of urban services important for security in natural disasters. *Vojno delo*, *70*(1), 112-155.

Svrdlin, M., & Cvetković, V. (2019). Mobilni komunikacioni sistemi i aplikacije od značaja za integrisano upravljanje katastrofama -Mobile communications systems and relevant applications for integrated disaster risk management. *Vojno delo, 71*(7), 164-177.

Vladimir, C. (2016). Uticaj motivisanosti na spremnost građana Republike Srbije da reaguju na prirodnu katastrofu izazvanu poplavom - Imapact of motivation on preparedness for flood disaster in Serbia. *Vojno delo, 68*(3), 141-171.

Vladimir, C., & Filipović, M. (2017). Concept of disaster resilience. *Ecologica, 25*(89).

Vladimir, C., & Svrdlin, M. (2020). The vulnerability of women from the consequences of a natural disaster: A case study of Svilajnac. *Bezbednost, 62*(3), 43-61.

Vladimir, C. M. (2016). Policija i prirodne katastrofe - Police and natural disasters. In: Beograd: Zadužbina Andrejević.

Vraćević, N., & Cvetković, V. (2019). Značaj i uloga privatnih vojnih kompanija u rešavanju savremenih problema nacionalne i međunarodne bezbednosti. Vojno delo, 71(3), 73-94. *Vojno delo, 71*(3), 73-94.

Vračević, N., & Cvetković, V. (2019). Privatne vojne kompanije u modernom dobu - Private military companies in modern age. *Vojno delo, 71*(2), 42-54.

Ivanov, A., Babanoski, K., & Cvetkoviќ, V. (2023). Sistemot za namaluvanje rizici od katastrofi vo Republika Severna Makedonija. *Meѓunarodno naučno spisanie bezbednost*(8), 55-70.

Jakovljević, V., Cvetković, V., & Gačić, J. (2015). Prirodne katastrofe i obrazovanje. *Beograd: Univerzitet u Beogradu, Fakultet bezbednosti*.

Janković, B., & Cvetković, V. (2016). Mesto i uloga FRONTEKS-a u sprovođenju nove politike granične bezbednosti Evropske unije. *Position and role Naučnые trudы SZIU RANHiGS, 10*(3), 40.

Janković, B. D., & Cvetković, V. M. (2022). Stavovi pripadnika privatnog obezbeđenja o policiji. *Bezbednost, Beograd, 64*(2), 5-21.

Miladinović, S., Cvetković, V., & Milašinović, S. (2018). Upravljanje rizicima u kriznim situacijama izazvanim klizištima. *Beograd: Kriminalističko-policijska akademija*.

Filipović, M., & Cvetković, V. M. (2019). Projekat'Prirodne Albanije'kao pretnja teritorijalnom integritetu Republike Srbije". *Vojno delo, 4*, 114-125.

Cvetković, B., Gačić, J., & Petrović, D. (2015). Spremnost studenata Kriminalističko-policijske akademije za reagovanje na prirodnu katastrofu izazvanu poplavom u Republici Srbiji. *Ecologica, 22*(78), 302-308.

Cvetković, V. (2015a). Spremnost građana za reagovanje na prirodnu katastrofu izazvanu poplavom u Republici Srbiji. *Univerzitet u Beogradu, Fakultet bezbednosti*.

Cvetković, V. (2015a). Spremnost za reagovanje na prirodnu katastrofu–pregled literature.

Cvetković, V. (2015b). Faktori uticaja na znanje i percepciju učenika srednjih škola u Beogradu o prirodnim katastrofama izazvanim klizištima. *Bezbednost, 57*(1), 2015.
Cvetković, V. (2016b). Strah i poplave u Srbiji: spremnost građana za reagovanje na prirodne katastrofe - Fear and floods in Serbia: citizen preparedness for responding to natural disaster. *Zbornik matice srpske za društvena istraživanja*(155).
Cvetković, V. (2016). Uticaj motivisanosti na spremnost građana Republike Srbije da reaguju na prirodnu katastrofu izazvanu poplavom. *Vojno delo, 68*(3), 141-171.
Cvetković, V. (2017). Metodologija istraživanja katastrofa i rizika: teorije, koncepti i metode. *Beograd: Zadužbina Andrejević*.
Cvetković, V. (2018). Percepcija javnosti o pripremljenosti za biosferske katastrofe izazvane epidemijama: implikacije na proces upravljanja rizicima. In: Bezbednost.
Cvetković, V. (2020). Upravljanje rizicima u vanrednim si tu acijama. *Beograd: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama*.
Cvetković, V., & Andrejević, T. (2016). Kvalitativno istraživanje spremnosti građana za reagovanje u prirodnim katastrofama. *Srpska nauka danas*.
Cvetković, V., Bošković, D., Janković, B., & Andrić, S. (2019). Percepcija rizika od vanrednih situacija [Elektronski izvor]. In: Beograd: Kriminalističko-policijski univerzitet.
Cvetković, V., Vučić, S., & Gačić, J. (2015). Klimatske promene i nacionalna odbrana. *Vojno delo, 67*(5), 181-203.
Cvetković, V., Gačić, J., & Jakovljević, V. (2015). Uticaj statusa regulisane vojne obaveze na spremnost građana za reagovanje na prirodnu katastrofu izazvanu poplavom u Republici Srbiji. *Ecologica, 22*(80), 584-590.
Cvetković, V., Gačić, J., & Jakovljević, V. (2016). Geoprostorna i vremenska distribucija šumskih požara kao prirodnih katastrofa. *Vojno delo, 2016*(2), 108-127.
Cvetković, V., Popović, M., & Sadijeh, A. (2014). Mogućnosti zloupotrebe hemijskog oružja u terorističke svrhe. *Saša Mijalković, et al., Kriminalističko-policijska akademija, Beograd*, 341-357.
Cvetković, V., & Filipović, M. (2018). Ispitivanje percepcije rizika o požarima u stambenim objektima: demografski i socio-ekonomski faktori uticaja. *Vojno delo, 70*(5), 82-98.
Cvetković, V., Filipović, M., & Gačić, J. (2019). Zbirka propisa iz oblasti upravljanja rizicima u vanrednim situacijama: Naučno-stručno društvo za upravljanje rizicima u oblasti vanrednih situacija. *Beograd: Naučno-stručno društvo za upravljanje rizicima u oblasti vanrednih situacija*.
Cvetković, V. M. (2018). Ispitivanje stavova učenika o uvođenju nastavnog predmeta bezbednosna kultura u srednjim školama. *Kultura polisa, 15*(35), 277-286.

Cvetković, V. M. (2019). Upravljanje rizicima i sistemi zaštite i spasavanja od katastrofa. In: Beograd: Naučno-stručno društvo za upravljanje rizicima u vanrednim situacijama.
Cvetković, V. M., & Milašinović, S. (2017). Teorija ugroženosti i smanjenje rizika od katastrofa. *Kultura polisa, 14*(33), 217-228.
Cvetković, V. M., Radovanović, M. P., & Milašinović, S. M. (2021). Komunikacija o rizicima od katastrofa: stavovi građana srbije. *Socioloski Pregled, 55*(4).
Cvetković, V. M., Tomašević, K. S., & Milašinović, S. M. (2019). Bezbednosni rizici klimatskih promena: studija slučaja beograda. *Socioloski Pregled, 53*(2).

GORAN GROZDANIĆ

He graduated in 2017 from the Faculty of Philosophy in Nikšić, studying Geography, with a thesis titled "Cartographic Representation of Geonatural Heritage Objects of Montenegro". He completed his postgraduate master's studies at the Faculty of Geography, University of Belgrade in 2018, focusing on the topic "Monitoring and Auditing of Geodiversity and Biodiversity of Lake Skadar". Since 2018, he has been a doctoral student at the Faculty of Geography, University of Belgrade.

During the academic year 2017/18, he worked as a part-time associate at the Faculty of Philosophy in Nikšić, teaching various subjects within the Geography program, including "Mineralogy and Petrography", "Geology-Tectonics and Historical Geology", "Structural Geomorphology", "Dynamic Geomorphology", and "Oceanography". Additionally, in the same academic year, he was engaged as a regular teaching associate in courses such as "Mineralogy and Petrography", "Geology-Tectonics and Historical Geology", "Structural Geomorphology", "Dynamic Geomorphology", "Geography of Eurasia - Sociogeographical Characteristics and Regions", "Geoecology", "Regional Geography of Africa", "Geography of Southeast Europe", and "Regional Geography of Australia, Oceania, and Polar Regions".

BASIC DATA AND HISTORICAL DEVELOPMENT

On June 15, 2018, the founding assembly was held and at the proposal of the founder, prof. dr Vladimira M. Cvetković, professors from the Faculty of Security, the Criminalistics and Police University, the Faculty of Geography and Forestry unanimously adopted the Statute and formed the Scientific-Professional Society for Disaster Risk Management. In order to improve the scientific activity within the Society, 21.12.2020. year, the Statute was adopted and the International Institute for Disaster Research was established. The Scientific-Professional Society for Risk Management in Emergency Situations (NSDR-URVS) is a non-governmental, non-profit association, established for an indefinite period, for the purpose of improving the existing fund of theoretical knowledge in the field of risk management in emergency situations, conducting quantitative and qualitative research, organizing national and international conferences, launching and managing journals, conducting trainings and risk assessments, as well as other academic activities in the aforementioned field.

CONTACT INFORMATION

Scientific-professional society for disaster risk management
Belgrade, Dimitrija Tucovića 121 ID number: 28259727
PIB: 110885182 President - prof. Dr. Vladimir M. Cvetkovic
Secretary - Sofija Radojković

Website - www.upravljanje-rizicima.com.

+381 61 572 31 20

Belgrade, Dimitrija Tucovića 121

www.upravljanje-rizicima.com
upravljanje.rizicima.vs@gmail.com

SCIENTIFIC-PROFESSIONAL SOCIETY FOR DISASTER RISK MANAGEMENT


MEMBERS AND ASSOCIATES
It has more than 1.000 members made up of professors from state and private Universities and Colleges in Serbia, scientific researchers, practitioners (members of the police, fire and rescue units, emergency medical services, the army, NGO organizations in the field of security, etc.), students and young people who are directly or indirectly engaged in research and specific activities in the field of emergency situations. Within NSD-URVS, a general-purpose civil protection unit was formed with the aim of providing assistance to vulnerable citizens in emergency situations.
Become a member by filling out the application form on the website and sending it via email to NSD-URVS
uzvalje.rizicima.vs@gmail.com
OBJECTIVES
Objectives of NSDR-URVS: a) conducting research in the field of disaster studies; b) establishment and management of an international journal - International Journal of Disaster Risk Management; v) preparation, application and implementation of national and international projects on various aspects of risk management in emergency situations; g) promoting, designing, implementing and improving preventive measures against disasters; d) designing and implementing campaigns, programs, plans to strengthen citizens' awareness of the necessity of improving their preparedness for disasters; f) organizing national and international scientific conferences on risk management in emergency situations; e) implementation of expert risk assessments and preparation of protection and rescue plans in emergency situations; h) organizing and implementing various types of training, courses, seminars and other training for citizens, students and employees in interested institutions; z) performing other tasks in accordance with the law and its Statute.
HELD TRAININGS, COURSES AND LECTURES
In the organization of the Scientific-Professional Society for Risk Management in Emergency Situations, a large number of trainings and other activities aimed at education in the field of emergency situations were realized: the first, second, third, fourth and fifth basic safety training in the field emergency situations.
SCIENTIFIC RESEARCH AND PUBLISHING ACTIVITY
Over 15 textbooks, monographs and collections of works were published within the scientific and publishing activities of the Society. Associates of the society have written more than 10 projects in the field of emergency situations and more than 150 scientific papers.
INTERNATIONAL JOURNAL (IJDRM) AND INSTITUTE (IDR)
At the founding assembly, held on 21.12.2020. year, the Statute was adopted and the International Institute for Disaster Research was established as an organizational unit of the Society. In 2019. the first international journal in the field of risk management in emergency situations was founded in Serbia - Journal of Disaster Risk Management.
INTERNATIONAL JOURNAL OF DISASTER RISK MANAGEMENT (IJDRM)


The journal cover all aspects of disaster risk management from a global and national perspectives
Editor-in-Chief
Prof. dr Vladimir M. Cvetković
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International Journal of Disaster Risk Management (IJDRM) is a double-blind peer-reviewed (twice a year), open-access journal that serves all aspects of disaster studies, policy, and management. It provides a platform for academics, policymakers, and practitioners to publish high-quality research and practice concerning natural disasters, anthropogenic disasters, complex political emergencies, and crises around the world. This is an open-access journal which means that all content is freely available without charge to the user or his/her institution.
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Journal Abbreviation

Int. J. Disaster Risk Manag. (IJDRM)

Aims and Scope

Journal will cover all aspects of disaster risk management from a global perspective, including but not limited to:

- Disaster and crisis management theory and practice
- Risk awareness and assessment
- Hazard and vulnerability analysis
- Knowledge development including education, training, research, and information on disasters
- Public commitment and institutional frameworks, including organizational, policy, legislation, and community action
- Disaster prevention, mitigation, response, recovery planning, policies, and implementation
- Promotes the interchange of ideas between practitioners, policy-makers, and academics

Contact Information

+381 61 572 31 20

Dimitrija Tucovića 121. Beograd

disaster.risk.management.serbia@gmail.com

Keywords

Disasters, disaster risk management, natural disaster, technological disaster, emergency situations, crisis management, theory and practice, mitigation, preparedness, hazards, policy, natural, complex, emergencies, political, aid, relief, developing, humanitarian, field, reports, refugee, journal, research, analysis, review.

Submission Process

Authors are kindly invited to submit their formatted full papers. All paper submissions will be blind peer-reviewed and evaluated based on originality, research content, correctness, relevance to the conference, and readability (reviewer form). Submission of the articles doesn't involve article processing charges (APCs) or submission charges.