HADMÉRNÖK
KÖRNYEZETBIZTONSÁG
18. évfolyam (2023) 3. szám 45–56.
DOI: 10.32567/hm.2023.3.4

Lilla Horváth[1]

Physiological and Psychological Stress Effects on the Rescue Units Involved in the Earthquake Rescue Operation in Turkey, with Particular Regard to the HUNOR Rescue Team

Abstract

The purpose of this article is to present all the impacts on rescue teams that occur during rescue operations. The HUNOR rescue team, which searched for survivors for a week after the earthquake in Turkey, will be presented. The physiological and psychological strain is not negligible, so the article also makes a short detour about aftercare. At the end of the article, all the development directions that can contribute to the enhanced protection of a rescue team will be discussed, both in terms of personal protective equipment and organisational and health preparedness.

Keywords: earthquake, rescue, survivor, rescue team, personal protective equipment

Introduction

On 6 February 2023, several earthquakes occurred in the south of Turkey and the north of Syria (first a 7.8 on the Richter scale, then a 7.5), during which many buildings collapsed and several tens of thousands died.[2] The damage is incalculable. After the disaster, rescue teams from several countries arrived in search of survivors, as did the Hungarian HUNOR SAR team, who set off on the same day.[3]

[1] University of Public Service, Doctoral School of Military Engineering, e-mail: lilla.horvath@katved.gov.hu
[2] KAWOOSA 2023.
[3] HUNOR s. a.

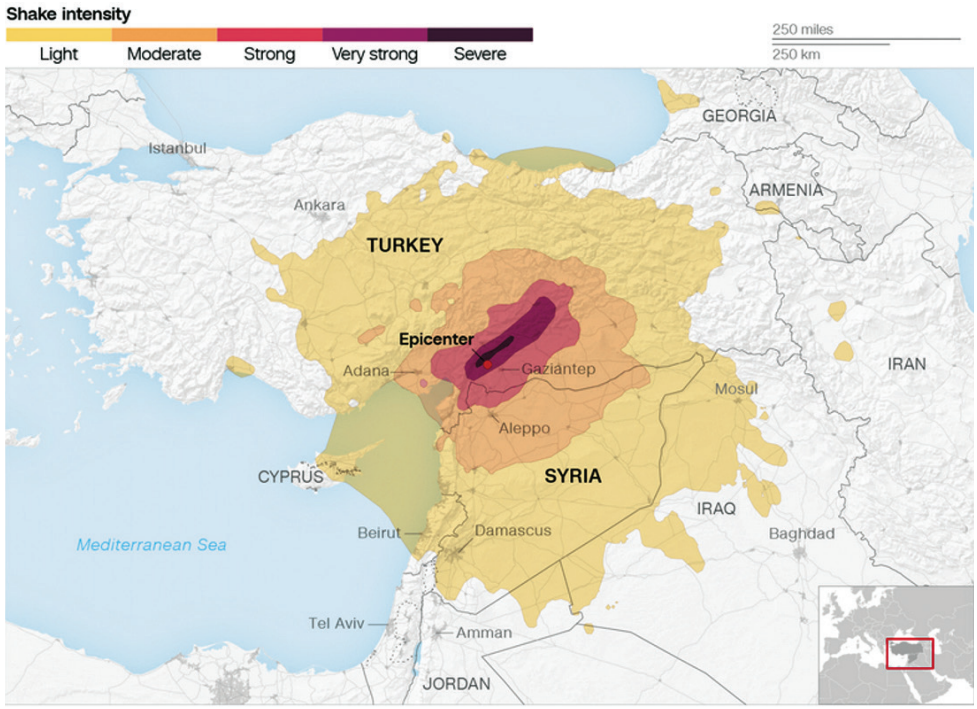

Figure 1: Shake intensity
Source: Mogul et al. 2023a.

After such an event, the members of the rescue organisations must be strong not only physically, but also mentally, since in addition to the sight of dead people, they also have to cope with the fact that they cannot save everyone, even though they know and hear that they are lying there under the ruins. In addition, they must be able to reassure the relatives of the victims and, if necessary, take them to a safe place. After the 6 February earthquake, several earthquakes of lesser intensity occurred, which also made the rescue work more difficult.[4]

The rescue organisation HUNOR arrived at the scene with a total of 50 people (6 people from the staff of the National Rescue Service and 44 firefighters) and two rescue dogs, and during their six-day stay outside, they rescued 17 adults and three children from under the ruins.[5] Their competence and professional knowledge deserve all recognition. The units of the rescue organisations of the other aid-giving countries also worked tirelessly to rescue as many survivors as possible.

But how could the earthquake have developed and what kind of professional background is required to conduct a rescue in a dangerous environment? In the next section, the author tries to answer these questions.

[4] Hallam et al. 2023b.
[5] National Directorate General for Disaster Management 2023a.

Earthquakes

Earthquakes were already written down in ancient times, as shown by the quote below, which comes from the pen of Phlegon, an ancient historian:

"Huge skeletons have come to light from the cracks in the earth. The local inhabitants were so terrified that they did not dare to move them, but a tooth was sent to Rome as a specimen, the length of which even exceeded a foot."[6]

Their formation can be explained by plate tectonics reasons. There used to be a continuous landmass on Earth, and then the continents we know today were formed, and in the case of plates sliding next to and on top of each other and straining against each other, tension arises, which beyond a certain extent can be balanced in the form of kinetic energy. There are areas where earthquakes occur more often, these are called earthquake zones.[7]

A natural disaster in a given region, especially an earthquake, causes not only environmental but also economic damage. In addition to buildings, it also causes serious losses in infrastructure, and it also poses a threat to the lives of the population. In industrially developed areas, mainly high-rise buildings and skyscrapers are built, as this allows more people to live and work in a given area. Nowadays, the provision of electricity (critical infrastructure), along with water supply and district heating, has become a vital element of everyday life. As a result of an earthquake, the number of victims in a given area is also higher. In addition, we can count on the release of dangerous substances into the open, famine and the occurrence of epidemics, so a complex disaster situation can develop in such an event.[8] Reducing the effects of post-disaster conditions and preventing further damage is event-specific in each case. Major accidents can also happen in risky plants during manufacturing, processing or storage, when the release of harmful substances can have a disastrous effect on human health, as well as pollute surface and ground water and the built environment.[9] The given communication or health insurance procedure depends on the scope of the event, the data of the residents of the given area, the critical infrastructure, or the endangered environmental elements.[10]

A major earthquake (Izmit Earthquake) occurred in Turkey earlier, on 17 August 1999, during which 17,000 people died and 250,000 became homeless.[11] During the 6 February 2023 earthquake, nature caused a similar destruction. But why is it that in some countries this type of event occurs relatively often, while in others it is rare? This question is answered by the Global Seismic Hazards Assessment Project (GSHAP), which was carried out from 1992 to 1998. The GSHAP Global Seismic Hazard Map shows which areas are highly or lightly affected by earthquakes.[12]

6 Németh 2015: 19–22.
7 Hornyacsek 2011: 276–295.
8 Hábermayer–Muhoray 2021: 94–110.
9 Cimer et al. 2021: 1–16.
10 Antal–Révai 2014: 60–69.
11 PreventionWeb s. a.
12 Giardini et al. 1999: 1225–1230.

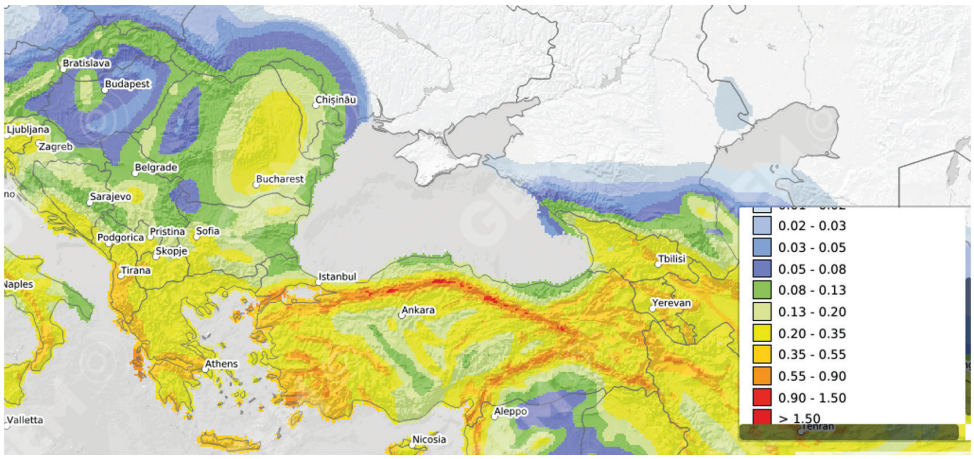

Figure 2: Global Seismic Hazard Map
*Source: **OpenQuake Map Viewer s. a.***

The relationship between the earthquake risk assessment and the infrastructure of the buildings is given by the peak ground acceleration value (PGA) measured on the ground. Figure 2 shows that Turkey and its region are exposed to a high risk in this respect, while in Hungary, for example, this risk is low.[13] This is also shown by the scale on the right side of the figure.

The earthquake that occurred in Turkey on 6 February 2023, caused enormous damage. According to estimates, the number of dead exceeds 47,000 people, and the number of destroyed or damaged buildings is in the hundreds of thousands.[14] It could take years to repair the damage due to the extent of the destruction. The infrastructure, such as the road network or public utility network, has been significantly damaged, and damage liquidation and restoration will require significant costs. In addition, many people's housing and jobs have become insecure, and ensuring this will also places an additional burden on the state coffers. In addition to the financial damage, it is also worth mentioning the mental strain and trauma experienced by many survivors, they lost relatives, children and parents. For them, psychological help in the coming months is extremely important.

Presentation of HUNOR

The HUNOR Hungarian National Organization for Rescue Services was established in 2012 and in the same year, it was awarded heavy urban search and rescue qualification by the United Nations (UN) International Search and Rescue Advisory Group (INSARAG). The purpose of its establishment is to perform urban search and rescue

[13] Irwansyah et al. 2013.
[14] CNBC 2023.

tasks in the event of an emergency, or threat of disaster. The Director General of the National Directorate General for Disaster Management (NDG DM) can order its mobilisation. It can intervene in unexpected and serious situations with a quick response, the logistics staff and members arrive at the designated meeting place within 3 hours of the alarm, and the rest within 6 hours. Its members may include the following: members of the professional staff of disaster management agencies, full-time professional experts of partner agencies, and volunteers, such as disaster specialists, nurses, paramedics, dog handlers, static engineers and psychologists. It is also important to mention the K9 dog unit, which has an internationally certified rescue dog, and the International Rescue Dog Organization (IRO) deployability and ruin investigation exam. The NDG DM regularly provides the staff of the rescue organisation with further professional training, to ensure that their level of practical knowledge does not decrease and that its development is ensured.[15]

By the UN INSARAG Guidelines, the HUNOR rescue organisation can be deployed for 10 days, self-sufficiently, 24 hours a day, at two intervention locations at the same time regarding the following tasks:

- flood defence works
- bracing and support operations
- rescue tasks by lifting heavy objects
- rescue from water and areas covered with water
- cutting and demolition of steel structures and reinforced concrete
- resuscitation, keeping alive and injury classification (Triage)
- detection, classification and separation of dangerous substances
- special operations with ropes
- search and rescue with technical search equipment and dogs[16]

The rescue organisation has 16 tons of equipment and tools that allow them to perform these tasks safely. These are the following:

1. Technical rescue tools
- tools for the rescue task of lifting a large object: pneumatic lifting cushion (up to approximately 60 tons), crane (up to 100 tons), mechanical chain hoist (up to approximately 5 tons), hydraulic oil lift (up to approximately 8–10 tons)
- demolition tools for reinforced concrete and steel structures: drill-chisel combi hammer, gasoline-powered concrete cutter, chain saw (35 cm thick reinforced concrete structures), demolition hammer, air hammer
- tools for special operations with ropes: uniform rope technology tools; personal protective equipment such as harness, breast harness, bridle, carabiner, abseil machine, climbing machine and rope cutter

2. Management and control tools (info-communication tools)
- TETRA radios (for communication in Hungary)
- VHF radios (for foreign communication)

3. Discovery and research tools

[15] Jackovics–Herbák 2017: 245–262.
[16] Muhoray–Teknős 2015: 14–23.

- devices for the detection of dangerous substances with special gas-measuring devices
- hazard detection tools: gas measuring instrument, a thermal camera, a laser distance meter, a radiation dose meter and an electricity measuring instrument
- tools for search with search dogs and technical search equipment: fibre-optic ruin search cameras or ultrasonic-acoustic vital sign detectors (in the search of persons trapped under ruins)

4. In the field of logistics tools
- 10 days of self-sufficiency tools

5. In the field of medical equipment
- professional resuscitation and life support equipment
- medical supplies

6. Other tools suitable for material handling and transport
- quad, bobcat, rescue boats
- heated-cooled, fully comfortable, stable inflatable tent with a floor grid[17]

Based on the list, it can be seen what complex activities the HUNOR rescue organisation performs during search and rescue activities. For the safe use of all these tools – as mentioned earlier – repeated practice is necessary since specific knowledge can only become professional if it is regularly performed both theoretically and practically. In addition to tools and equipment, the staff also needs protective clothing, as they work with dangerous machines, often in extreme weather.

The personal protective equipment used by the rescue organisation HUNOR may vary depending on the specific activity. The different activities are as follows:

- rope rescue
- rescue from a confined space
- ditch rescue
- structural collapse
- water rescue[18]

The personal protective equipment ensures the appropriate level of safety for the members of the staff – in addition to the skill-level professional knowledge – which is essential during such a dangerous activity. The type, design, weight of protective clothing and protective equipment greatly affect the ability to perform work, so the use of high-quality materials is essential. Personal protective equipment can be e.g. a protective helmet, protective gloves, eye protection devices, etc. A list of all these tools is included in the INSARAG Guideline.

In addition to all this, the psychological preparation of the research and rescue staff to process the experiences experienced during a disaster situation is a significant issue. The legal basis for this is provided by Act XCIII of 1993 on Labour Safety, which is provided in Section 54 (1) d) as follows:

[17] Muhoray–Teknős 2015: 14–23.
[18] OCHA 2020: 23–29.

- "(1) To ensure safe and healthy work, the employer must take into account the following general requirements:
- d) taking into account the human factor in the design of the workplace, in the choice of work tools and work processes, with particular regard to the reduction of the duration of monotonous, fixed-paced work and the reduction of its harmful effects, the scheduling of working hours, and the avoidance of strain caused by the psychosocial risks associated with work"[19]

Therefore, the risk assessment prepared by the employer also covers the psychological risks that occur in the case of the given job. In doing so, all preventive measures can be taken to reduce the chance of the expected danger occurring.

In case of rescue organisations, in addition to theoretical and practical preparations, it can be extremely useful if a psychologist is already present at the scene of the intervention, and is thus able to provide psychological assistance to the affected persons from the beginning. After all, not everyone reacts in the same way to the given situation, to the perceived sight. Some people become incapacitated and some people only develop psychological symptoms weeks later (e.g. PTSD).[20]

In addition to the previous points, it should be emphasised that the members of the staff must also be physically fit. The legal basis for this is Decree 45/2020 (XII.16.) of the Ministry of the Interior on fitness tests for professional and administrative law enforcement personnel employed by certain law enforcement agencies under the authority of the Minister of the Interior. In addition, each person must have the appropriate international vaccination, which ensures protection for the human body dependant on the intervened area.

HUNOR in Turkey

As previously mentioned, the 50-person team of HUNOR was deployed to the city of Antakya to search for the survivors of the building collapses caused by the earthquake on 6 February 2023. At 7:00 a.m. the next day, the team left for the province of Hatay with four trucks and two buses, where they received a briefing from the coordinating local bodies in the morning, and then designated the operational area for themselves. In addition, a five-hundred-square-meter campsite was prepared for the rescue team, in which nine tents were placed. The Hungarians worked 24 hours a day, with shifts every eight hours (Figure 3). Conditions were trying even at night as the temperature dropped below freezing. In the course of their activities, in addition to rescuing survivors, they also lifted dead people from the ruins, so they were not only physically but also psychologically stressed.[21]

[19] Act XCIII of 1993 on Labour Safety 54. § (1) d).
[20] PTSD: Posttraumatic Stress Disorder is an anxiety disorder caused by very stressful, frightening or distressing events.
[21] National Directorate General for Disaster Management 2023b.

Figure 3: HUNOR in Antakya
Source: ***Metropol 2023.***

After the return of the HUNOR, several interviews were conducted with individual members of the rescue team. One of these conversations can be listened on the podcast channel of TEOL, where one of the HUNOR rescue members – whose profession is a firefighter – speaks about the event in Turkey. In the process, we learn that the injured were constantly transported, even though the hospital in the city was destroyed. The rescue processes were also complicated by the fact that the relatives of the victims and survivors under the ruins were constantly present and tried to convince the members of the rescue organisations to rescue their relatives first, so the help of the local police was often needed. The search in the ruins was done by hand, so it was very stressful for the members, who were able to evacuate a survivor in up to 4–7 hours. During the rescue, they had many tools at their disposal, such as fibre optics, a sound detector, an angle grinder, a demolition hammer, a reciprocating saw, etc. In addition, the firefighter also reported that it was also possible to communicate with the person to be rescued continuously during the rescue. It was stressful from a psychological point of view because there were many aftershocks during the rescue tasks, and in the event of a larger earthquake, it would not have been possible to escape from the scene.[22]

During the rescue, many effects can be a source of stress for the members of the rescue units. We distinguish between immediate and delayed effects. The following sources of stress occur during task execution:

- responsibility
- physical load
- executor or hero role

[22] Szeri 2023.

- time pressure
- extreme traumatisation
- the risk of injury or death
- observed actor
- suprathreshold stimuli

A delayed stress source is what can appear hours, days, weeks, or even years after the task has been completed:

- flashbacks, nightmares
- accusation[23]

On 29 March 2023, Dr. Selman Salim Kesgin (research coordinator, Turkish Red Crescent Academy) gave a lecture on the earthquake at the Zrínyi Miklós University Campus of the University of Public Service in Budapest, during which the audience was able to gain a lot of useful information. In the presentation, he highlighted all the factors that can be used to increase resilience in such a case, e.g. the construction of special buildings that are more resistant to the effects of an earthquake. It was also discussed what other important activities are necessary in such a case in addition to the rescue activity. This includes feeding, sheltering, protecting, educating the survivors, and ensuring their health care. He emphasised that it is important to prepare the person involved in the rescue, as they can easily become victims (e.g. aftershocks).

Whether it is an immediate or delayed effect, the goal is for the person participating in the rescue to react to the given situation appropriately, without any hindering emotional reaction (e.g. panic), and for the full processing of what has been experienced to take as little time as possible. Psychologists who are already present at the scene provide help for this and use different techniques to try to ease the psychological burden of the intervening colleagues.

Solutions, results

The use of the correct personal protective equipment plays a major role in overcoming physical obstacles that arise during the rescue. Ergonomic features, such as breathability, weight, room for movement, view (breathing mask), and communication in clothing are playing an increasingly important role nowadays, since in addition to fulfilling the function, additional roles have also become important, which contribute to working more efficiently and for longer periods.[24] In addition to personal protective equipment and professional equipment, injuries can also occur during various events against which there is no technical protection (e.g. carelessness of the injured party or another person, etc.). In such cases, it must be expected that the team will be

[23] Ruzsa 2014: 31–40.
[24] Horváth 2022:49–70.

weakened since it has to perform the same task with fewer people than in the case of the original number of employees.[25]

In addition, when dealing with an unpredictable situation, the capabilities of the given organisation cannot be neglected. In case of a high level of organisational culture, all four organisational/individual skills (perception, learning, integration and coordination) are present and the opportunity to develop them is also given.[26] Therefore, proper health and psychological preparation for a disaster situation requires a well-functioning company management.

It is also worth reviewing the methods of mental preparation and aftercare at certain intervals. After the disasters that occurred in the world, using the experience of interviews, questionnaires, group training, etc., there is always an opportunity for a small change in the given psychological program. Regular use of stress-reduction training can help prepare the affected persons for the extreme stress load.[27]

Discussion

The rescue organisation HUNOR played a key role in the search and rescue work following the earthquake in Turkey on 6 February 2023. Testing the limits of their endurance, the members of the staff searched for the survivors of the disaster 24 hours a day. Even with the appropriate professional knowledge and equipment, there were stressful situations that required a suitable health and psychological state, as well as the support of comrades, i.e. good team cohesion.

This emergency also clearly highlighted the need for rescue organisations of this type, since their help can save lives in such an event. For this, the members of the rescue organisation need adequate health and physical endurance as well as regular theoretical and practical training, so that they can withstand as many types of events as possible.

References

Act XCIII of 1993 on Labour Safety

Antal, Örs – Révai, Róbert (2014): Az egészségügy szerepe a katasztrófák megelőzésében [The Role of Healthcare in Disaster Prevention]. *Bolyai Szemle,* 23(1), 60–69.

Cimer, Zsolt – Vass, Gyula – Zsitnyányi, Attila – Kátai-Urbán, Lajos (2021): Application of Chemical Monitoring and Public Alarm Systems to Reduce Public Vulnerability to Major Accidents Involving Dangerous Substances. *Symmetry,* 13(8), 1–16. Online: https://doi.org/10.3390/sym13081528

[25] Pántya 2018: 109–144.
[26] Révai 2021: 165–168.
[27] Szabó–Horváth 2018: 224.

CNBC (2023): Death Toll Rises after Fresh Earthquake Hits Turkey–Syria Border. *CNBC,* 21 February 2023. Online: www.cnbc.com/2023/02/21/death-toll-rises-after-fresh-earthquake-hits-turkey-syria-border.html

Decree 45/2020 (XII.16.) of the Ministry of the Interior on fitness tests for professional and administrative law enforcement personnel employed by certain law enforcement agencies under the authority of the Minister of the Interior.

Hallam, Jonny – Gezer, Yusuf – Sariyuce, Isil – Kourdi, Eyad – Karadsheh, Jomana –Alkhaldi, Celine – Khadder, Kareem (2023b): Magnitude 6.3 Aftershock Strikes Southern Turkey, Killing 6 and Injuring Hundreds 2 Weeks after a Massive Quake Killed Thousands. *CNN,* 21 February 2023. Online: https://edition.cnn.com/2023/02/20/middleeast/turkey-quake-aftershock-intl/index.html

Giardini, Domenico – Grünthal, Gottfried – Shedlock, Kaye M. – Zhang, Peizhen (1999): The GSHAP Global Seismic Hazard Map. *Annali Di Geofisica,* 42(6), 1225–1230. Online: https://doi.org/10.4401/ag-3784

Hábermayer, Tamás – Muhoray, Árpád (2021): Földrengések következményeként várható sérültek és halottak számának becslése – 2. rész [The Estimated Number of the Injured and Dead after an Earthquake – Part 2]. *Hadtudomány,* 31(4), 94–110. Online: https://doi.org/10.17047/HADTUD.2021.31.4.94

HUNOR (s. a.): *Hungarian National Organisation for Rescue Services.* Online: www.katasztrofavedelem.hu/189/hunor

Hornyacsek, Júlia (2011): Földrengés! Fel vagyunk készülve? A lakosság földrengés során való védelmére való felkészülés hazánkban a kárterület és a mentési rendszer tükrében [Earthquake! Are We Ready? Preparing to Protect the Population during an Earthquake in Hungary in the Light of the Damage Area and the Rescue System]. *Hadmérnök,* 6(1), 276–295.

Horváth, Lilla (2022): Examination of the Application of Currently Used, New or Additional Firefighting Personal Protective Equipment. *AARMS,* 21(3), 49–70. Online: https://doi.org/10.32565/aarms.2022.3.3

Irwansyah, E. – Winarko, E. – Rasjid, Z. E. – Bekti, R. D. (2013): Earthquake Hazard Zonation Using Peak Ground Acceleration (PGA) Approach. *Journal of Physics: Conference Series,* 423. Online: https://doi.org/10.1088/1742-6596/423/1/012067

Jackovics, Péter – Herbák, Dóra (2017): Magyarország központi mentőszervezete: a HUNOR [Hungarian Central Rescue Organization: HUNOR]. *Védelem Tudomány,* 2(1), 245–262.

Kawoosa, Vijdan M. (2023): How Turkey Has Been Rattled by Aftershocks since the Feb. 6 Earthquake. *Reuters,* 01 March 2023. Online: www.reuters.com/graphics/TURKEY-QUAKE/AFTERSHOCKS/dwpkdzklevm/

Metropol (2023): Drámai részleteket árult el a HUNOR mentőcsapat parancsnoka a törökországi mentésekről [The Commander of the HUNOR Rescue Team Revealed Dramatic Details about the Rescues in Turkey]. *Metropol,* 23 February 2023. Online: https://metropol.hu/aktualis/2023/02/dramai-reszleteket-arult-el-a-hunor-mentocsapat-parancsnoka-a-torokorszagi-mentesekrol

Mogul, Rhea – Tuysuz, Gul – Sariyuce, Isil – El Damanhoury, Kareem – Picheta, Rob (2023a): More than 4,300 Dead in Turkey and Syria after Powerful Quake.

CNN, 06 February 2023. Online: https://edition.cnn.com/2023/02/05/europe/earthquake-hits-turkey-intl-hnk/index.html

Muhoray, Árpád – Teknős, László (2015): A HUNOR hivatásos nehéz kutató-mentő mentőszervezet alkalmazásának logisztikai feladatai [Logistic Tasks of the Operation of HUNOR Professional Heavy Urban Search and Rescue Team]. *Hadtudomány,* 25(E Issue), 14–23. Online: https://doi.org/10.17047/HADTUD.2015.25.E.11

National Directorate General for Disaster Management (2023a): A legnehezebb terepen fog dolgozni a HUNOR. További túlélőket talált a HUNOR [HUNOR Will Work in the Most Difficult Terrain. HUNOR Has Found More Survivors]. *Katasztrófavédelem,* 12 February 2023. Online: www.katasztrofavedelem.hu/29/hirek/273171/a-legnehezebb-terepen-fog-dolgozni-a-hunor

National Directorate General for Disaster Management(2023b): Hazaérkezett a HUNOR [HUNOR Has Arrived Home]. *Katasztrófavédelem,* 13 February 2023. Online: www.katasztrofavedelem.hu/29/hirek/273332/hazaerkezett-a-hunor

Németh, György (2015): Mit jelent a földrengés? [What Does an Earthquake Mean?] *Ókor,* 14(3), 19–22.

OCHA (2020): *INSARAG Guidelines 2020, Volume II. Preparedness and Response, Manual A: Capacity Building.* Online: www.katasztrofavedelem.hu/application/uploads/documents/2021-04/74739.pdf

OpenQuake Map Viewer (s. a.): *Global Seismic Hazard Map.* Online: https://maps.openquake.org/map/global-seismic-hazard-map/#5/47.828/31.773

PreventionWeb (s. a.): Türkiye: Izmit Earthquake 1999. *PreventionWeb,* s. a. Online: www.preventionweb.net/collections/turkiye-izmit-earthquake-1999

Pántya, Péter (2018): A Katasztrófavédelem beavatkozó hatékonyságának fejlesztése a tűzoltósági területen [Developing the Efficiency of the Intervention Part of the Disaster Management in the Field of Fire Service]. *Hadmérnök,* 13(Special Issue), 109–144.

Révai, Róbert (2021): A rendvédelmi hivatás egészségügyi aspektusai, 50 éves a rendészeti felsőoktatás [Health Aspects of Law Enforcement, 50 Years of Law Enforcement Higher Education]. Jubileumi kiadvány 1971–2021. Budapest: Ludovika University Press. 165–168.

Ruzsa, Dóra (2014): Stresszforrások, stressztünetek és stresszoldási mechanizmusok vizsgálata tűzoltók körében. [Research of Stressors, Symptoms of Stress and Coping Mechanisms among Firefighters]. PhD thesis. Budapest: University of Public Service, Doctoral School of Military Engineering. Online: https://doi.org/10.17625/NKE.2015.011

Szabó, József – Horváth, Péter (2018): A Zala Különleges Mentők mentális felkészítése krízishelyzetekben történő beavatkozásokhoz [Mental Preparation of the Zala Special Rescue Team for Interventions in Crisis Situations]. *Lege Artis Medicinae,* 28(4–5), 221–226.

Szeri, Árpád (2023): Élve eltemetett embereket mentett meg a haláltól a szekszárdi tűzoltó [Firefighter from Szekszárd Saved People Buried Alive from Death]. *TEOL,* 20 March 2023. Online: www.teol.hu/helyi-eletstilus/2023/02/elve-elasott-embereket-mentett-meg-a-halaltol-a-szekszardi-tuzolto