

## **A RADIOACTIVE WASTE REPOSITORY IN THE BORDER AREA BETWEEN THE REPUBLIC OF CROATIA AND BOSNIA AND HERZEGOVINA: HUMAN SECURITY PERSPECTIVE**

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**Abstract:** The Republic of Croatia has announced a plan to build a radioactive waste repository in Mount Trgovska Gora located along the border area with Bosnia and Herzegovina (BiH), which has upset residents living in the border municipalities in BiH. This paper seeks to examine local residents' opinion regarding the construction of a radioactive waste repository. Our study was conducted in Novi Grad, a place located in the immediate vicinity of Trgovska Gora. The aim of the study was to examine local residents' perceptions and the implications of the planned project for human security. This study is based on a qualitative research approach using the focus group interview as a technique. Eleven respondents participated in the focus group interview. The group consisted of representatives of local communities, residents, and representatives of non-governmental organizations. Our findings indicate that local residents strongly disagree with the announced project and numerous negative implications for human security.

**Keywords:** radioactive waste, human security, ecology, sustainable development, Trgovska gora.

### **Introduction**

The Krško nuclear power plant (the Krško NPP) was built in 1981 and was the only nuclear power plant in the Socialist Federal Republic of Yugoslavia (SFRY). After the dissolution of the SFRY, the Krško NPP has been co-owned (50:50) by the Republic of Slovenia and the Republic of Croatia. The Republic of Croatia has undertaken the obligation to store 50% of the nuclear waste generated at the Krško NPP. The Republic of Croatia has considered several potential sites as candidates for a repository and selected the following four sites: Papuk, Psunj, Moslavačka gora, and Trgovska gora. The final decision was reached and Trgovska

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gora was selected as an ideal repository site (Ministarstvo zaštite okoliša i energetike, 2020: 21). Trgovska gora is located in the immediate vicinity of the river Una, which is the natural border between the Republic of Croatia and BiH. The former military barracks “Čekrezovac” in Trgovska Gora was selected as a site for building a radioactive waste repository. The entrance to the barracks is about 900 meters from the river Una and about 2000 meters from Novi Grad as the crow flies, which is a place situated in the entity of Republika Srpska, BiH. In the river Una basin, in the immediate vicinity of the site where a repository for the storage of radioactive waste from the Krško NPP<sup>48</sup> is to be built, there are 20 municipalities<sup>49</sup> where about 360,000 inhabitants belonging to different ethnic groups reside (see Agencija za statistiku Bosne i Hercegovine, 2016).

BiH and the Republic of Croatia are signatories to the United Nations Convention on Environmental Impact Assessment across State Borders (United Nations, 1991) and the Aarhus Convention (United Nations, 1998). The Republic of Croatia is obligated to perform activities in accordance with Directive 2011/92/EU and Directive 2014/52/EU, under which the member states of the European Union are required to ensure a high level of environmental protection and promote sustainable development (Uzunović & Jeleč, 2020).

We identified the research problem in the fact that, in public discourse, local populations living in potentially endangered areas are not sufficiently recognized as an actor having a considerable capacity to influence the creation of policies related to the construction of a repository for the storage of radioactive waste from the Krško NPP in Trgovska Gora. Local communities can become important securitizing actors through activism (Buzan, Wæver & De Wilde, 1998: 77-78) and may influence security dynamics related to this issue.

This paper starts from human security as a conceptual research framework. The issues of human rights protection and sustainable development lie at the core of the concept of human security (UNDP, 1994).<sup>50</sup> In the concept of human security, the individual is the referent object of security, that is, the central focus is on the security of the individual. The 1994 UNDP report provides a list of threats to human security, which includes seven dimensions: economic, food, health, environmental, and personal security, community security, and political security (UNDP, 1994). The topic of nuclear waste safety has already been addressed in the literature (Waldman & Masys, 2018; Vander Beken, Dorn & Van Daele, 2010). However, our literature review demonstrates that this topic has not been addressed in the context of human security.

The aim of this paper is to examine local residents' views, opinions, and experiences regarding the project related to the storage of radioactive waste from the Krško NPP in Trgovska Gora. We formulated the following research question: what impact does the construction of a repository for storing radioactive waste from the Krško NPP in Trgovska

<sup>48</sup> The official term used in the documents of the Republic of Croatia is a “long-term storage of low and medium radioactive waste from the Krško NPP.” In this paper, the abbreviated term “storage of radioactive waste from the Krško NPP is used.”

<sup>49</sup> See (Federalno ministarstvo poljoprivrede, vodoprivrede i šumarstva, 2021: 61; Javna ustanova Vode Srpske, 2017: 16).

<http://www.voders.org/dokumentacija/План%20управљања%20водама%20ПЦсаве%20 2017-2021.pdf>

<sup>50</sup> For more details, see *Human Development Report 1994: New Dimensions of Human Security* (UNDP, 1994, pp. 22-33).

Gora have on the potentially endangered population in BiH, that is, what are the implications of this project for human security?

This study is of an exploratory nature given that no research has been conducted into implications for the human security of inhabitants living in other potentially threatened areas in BiH.

### **Trgovska Gora – case background**

The issue related to the disposal of radioactive waste from the Krško NPP dates back to 1988 (Uzunović & Jeleč, 2020). In the meantime, the Republic of Croatia has undertaken a series of activities confirming its intention to build a radioactive waste repository in Trgovska Gora. On October 17, 2014, the Croatian Parliament adopted the “Strategy for the Management of Radioactive Waste, Disused Sources and Spent Nuclear Fuel” (Hrvatski sabor, 2014). At the session held on November 9, 2018, the Government of the Republic of Croatia passed the Decision on the Adoption of the National Program for the Implementation of the Strategy for the Management of Radioactive Waste, Disused Sources and Spent Nuclear Fuel (Program for the Period Until 2025 with a View to 2060) (Vlada Republike Hrvatske, 2018). Then, in 2020, the Ministry of Environmental Protection and Energy of the Republic of Croatia adopted a document entitled “Summary of the Third Revision of the Krško Nuclear Power Plant Decommission Program and the Third Revision of the Krško NPP Radioactive Waste (RW) and Spent Nuclear Fuel (SF) Disposal Program.” The document states that the preferred location to build the Center for the storage of radioactive waste is Čerkezovac in the municipality of Dvor on the southern slopes of the Trgovska Gora massif (Ministarstvo zaštite okoliša i energetike, 2020: 21). At its session held on February 28, 2020, the Croatian Parliament passed a decision giving prior approval for the confirmation of the aforementioned programs.

In 2019, the Fund for financing decommissioning of the Krško NPP and the disposal of Krško NPP radioactive waste and spent nuclear fuel (Fond NEK)<sup>51</sup> designed a document entitled the “Communication Strategy on the Project for the Establishment of the Radioactive Waste Disposal Centre 2019-2020.” This document is important given that the National Program for the Implementation of the Strategy for the Management of Radioactive Waste (Vlada Republike Hrvatske, 2018) prescribes a number of activities related to transparency and the participation of the public, that is, information availability, the general public education and the right of the public to participate in decision-making. The Communication Strategy states, among other things, that the basic premise of effective communication is the support of the Government of the Republic of Croatia “which should neutralize political resistance to the implementation of the project” (Fond NEK, 2019: 30) ... “1) reduce negative

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<sup>51</sup> The founder of the Fond is the Republic of Croatia. The Fund was established by the Act on the Fund for financing the decommissioning of the Krško Nuclear Power Plant and the disposal of Krško NPP radioactive waste and spent nuclear fuel (Narodne novine, br. 107/07 and 21/22) to meet the requirements under the Agreement between the Government of the Republic of Croatia and the Government of the Republic of Slovenia on the Regulation of the status and other legal relations related to the investment, exploitation, and decommissioning of the Krško NPP (“Narodne novine – Međunarodni ugovori”, br. 9/02).

media coverage, 2) increase neutral and positive media coverage, 3) soften negative attitudes and reduce the active resistance of the local population to the project” (Fond NEK, 2019: 31).

In February 2023, the Ministry of Economy and Sustainable Development of the Republic of Croatia submitted a “Request for Instructions on the Content of the Environmental Impact Assessment Study. Project: The Nuclear Waste Disposal Centre” created by the NEK Fund.

The document contains information on the final steps pertaining to the realization of the Croatian government’s intentions to build a radioactive waste repository (Fond NEK, 2023). After that, the Ministry of Economy and Sustainable Development of the Republic of Croatia (2023) published a document entitled “Information on the request for instructions on the content of the environmental impact study for the radioactive waste disposal centre in Čerkezovac in Trgovska Gora, the municipality of Dvor, the county of Sisak-Moslavina. The document states that the interested public can, within 30 days, submit an opinion on the content of the environment impact study to the Ministry before it has been drafted. The document also states that the Republic of Croatia has been informed BiH about the procedures leading to the finalization of the final steps that precede the construction of a radioactive waste repository.

Croatia’s intention to build a radioactive waste repository near the border with BiH was strongly opposed by local residents living in the border area, both in BiH and the Republic of Croatia (N1, 2019). The Assembly of Republika Srpska and the Parliamentary Assembly of BiH adopted Resolutions (Narodna Skupština Republike Srpske, 2015; Parlamentarna Skupština BiH, 2016), while the House of Representatives of the Parliament of the Federation of BiH and the Assembly of the Una-Sana Canton adopted Declarations (Predstavnički dom Parlamenta Federacije BiH, 2016; Skupština Unsko-sanskog kantona, 2016) expressing opposition to the construction of a radioactive waste repository in the municipality of Dvor, the Republic of Croatia.

The Council of Ministers of Bosnia and Herzegovina adopted a Decision on the appointment of an expert team (Savjet Ministara BiH, 2020 a) and a legal team (Savjet Ministara BiH, 2020b) to monitor the situation and activities related to the disposal of radioactive waste and spent nuclear fuel in Trgovska Gora.

## Literature review

In the last 20 years, research dealing with various aspects related to the disposal of radioactive waste has been conducted in Croatia. Several public opinion surveys were conducted between 2000 and 2018. Research pertaining to the construction of a radioactive waste repository in Croatia was conducted in a sample of students (Jurković, et al., 2000; Trontl, 2003; Trontl, 2010; Mostečak et al., 2012; Trontl, 2015; Pevec, 2017; Jakić & Filipin, 2018) and general population (Mostečak et al., 2012). The results of the aforementioned research indicated a low level of support among respondents regarding the construction of radioactive waste repositories in Croatia. The last survey was conducted in 2018 and similar surveys have not been conducted since. To the best of our knowledge, public opinion surveys regarding Trgovska Gora as selected repository site have not been conducted in a sample of local residents living in the municipality of Dvor, the Republic of Croatia. Also, no public opinion surveys have been conducted in BiH. There is a body of literature which addresses

the Trgovska Gora case. Žganec et al. (2018) analysed the impact of building a radioactive waste repository on the local community of Dvor in the Republic of Croatia, stating that the atmosphere in the community was nihilistic. Žganec et al. (2018) also stated that the construction of a repository project created distrust and animosity in the local community, including tensions in neighbouring BiH. Šešerko (2018) discusses the background of the problem of waste disposal, the legal and institutional framework, the socioeconomic impact of building a nuclear waste repository on the Republic of Croatia, without reference to the impact on BiH. Šeško states that ignoring civil society and citizens of Slovenia and neighbouring countries in the Environmental Impact Assessment process (EIA) represents a relic of the autocratic past (Šeško, 2018: 190). Trontl et al. (2020) addressed the issue of radioactive waste management in the Croatian public, legal issues, and policies. The authors state that the Trgovska gora project is negatively accepted in BiH. Mavlić et al. (2020) analysed the geological risks of the Trgovska Gora location. Perković et al. (2020) analysed a new approach to site selection using the GIS technology and presented a map of potential locations in Trgovska Gora for radioactive waste disposal.

Several studies have addressed the impact of building a radioactive waste repository on BiH. Edin Delić et al. (Delić, et al., 2016) conducted a comparative analysis of radioactive waste disposal sites in the Republic of Croatia. Subsequently, Delić et al. (Delić, et al., 2016) designed a study entitled Comments on the Strategic Study for the National Program for the Implementation of the Strategy for Radioactive Waste Disposal, Disused Sources, and Spent Nuclear Fuel (Program for the period up to 2025 with a view to 2060). Their research findings demonstrated that the site in Trgovska Gora does not meet environmental and safety standards. Šehić (2021) examined the elements of environmental justice, focusing on the impact of the Trgovska Gora project on the local residents living along the border area in Bosnia and Herzegovina. At the same time, this is the first study to analyse, to a certain extent, involvement and public acceptance in BiH, which is one of the criteria for selecting a site in accordance with international conventions (Espoo, Aarhus Convention). Velić and Velić (2021) analysed the issue of selecting Trgovska Gora as a repository site from the perspective of international law, pointing out that BiH could file a lawsuit against Croatia due to non-compliance with international conventions. Popović and Jović (2022) addressed economic and legal consequences for BiH caused by a temporary repository in Trgovska Gora.

## **Methodology**

We obtained information on the construction of a repository for radioactive waste from the Krško NPP in Trgovska Gora from the local population using a focus group interview. The focus group interview technique is particularly useful in exploratory research (Đurić, 2007: 32). The goal of this technique is to develop social interaction within the group of respondents to understand respondents' perceptions, opinions, ideas, attitudes, and experiences (Đurić, 2007). Bearing in mind that our research is exploratory, we chose a focus group interview because it is appropriate for respondents and our research objective. For this purpose, a semi-structured discussion guide was created, which contains questions related to the seven areas of human security defined in the 1994 UNDP Development Report: economic security, food security, health security, environmental security, personal security, community security, and

political security (UNDP, 1994, 22-33). Outline questions for the focus group interview were prepared and adapted to respondents and our research objective.

In the broadest sense, we have operationalized economic security as an individual's economic security conveyed through employment opportunities, personal income, and the job stability. We operationalized food security as the physical availability and economic affordability of food to the population. Health security includes population health, the quality of health care, and the absence of infectious and malignant diseases. Environmental security implies the absence of environmental threats. We have operationalized personal security as threats to the physical integrity of individuals posed by the state, military threats, threats posed by other groups (ethnically motivated violence), criminal groups, individuals, and threats to oneself such as suicide or drug abuse. Community security is focused on the community's security needs and relationships with other communities and institutions. We have operationalized political security as the stability of the socio-political order (UNDP, 1994).

Respondents in the group expressed their views, their own experiences, and feelings on the issue of a radioactive waste repository to be constructed near the place where they live through a semi-structured interview. Respondents explained what impact the announced plan to construct a radioactive waste repository had on them personally, looking at the issue through the lens of the seven areas of human security.

The focus group interview was held on April 11, 2023, from 11:00 am to 1:00 pm, in the premises of the local self-government unit, Novi Grad. The focus group consisted of 11 respondents, while one respondent left the group during the session. The basic criterion for selecting respondents was that they had to be residents of Novi Grad. When selecting respondents, we took into account the heterogeneity of the group (gender, age, and ethnicity), including the fact that respondents were from various institutions and spheres of social life (local self-governments, public institutions, the economic sphere, the non-governmental sector, youth representatives). Most of the respondents were employed. Six respondents were male and five females. The oldest respondent was 58 years old and the youngest 25. After the focus group interview, a transcript was made which was coded and then interpreted.

## Findings

During the focus group interview, respondents expressed their view of the situation regarding the Trgovska Gora case. At the beginning of the discussion, they put forward arguments against the construction of a radioactive waste repository. During the discussion, their emotional charge was obvious, as was their willingness to discuss this topic, which is vital to their community. One of the respondents described it as follows:

There is fear among all citizens, because we are the closest and the most vulnerable. There is also fear of the future, not so much for our own future as for the future of our children.

Novi Grad lies at the confluence of the Sana and Una rivers, the area protected as a natural park. At the beginning of the discussion, respondents stated that a radioactive waste repository to be constructed in the immediate vicinity of their city already has negative consequences. Their discussion centred on the negative impact on the sustainability of the

community (being a demographic, economic or ecological community). Respondents often mentioned possible wider environmental consequences, since a nuclear waste repository is to be constructed in the immediate vicinity of the river Una in whose basin about 350,000 people live. According to one female respondent, a meeting of representatives of the Una basin municipalities was held in 2002 or 2003, in the Novi Grad municipality building, regarding the construction of a radioactive waste repository in Trgovska Gora. The meeting did not result in a concrete plan of activities. The concerns of the local population culminated in 2015, when the Republic of Croatia began drafting a Strategic Study for the National Program for the Implementation of the Strategy for Radioactive Waste Disposal, Disused Sources and Spent Nuclear Fuel, which mentions Trgovska Gora as the only or preferred site.

The specific impacts of building a radioactive waste repository were also discussed. First, impacts on economic security were analysed. According to estimates, about 25,000 inhabitants live in the municipality of Novi Grad, of whom one third lives in the city area. In recent years, the inhabitants have immigrated to the Western European countries. Emigration from this region is a continuous process which has lasted for decades. According to our respondents, emigration from this region has recently increased significantly – entire families are moving out. The reason is uncertainty and poor prospect of living in this region if the radioactive waste repository project has been implemented. As a consequence of negative economic trends in recent years, the municipality of Novi Grad received the status of an underdeveloped municipality in 2019<sup>52</sup> (Vlada Republike Srpske, 2019). Essential economic activities include agriculture, tourism, service industries and, to a lesser extent, light industries. Qualified workers take on jobs abroad, which significantly hinder the development of the municipality. According to our respondents, the poverty rate is high. One respondent stated that local businessmen believe that there is no development and there never will be. If the radioactive waste repository project is implemented, the existing businesses will be shut down, let alone agriculture, healthy food production, and tourism. The river Una, “our pearl” – to quote the respondents – will remain an underutilized natural resource. The negative consequences may also be seen in tourism, which is based on the natural beauty of the rivers Una and Sana and the countryside. The current situation has a disincentive effect on investments that are no longer available. There have been recorded examples of investors withdrawing from planned projects. In their opinion, investments are not profitable in a region that has no prospects.

Respondents also mentioned a negative impact on agriculture, that is, the sale of agricultural products, which could further complicate the position of farmers in that region. For example, beekeeping is one source of livelihood of the local residents, and it is already difficult to offer honey for sale from Novi Grad. One respondent explained, as an example, the impact of a radioactive waste repository on the sale of beehives abroad:

In connection with the production of bee hives, a friend of mine has spoken with a man [business partner] from the Netherlands and he told him “our

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<sup>52</sup> Vlada Republike Srpske (2019) Održana 47. sjednica Vlade Republike Srpske  
Objavljeno: 22.11.2019. <https://www.vladars.net/sr-SP-Cyrl/Vlada/media/vijesti/Pages/saopstenje-za-javnost-47-sjednica-vlade-rs.aspx>

cooperation will continue until the disposal of radioactive waste begins.”  
Bees are sensitive and one does not want to take any risks.

Other respondent commented on the impact it has on fishing. The river Una is rich in fish. The respondent is a member of the fishing association and, at a meeting with representatives of other associations in the Una River basin, he stated, that they too were worried that the construction of such a repository would threaten fishing in the Una River basin. Respondents also emphasized the negative impact on real estate transactions, which would, in turn, have a negative impact on construction and real estate markets. Respondents stated that this was a direct consequence of the planned construction of a radioactive waste repository.

Respondents stated that they would only suffer losses from the planned construction of repository. Their community, as well as the state of BiH, did not benefit from electricity produced by the Krško NPP. On the other hand, mainly BiH, particularly their local community but also a much wider area, will suffer negative economic, ecological and other consequences.

Impacts on food safety are closely related to economic impacts. A large number of households in the municipality are engaged in agriculture, including households that grow and produce food for family consumption in their own gardens. Based on an analysis of respondents' statements, we can divide the consequences related to food safety into those that have already occurred and possible impacts if a repository is constructed. The continuous economic weakening of the local community directly affects the standard of living and quality of life. Population nutrition is an important indicator of the quality of life. Possible consequences if the project is implemented are multiple. The population will be discouraged from developing agricultural production and food production, both for personal consumption and sale, and the dying out of these activities will force people to purchase food products manufactured in other regions.

This will lead to additional economic depletion of local population. Radioactive waste disposal at a site unacceptable to the community will change eating habits of community members and lead to fear of consuming domestic products due to constant fear of radiation. Respondents greatly fear water resources and soil pollution. They are particularly concerned about water used as drinking water. The construction of a repository would considerably increase risks of drinking water consumption, and part of the population, probably out of fear, would be forced to buy water produced in other region, which would be an additional financial burden for them.

Health security was also observed in this study. All respondents agreed that the construction of a radioactive waste repository was the main issue regarding their health. Their greatest concern was the potential danger of environmental contamination that can permanently endanger health. They were sceptical about Croatia's announcements that a repository would be built in accordance with high safety standards. One respondent commented on it as follows:

If it's so safe, why don't they build it somewhere in the interior [of Croatia]?  
Even if it's perfectly safe, we don't want it around us!

Air, land, and soil pollution and consequently the risks of malignant diseases, from the respondents' perspective, are very real. The situation regarding Trgovska Gora has been burdening their community for many years. The topic of Trgovska Gora is constantly present



in the public, media and in communication among citizens. Such a situation inevitably affects mental health. Additionally, a number of respondents believe that waste is already being stored in Trgovska Gora, due to which there is a large number of cancer cases diagnosed in the municipality of Novi Grad and neighbouring municipalities. However, they did not provide evidence to support these claims. One of the respondents stated the following:

I look at the people who are dying... mostly people from our municipality Kostajnica, particularly people in Dubica have developed cancer. These are rumours... this place is small, this environment is small. People who live there say that waste is already being dumped there. Why do trucks accompanied by escort vehicles go there at night?

Misinformation that radioactive waste has already been stored in Trgovska Gora creates considerable anxiety, stress, and panic among local residents.

During the focus group interview, considerable attention was paid to the impact of the construction of a radioactive waste repository on the safety of the natural environment. A large part of the conversation, directly or indirectly, was focused on that aspect. Respondents indicated possible harmful consequences for the natural environment because there were no guarantees those environmental contaminations would not occur in the future. There are various causes ranging from inadequate security standards pertaining to a repository and human error in maintenance to geological influences, given that it is a seismically active area in which earthquakes have been registered. Respondents reported a series of strong earthquakes whose epicentre was near the town of Petrinja,<sup>53</sup> which is about 40 kilometres from Trgovska Gora as the crow flies. The earthquake was also strongly felt in Novi Grad. One respondent commented as follows:

...in 2020, there was an earthquake in Petrinja, there was not a single person here who didn't wonder what was happening. We were all in the streets.

Respondents also mentioned that this could increase the likelihood of landslides, floods, and fires, which could have an impact on the safety of a proposed repository and, consequently, the natural environment. In the event of an accident, the consequences would be catastrophic, bearing in mind the immediate proximity of the rivers Sana and Una. Since the river Una flows into the river Sava, which flows into the Danube, there are wide-scale ecological consequences. At the local level, the primary concern is the pollution of two protected areas located in the immediate vicinity of Trgovska Gora (Natura 2000 and the Una Nature Park).

The impact on personal safety was also discussed. Respondents interpreted the planned construction of a radioactive waste repository in the border, post-conflict area as an ill-intentioned act. Following their non-verbal communication and emotional reactions to the question, the moderator had an impression that the term "ill-intentioned" was rather mild. The subjective feeling of danger among respondents was significantly expressed. The Department

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<sup>53</sup> On December 29, 2020, a strong earthquake with a magnitude of 6.4 MW struck the area of Petrinja, the Republic of Croatia. This event was preceded by three large earthquakes, of which the strongest earthquake had a magnitude of 5.2 MW. This was followed by a series of several hundred earthquakes, of which the strongest earthquake had a magnitude of 5.0 on the Richter scale. Seven people died. Mainly infrastructure facilities and residential buildings were destroyed or severely damaged.

of Civil Protection in the municipality of Novi Grad received devices for measuring radiation from the State Regulatory Agency for Radiation and Nuclear Safety and Security of Bosnia and Herzegovina. Radiation is measured every morning in accordance with the instructions, which creates insecurity among local population. One respondent stated the following:

In the Department of Civil Protection, we have a device for measuring radiation that was given to us by the State Regulatory Agency for Nuclear Radiation Safety... and we ought to make radiation measurements every day in that direction [Trgovska Gora]. It's normal to have 50, but we have to think about whether there will be 250 tomorrow to raise the alarm.

Respondents believe that the situation regarding Trgovska Gora cannot lead to a large-scale violence. Several peaceful protests have been organized so far. Respondents point out the necessity of a legal fight. In their opinion, the resulting situation cannot generate additional ethnic tensions. The Trgovska Gora issue has united all ethnic communities in the threatened area in BiH, because it is a threat that harms the interests of all. According to our respondents, in the Republic of Croatia, local residents oppose the construction of the proposed repository. Respondents stated that terrorism is a possible threat. They described terrorism as a global threat and a nuclear facility as a possible target. This caused concerns among them. They do not believe that the construction of a radioactive waste repository will considerably increase crime rate. They do not expect violence in any form regarding the planned project. They believe that there is no conflict potential in terms of individuals, groups or movements that would initiate violence in their community. However, they point to the political fragility of the area and provide an overview of events throughout history. A radioactive waste repository is a long-term project and the conditions in the Balkans are changing. Thus, one cannot say with certainty that violence will not occur at some point in the future, which worries them even more.

Regarding the safety of their community, respondents stated that the intensive emigration of the population from their community, which is a serious consequence resulting from the planned construction of a radioactive waste repository, is one of the main problems related to the safety of the community. They perceived depopulation as a very significant threat. As far as relations in the community are concerned, especially in the area in which ethnically and religiously heterogeneous groups live, the Trgovska Gora case united them. It is a rare example in BiH that all ethnic groups living in a certain area have agreed on an issue. Initiatives at the local level are strong, ranging from local self-government bodies to civil society. According to our respondents, there is also agreement and cooperation regarding relations with neighbouring municipalities and civil society organizations. At the local level, several protests have been organized and members of all ethnic groups participated in them, including the local population living in the neighbouring municipality of Dvor, the Republic of Croatia. These were civilian protests. However, our respondents stated that there is no understanding of the problem of Trgovska Gora at higher levels – which they view as an existential problem. They experience very emotionally the inertness of government institutions in solving the Trgovska Gora problem. One respondent stated, "It's a murder. It's violence against us!" Other respondent described it as follows: "We're left to our own devices... we're realistically left to our own devices, so whatever happens, happens." They stated that government institutions have reached certain conclusions in the last ten years, but nothing

concrete has been done to stop the construction of a radioactive waste repository. Such a situation creates lethargy, hopelessness and disorientation. One respondent described how she, as a community member, felt about the Trgovska Gora case:

All this affects us...I do hard jobs. When it comes to children and the possibility that they could be sexually abused, I can deal with that because I know the way to go. I'm fine with it as a professional... but when it comes to this topic, I'm honestly shaken. This is something beyond us and we are all greatly threatened. We know how to fight an earthquake or a flood, but this is something beyond our power, something that puts us in a state of helplessness. I'm glad to be part of this [focus group] but on the other hand this discussion will negatively affect me over the next seven days...

We observed the political dimension of human security in connection with the radioactive waste repository project at the local, entity, state, and international levels. The question we asked was related to the political implications of the project at the aforementioned levels of analysis. At the local level, all events related to the Trgovska Gora case are, according to our respondents, closely monitored. They think that numerous activities actually come from local self-government bodies and civil society. In their opinion, there is a problem in communication with entity and state institutions, which show no understanding of the problem; the issue is significantly politicized and is often used as political marketing by political parties. They state that although resolutions and declarations formally exist at the cantonal level (Unsko Sanki Canton), entity levels (Republika Srpska entity) and the BiH level, no action plan or the implementation of specific activities exist at the operational level. Respondents stated that the case of Trgovska Gora was almost ignored. Respondents mentioned cases in which common BiH institutions officials obstructed the planned activities. Additionally, they were particularly disappointed with the diplomacy of BiH, which, in their view, could influence the diplomatic resolution of the crisis and use the diplomatic network to highlight this problem within the international framework. The fact that the international community in BiH, which is strongly involved in social and political events in BiH, ignores the Trgovska Gora case is, in their view, very worrying.

They stated that Trgovska gora, at the interstate level, may become the focal point of crisis between the two states. They believe that the Republic of Croatia is non-transparent regarding the selection of a site and it takes advantage of its favourable position in the international community as a member of the European Union. They also expressed doubt that radioactive waste from other areas, not only the Krško NPP, will be stored at that site. Respondents asked what would happen if BiH behaved in the same way as Croatia. One respondent said that "in that case, they would alert everyone." Judging by the lack of reaction, the voice of threatened local communities did not reach international institutions. One participant commented on it as follows: "Brussels [the EU institutions] is silent, and why would Brussels do anything when our institutions are silent."

## **Discussion**

The aim of this study is to examine local residents' views, opinions and experiences regarding the project related to the storage of the Krško NPP radioactive waste in Trgovska

Gora. The study focuses on the implications of the project for human security of local community members residing in Novi Grad.

Previous research on different areas of human security (King & Murray, 2001; Fresco & Baudoin, 2004; Rushton, 2011; Gasper, & Gómez, 2015; Caballero-Anthony, 2015; Andruseac, 2015; Barnett, 2018) indicate numerous problems related to human rights and sustainable development. Our findings demonstrate that the Trgovska Gora case has negative implications for all seven areas of human security in the observed local community of Novi Grad. The negative impact on human rights and human development are evident. Institutional inertia, uncertainty, fears, economically weakened local residents, and other negative consequences could be observed in the context of structural violence (Galtung & Höivik, 1971).

Local residents' relatively passive attitude toward Trgovska Gora is not an indicator of their true mood or a reliable predictor of behaviour regarding the construction of a radioactive waste repository. According to our findings, the discussion on Trgovska Gora had an emotional impact on respondents in the focus group. Judging by respondents' statements and their entire community, the Trgovska Gora issue affected them emotionally. Looking at the historical context of the people living in these areas, as regards existential threats, real or socially constructed, eruptions of violence regularly accompany events that affect the survival of people in that area. Events related to Trgovska Gora make security dynamics in the threatened area and relations between the Republic of Croatia and BiH quite difficult.

The majority of members of different ethnic groups living in the wider area have almost identical attitudes toward a radioactive waste repository to be built in Trgovska Gora. They expressed their opposition to the project at protest events. Also, they demonstrated their opposition through influencing their political representatives to take a unified position on this issue at all levels of government in BiH. Regarding an external threat that endangers a certain group of people, all internal divisions become less important while a group becomes homogenized (Coser, 2007: 124). Trgovska Gora is an issue that transcends ethnic, religious and, to a large extent, political divisions in BiH.

In the river Una basin, next to Novi Grad, there are a total of 20 local communities in BiH,<sup>54</sup> in which, according to the 2013 census, 364,970 inhabitants live, which is 10.33% of the total population of BiH (3,531,159). The ethnic composition of the population in local communities in the river Una basin is as follows: Bosniaks (236,482), Serbs (111,926), Croats (8,764), Others (7,254), Undeclared (3,152) (see Agencija za statistiku Bosne i Hercegovine, 2016). Ten local communities are located in the entity of the Federation of BiH<sup>55</sup> (Federalno ministarstvo poljoprivrede, vodoprivrede i šumarstva, 2021: 61) and ten local communities in the entity of Republika Srpska<sup>56</sup> (Javna ustanova Vode Srpske, 2017: 16). The surface area of the hydrological basin of the river Una is 8,142 km<sup>2</sup> (Javna ustanova Vode Srpske, 2017: 15), which is 15.9% of the total area of BiH (51,209 km<sup>2</sup>).

Trgovska Gora represents a slow-burning or creeping crisis (Kešetović, Korajlić & Toth, 2013: 83) that has the potential to affect regional security dynamics. In the event of

<sup>54</sup> See (Federalno ministarstvo poljoprivrede, vodoprivrede i šumarstva, 2021: 61; Javna ustanova Vode Srpske, 2017 : 16)

<sup>55</sup> Bosanska Krupa, Bihać, Sanski Most, Ključ, Drvar, Bužim, Cazin, Bosanski Petrovac, Grahovo, Glamoč.

<sup>56</sup> Krupa na Uni, Novi Grad, Kostajnica, Kozarska Dubica, Prijedor, Oštra Luka, Petrovac, Istročni Drvar, Ribnik.

an accident, all countries will be faced with direct and indirect consequences, not only from the Una, but also the Sava and the Danube drainage basins. Additionally, broader security implications may arise from the construction of a radioactive waste repository in Trgovska Gora. Corporate interests in the conditions of globalization can, in certain cases, pose a significant threat to human security (Đorđević, 2013), especially considering that radioactive waste disposal is a profitable business. Additionally, it is necessary to take into account the fact that the Republic of Slovenia and the Republic of Croatia have economic, energy and other benefits from the construction, and even the processes that precede decommissioning. On the other hand, the risks of obtaining the aforementioned benefits are largely transferred to the neighbouring country – BiH, by building a radioactive waste repository in the border area itself. The site in question, which is registered as a radioactive waste repository site in the Spatial Plan of the Republic of Croatia, that is, a site for permanently disposing of radioactive waste, presents a substantial challenge.

The construction of a radioactive waste repository in the border area, in the immediate vicinity of a river, without consent from a neighbouring country, is a dangerous precedent. Such a practice could be adopted by other countries in the world, which could generate disagreement, resistance, and conflict.

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