

## Original article

# Cultural landscape management in context: Local communities' perceptions under Jadar mineral extraction project in Serbia

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## ABSTRACT

In 2004, a new lithium-rich mineral, 'jadarite', was discovered in Serbia. In 2020, the government of Serbia and mining giant Rio Tinto announced a plan to extract lithium, which sparked massive environmental protests across the country. In this paper, we study perceptions of local communities towards Jadar mineral extraction project, which is planned in the zone of the cultural landscape 'Tršić Tronoša'.

We employed a household-level face-to-face survey, conceptually following the sustainable livelihood approach. Results shows that local communities anticipate negative changes in environmental quality, lifestyle, and activities such as agriculture and tourism, which are seen as vital for future development compatible with the cultural landscape conservation goals. Local communities perceive a bias towards private companies by the government authorities, driven by economic interests that, as seen by locals, may also be influenced by international political pressures. Other factors, such as lack of participatory approaches and non-transparent communication were also negatively perceived. We argue that mineral extraction planning in high biodiversity and cultural heritage areas is sensitive because local communities are strongly tied through historical activities and traditions to the landscape and are not willing to trade off their environment for the economic benefits that the mineral industry could bring.

## 1. Introduction

Reported conflicts between local communities and the mineral extraction industry have been staggeringly increasing in the last two decades (Temper et al., 2015; Conde and Billon, 2017). Multiple studies have concurred that a lack of trust within the local community is a significant factor contributing to resistance against mining activities (Moffat and Zhang, 2014; Conde and Billon, 2017). This is linked with the fear of local people that mineral extraction processes can result in a range of adverse impacts on the natural environment, including alterations to landscapes and heightened risks associated with the containment of hazardous chemicals (Dagvadorj et al., 2018). On the other

hand, whether local communities can profit from mineral resource extraction remains an ambiguous topic in current research (Shiquan et al., 2022). This has led to the development of the concept of the social license to operate (SLO), which is increasingly important for mining companies in North America, Australia, and Scandinavia (Prno and Slocombe, 2012; Moffat et al., 2015; Lesser et al., 2021). An SLO represents local and social acceptance of extraction projects (Cheshire, 2010; Prno and Slocombe, 2012; Prno, 2013). However, the reasons for SLO revocation are not well-documented in the scientific literature, posing significant business risks, especially if revoked by local communities (Dupont, 2019). Southeast Europe is an underrepresented region in mineral extraction SLO research, which hinders understanding of

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wider SLO dynamics.

Simultaneously, in the last three decades, community participation has become a key theme in the governance of protected areas (Niedziałkowski et al., 2012; Maxwell et al., 2020). For example, at the fourth World Congress of the International Union for Nature Conservation (IUCN) issue of local communities' participation in a decision-making process of the protected areas was set as a priority in planning activities (McNeely, 1993). According to the IUCN, primary management objectives for protected landscapes (Category V<sup>1</sup>) are centred on the conservation of specific natural and cultural values, tourism and recreation as well as maintaining traditional activities and ways of life (IUCN, 1994; Dudley, 2008). Ecotourism is often considered an effective strategy for achieving this objective, as it is believed to promote the lasting preservation of protected areas (Hill et al., 2016). It is argued that tourism activities can reduce pressure from extractive of extractive industries like mining, while also providing local communities with opportunities to sustain their livelihoods through the utilization of existing ecosystems (Brockington et al., 2006; Büscher and Davidov 2015).

Traditional protected area governance tends to be top-down, neglecting the relationship between locals and landscapes (Pinto-Correia et al., 2006) and ignoring local knowledge and perspectives (Harrison and Burgess, 2000). However, shift towards participatory approaches is noted (Imperial, 2021; Ivanović et al., 2021). International conventions like the Convention on Biological Diversity (CBD) (1991), the Aarhus Convention (1998) (UNECE 1998), and the European Landscape Convention (2000) stress the importance of involving locals in governance, emphasizing human perception as a key component of landscape value (Ren, 2019). Different participatory methods have so far been tested in landscape planning and management (Buchy and Hoverman, 2000; Alexander, 2000; Selman, 2004; Stenseke, 2009; Tomičević et al., 2010; Tomičević et al., 2011; Malmberg et al., 2022). Understanding how macro and micro aspects of landscape governance are connected is crucial (Hagerstrand, 1995; Stenseke, 2009, 2020).

Following previously stated research streams, this study is focused on the protected area cultural landscape of 'Tršić-Tronoša' in Serbia, an area in which local people, a key stakeholder, were left out of a decision-making process regarding a mineral extraction development project that is planned in the area where they live and secure their livelihood.

### 1.1. Background information and problem statement

In 2004, a new mineral named jadarite,<sup>2</sup> potentially valuable for the production of lithium-ion batteries, was discovered in Serbia's Jadar river valley (Stanley et al., 2007). Sixteen years later, in 2020, a Spatial plan for a special purpose area to extract and process jadarite under the name 'Jadar project' (Official Gazette of the RS No. 26/20-1) was officially adopted under a Serbian government decree. According to the plan, the region, which includes the 'Tršić-Tronoša' cultural landscape, was the proposed location for a new mineral extraction and processing facilities to be built by the Anglo-Australian multinational mining giant Rio Tinto Group. Multiple economic benefits were cited as stemming from the new mine, including contributing some US\$ 1.5 billion per year to Serbia's economy, directly employing 1170 workers and supporting 3950 jobs in related sectors (FoNet, 2021). The company's total planned investment of US\$2.4 billion would make the Jadar project the largest ever single foreign direct investment in Serbia, with the expected tax revenues for the state and local government estimated at US\$ 133 million per year (FoNet, 2021). Nonetheless, the announcement of the

new mine sparked nationwide protest and raised the ire of local communities that were concerned they would be displaced and the mineral extraction processes would result in a major environmental disaster (Nadić, 2022). In late 2021, thousands of environmental activists, members of local communities, non-governmental organisations (NGOs) and opposition political parties took to the streets and blocked major highways and roads throughout the country in a show of protest (France-Presse, 2021). In January 2022, just three months before a general election, under pressure from nationwide protests as well as the widespread criticism from NGOs and environmental experts, the government revoked all the licences it had granted to Rio Tinto, including the one for the Spatial Plan plan issued under the decree (BBC, 2022; Sekularac and Denina, 2022; Official Gazette of the RS No. 8/2022-3). After the sitting government was re-elected that April, local communities, environmental activists, experts and opposition politicians claimed that the mineral extraction project had not been abandoned and that the mining company continued to acquire land for a new mine further throughout 2022 (N1 Beograd, 2022; Glavonjić, 2022; Todorović, 2022).

In low-income and developing countries, mining in and around cultural landscapes has been documented to harm cultural and natural heritage, resulting in significant losses (Malijani, 2021). These concerns raise questions about the role of local communities in 'Tršić-Tronoša,' given the importance of their social, economic, cultural, and environmental interests potentially threatened by the Jadar project.

### 1.2. Aim of the research

This paper evaluates local perceptions of development opportunities in the 'Tršić-Tronoša' cultural landscape, particularly concerning a proposed mineral extraction project. It addresses the central research question: How do local communities view current development prospects in the area? The paper highlights community challenges, examines conflicting issues, and raises awareness on this topic. While lithium extraction is a global challenge, this study is unique as it explores its impact in a populated area like Serbia, making it a valuable addition to the limited literature on local perspectives on mineral extraction industry in Southeastern Europe.

## 2. Methods

### 2.1. Case study description – the 'Tršić-Tronoša' cultural landscape

The 'Tršić-Tronoša' cultural landscape is proclaimed as a protected area under the national category of a Landscape of Outstanding Qualities<sup>3</sup> by government decree in 2019 (Official Gazette of RS No. 51/19-21). The public enterprise "Centre for Culture Vuk Karadžić" was delegated full responsibility for the management of this protected area.

The cultural landscape is situated in western Serbia, in the municipality of Loznica (Fig. 1), between the alluvial-hills area of the Jadar river valley and the hilly ridge leading to the Podrinje mountains. The 'Tršić-Tronoša' itself is a relatively small area covering only 1802.57 ha (Fig. 2).

This study focuses on communities of place and geographic region, thus, the term "community" in this paper is synonymous with that of "settlement" or "village," as both words were used by participants in this study to describe their communities. Two villages, namely Tršić and Korenita, were selected for the case study as both are situated entirely in the protected landscape. The area is a mountainous region with mixed forests of Austrian, Hungarian and Cornish oaks, common hornbeam and beech trees which represent the predominant vegetative cover of the landscape, and are amongst the most diverse in Serbia.

<sup>1</sup> <https://www.eea.europa.eu/themes/biodiversity/protected-areas/facts-and-figures/IUCN-management-categories>

<sup>2</sup> Jadarite is a white, earthy, monoclinic silicate mineral. The chemical formula of Jadarite is sodium-lithium-boron silicate-hydroxide:  $\text{LiNaSiB}_3\text{O}_7(\text{OH})$  or  $\text{Na}_2\text{O} \cdot \text{Li}_2\text{O} \cdot (\text{SiO}_2)_2 \cdot (\text{B}_2\text{O}_3)_3 \cdot \text{H}_2\text{O}$ .

<sup>3</sup> This is the counterpart to IUCN Protected Area Management Category V—Protected Landscape or Seascape.

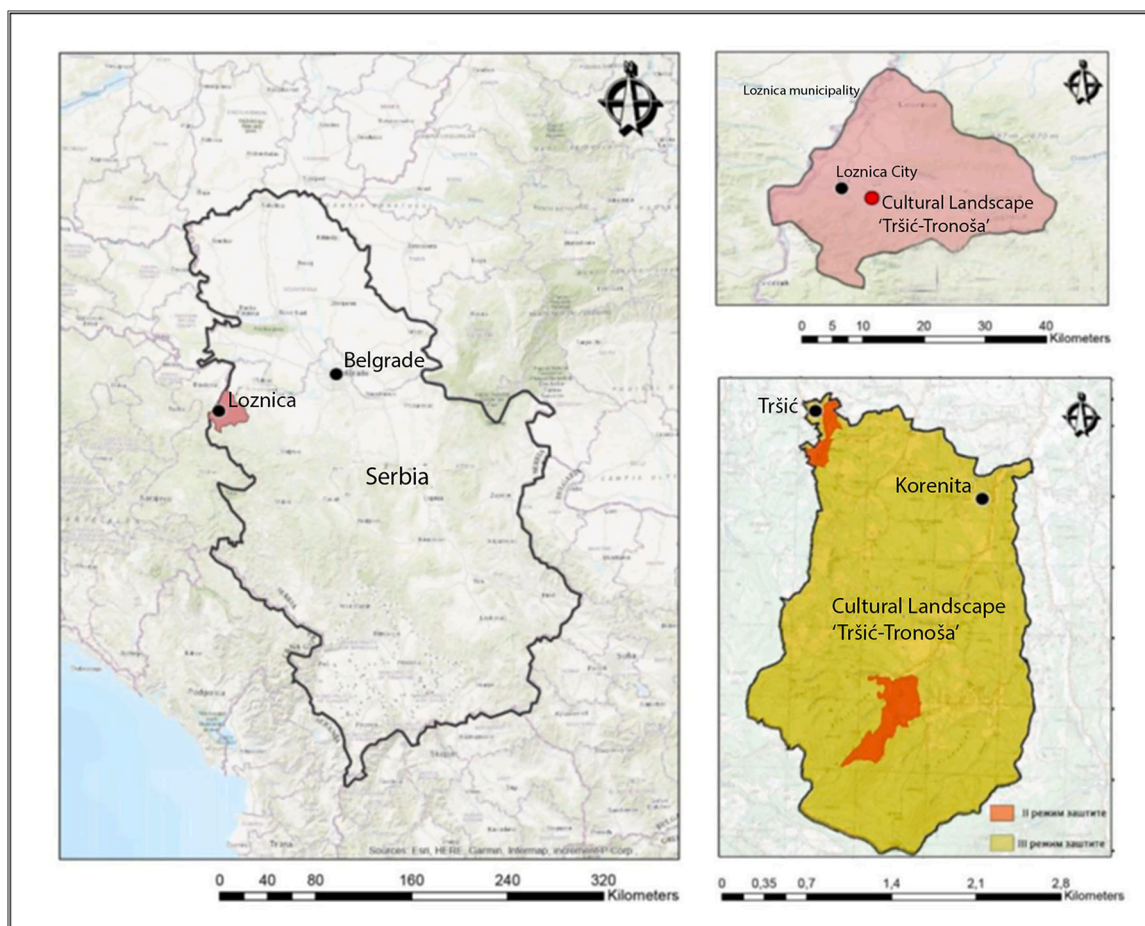


Fig. 1. The geographic position of the 'Tršić-Tronoša' cultural landscape within the Republic of Serbia.

The landscape is characterised by its considerable diversity in flora and fauna. There are a total of 145 protected wild species of plants and animals, of which 62 are strictly protected. Furthermore, the whole area possesses a rich cultural and historical heritage. The most important cultural and historical heritage sites are the Memorial House of Vuk Stefanović Karadžić (Fig. 3) and a cultural monument of great importance, namely the Tronoša Monastery (Cvijić et al. 2015). This landscape is also the cradle of two cultural festivals, Farmers Candles and Vuk's Convocation, in which local communities play a central role (Ethnographic museum Belgrade, 2023) and that have been listed as parts of the intangible cultural heritage of Serbia by the Ministry of Culture and Media. Additionally, Tršić is an important centre of excursion tourism in Serbia (Božović and Pivac, 2018; Božović et al., 2019).

## 2.2. Applying the sustainable livelihoods conceptual framework

In the 'Tršić-Tronoša' cultural landscape, integrating sustainable livelihoods with landscape conservation and sustainable development is a central challenge for local communities. The Sustainable Livelihood Framework, which considers various types of capital, including human, social, physical, natural, and financial, offers insights into the socio-economic status of these communities (Fig. 4). However, livelihoods are also influenced by social and institutional actors such as organizations and institutions, which include laws, policies and regulations.

The sustainable livelihood framework is based on the idea that communities use various types of capital assets to achieve their

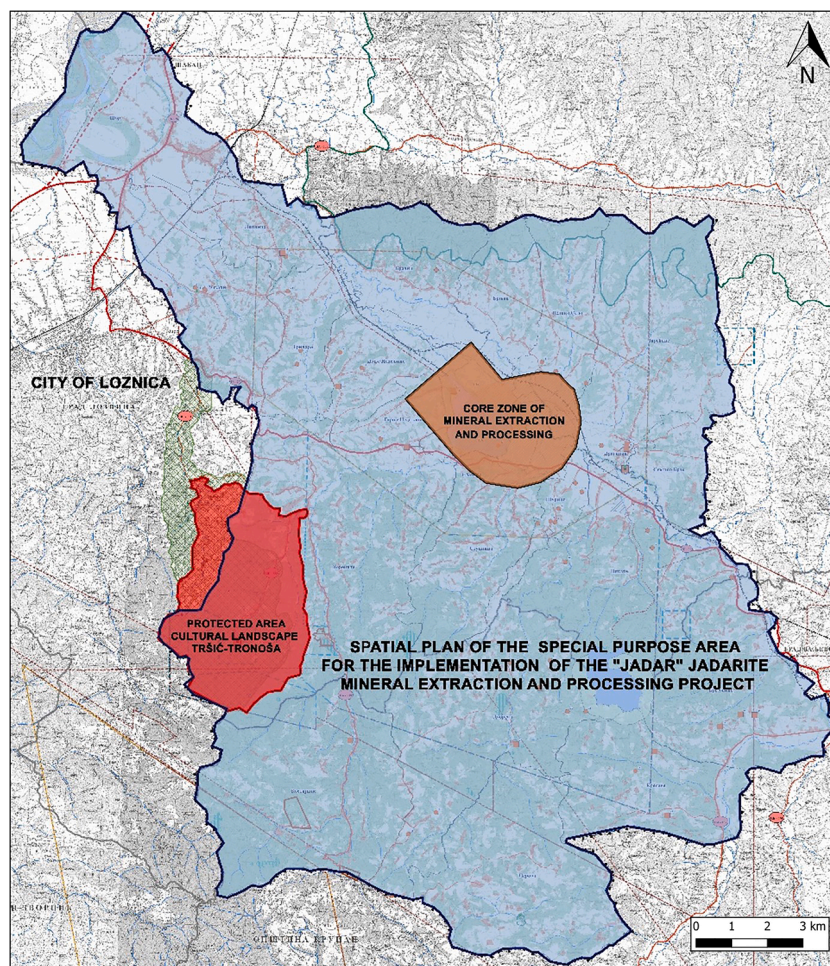
livelihood goals. These assets can be categorized as (FAO, 2008, p.17):

- Financial Capital: Includes savings, valuable items, steady income, access to credit, and insurance.
- Human Capital: Encompasses labour skills, health, knowledge, and nutrition.
- Natural Capital: Comprises access to land, water, wildlife, plants, and forests.
- Social Capital: Involves social trust, shared norms, and networks within communities.
- Physical Capital: Encompasses physical assets like homes, vehicles, equipment, and livestock.

These assets are foundational resources for individuals to improve their livelihoods (DfID, 1999; FAO, 2008; Horsley et al., 2015).

Various vulnerability factors, including environmental challenges and unforeseen events, can affect these assets. Additionally, policies, institutions, and processes play a crucial role in determining the extent to which livelihood goals are achieved.

Sustainable livelihood strategies have been applied in assessing communities and landscape development influenced by mineral extraction projects (Horsley et al., 2015). In the context of the planned mineral extraction project in the 'Tršić-Tronoša' protected area, our research aims to understand local perceptions of development opportunities by examining capital assets interplay.



**Fig. 2.** The location and limits of the Spatial plan of the special purpose area, including its overlap with the 'Tršić-Tronoša' cultural landscape and the planned area for extraction and processing of jadarite under the Jadar project.

### 2.3. Household surveys

We used individual households as the unit of analysis and conducted household-level face-to-face surveys. From these interactions, we were able to ascertain the socio-economic conditions of the two local communities studied, how they value and perceive the development of their area as well their in-depth perceptions.

According to the census in 2011 (Cvijić et al., 2015), there were 376 households registered in Tršić and 824 in Korenita. From the initial 120 surveys that were planned, we conducted 27 in Tršić and 39 in Korenita, which is 7 % and 4.6 % of the total number of registered households. This lower response rate was expected because this region has faced long-term depopulation over the last decade (BioSense Institute, 2022) and is subject to seasonal migration. These were the reasons why many houses were empty while the field surveys were conducted in May 2021. However, this type of data collection was deemed as optimal as it would have been more difficult to reach local people with other survey methods (phone, online, etc.). We also had in mind, antagonistic attitudes that are present in this region regarding mineral extraction projects. It was expected to gain people's trust and more information through face-to-face interaction. Participants were chosen non-randomly and on a voluntary basis through snowball sampling technique, because it would have otherwise been difficult to find respondents. We were assisted in the sampling process by the employees of the protected area management administration who are familiar with members of local communities. Researchers spent time in the villages

and conducted surveys with households that were willing to take part in the research. Only one adult member per household was participating in survey and on average survey took 30 to 60 min to complete. Overview of methodological approach designed and applied through four phases in this study is illustrated in Fig. 5.

The survey questionnaire included a mixture of open-ended, fixed-response, and multiple-response questions. This combination was used to examine various dimensions of the responses and to give freedom to the respondent to express freely and increase the validity of the obtained information (Tomićević et al., 2010).

The respondents were first asked to describe their local cultural landscape in their own words and then provide some demographic and socio-economic characteristics of the household. Subsequent to this, the survey gathered data from respondents on life in their village, perceptions of tourism development, any cooperation they had with the protected area management administration, and, finally, details regarding their support for landscape conservation. The final questions dealt with their support for different landscape development policies regarding the future of this region and how they perceive problems and threats to the landscape (see Annex 1). The questionnaire was carefully prepared as the research team had to bear in mind the heated antagonism many stakeholders feel towards the current developments in this region. The wording and order of the questions were carefully thought out to ensure that the responses of the participants were not biased by the answers to earlier questions (Lofland, 2006; Tomićević, 2005). For example, participants were asked, "In your opinion, what is the biggest threat to the



Fig. 3. Tršić is the birthplace of the reformer of the Serbian language, Vuk Karadžić. The house where he lived was built and is still preserved in the traditional architectural style that distinguishes this landscape. Today, the house is a museum.

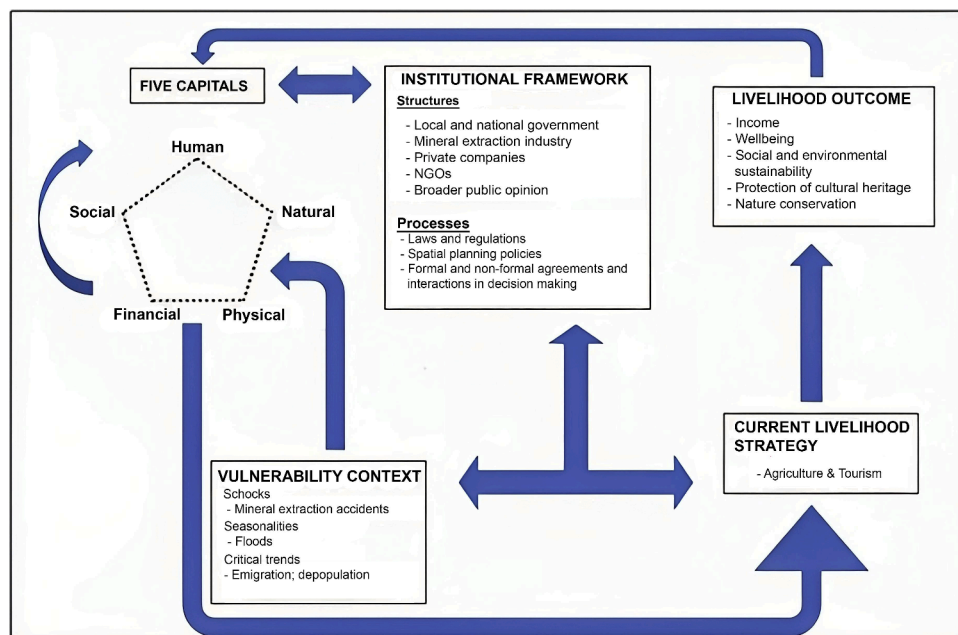


Fig. 4. Conceptual framework of the sustainable livelihood approach. Theoretical starting point in exploring the perceptions of communities towards cultural landscape and lithium extraction project (adapted from Serrat, 2017: p.2).

natural and cultural values of this landscape?" at the end of the survey to avoid subjectively 'directing' their responses to other related questions. Amongst 66 households surveyed, only 13 wanted to openly discuss their perception on 'Jadar' lithium mineral extraction project in the last

open question. These 13 respondents were interviewed further following sub-questions: "Can you explain further how you see the opening of a mine near your village?"; What do you and your household expect in economic and environmental terms from the whole lithium extraction

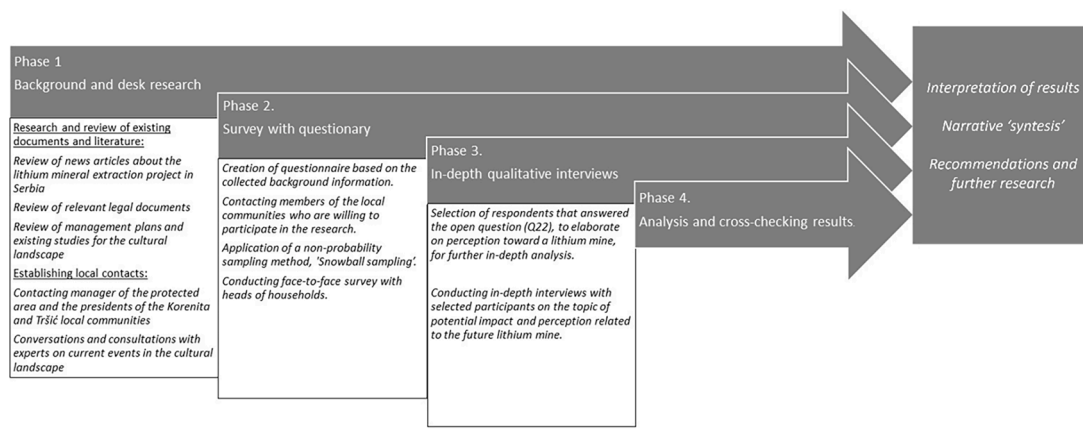


Fig. 5. An overview of methodological research design/approach.

Table 1  
Coding strategy for open question.

Sustainable livelihood approach	Code group	Negative perception	Positive perception
Human capital	Capital assets	Coded	N/A
Natural capital	Capital assets	Coded	N/A
Financial capital	Capital assets	Coded	Coded
Physical capital	Capital assets	Coded	N/A
Social capital	Capital assets	Coded	N/A
Structures/Government	Policies and institutions	Coded	Coded
Structures/Mining company – private sector	Policies and institutions	Coded	N/A
Processes/Involvement in process	Policies and institutions	Coded	N/A
Agriculture	Livelihood strategies	N/A	Coded
Tourism	Livelihood strategies	N/A	Coded
Shocks	Vulnerability context	Coded	N/A
Seasonalities			
Critical trends			

N/A – means that such statements are not found in the text.

Table 2  
Socio-demographic details of respondents whose answers to the last open question were subject to qualitative analysis.

Respondant No.	Age	Sex	Occupation	Household members	Local community
1	53	M	Agricultural worker/owner	5	Korenita
2	47	M	Physical labour	4	Korenita
3	43	F	Industry worker	4	Tršić
4	75	M	Retired chemical engineer	4	Korenita
5	39	M	Agricultural worker/owner	5	Tršić
6	51	M	Agricultural worker/owner	6	Korenita
7	41	M	Agricultural worker/owner	6	Korenita
8	34	F	Agricultural worker/owner	3	Korenita
9	38	F	Tourism and hospitality	3	Tršić
10	27	F	Tourism and hospitality	5	Tršić
11	40	M	Tourism and hospitality	4	Tršić
12	34	F	Tourism and hospitality	3	Tršić
13	29	M	Agricultural worker/owner	3	Korenita

project?; Are you involved in any way in the planning/implementation of this project?'. Answers to these questions (see Annex 2) were used to qualitatively describe situation and identify main aspects related to our research question, which is understand how local respondents describe this changing situation, their main concerns, potential impacts and fears they have. Surveys were conducted in May of 2021, when tensions regarding the Jadar project were running high at the local level but prior to them reaching the boiling point of nationwide protests that resulted in the road blockades in January 2022.<sup>4</sup>

2.4. Analysis of data

The data acquired were analysed in two phases. In the first phase, survey results were coded and transcribed and data from all 66 participants was processed using Microsoft Excel. In the second phase, the statistics software JASP (Jeffrey’s Amazing Statistics Program)<sup>5</sup> version 0.16.2 was used so that the collected data could be processed using

<sup>5</sup> JASP is a free and open-source programme for statistical analysis supported by the University of Amsterdam. It is designed to be easy to use and familiar to users of SPSS. It offers standard analysis procedures in both their classical and Bayesian forms. (<https://jasp-stats.org/>).

<sup>4</sup> <https://www.bbc.com/news/world-europe-60081853>

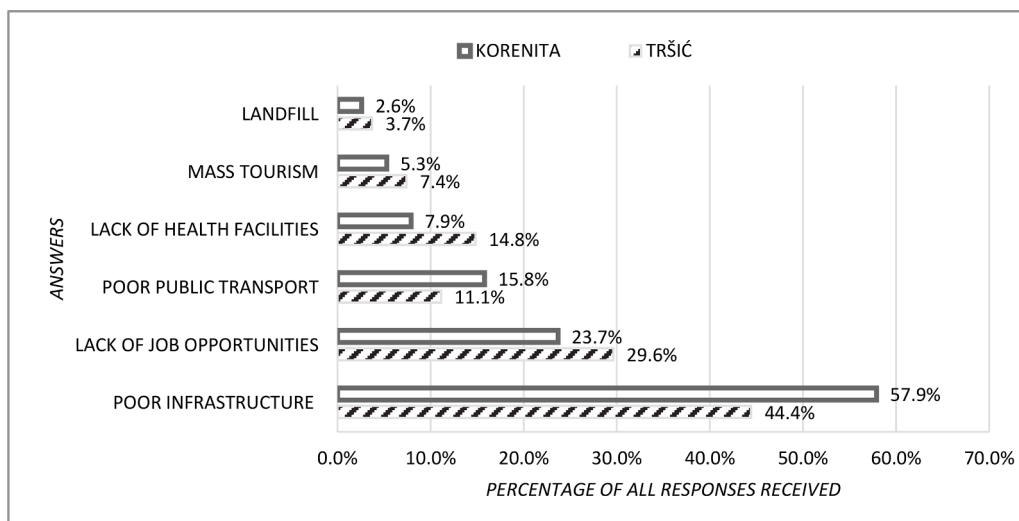


Fig. 6. Responses to the question "What problems do you face in the village?".

descriptive statistics and correlation methods. Several social-economic variables were measured in the questionnaire, including the gender and age of the participants, level of education, number of household members, occupation and income. Finally, an analysis of the correlation between the variables was conducted by employing nonparametric methods of rank correlation using Spearman's rank coefficient, which is used for analysing ordinal data sets (Tenjović, 2000; Gauthier, 2001). In addition, we conducted qualitative content analysis of the last open question, by coding the text, which allowed us to identify number of characteristics related to local communities' perceptions and interplay between perceptions. Atlas.ti software (Version 9.1.3.0) was used for coding and further analysis of these answers. The text was primarily coded with two semantically opposite meanings within the conceptual framework of sustainable livelihood approach (see Fig. 4), 'positive vs negative perception' for main code categories shown in Table 1.

The following table presents a list of respondents at the household level who agreed to further discuss issues around lithium mine. Because of the topic sensitivity for most respondents, only general socio-demographic data of the participants are shown in order to assure their anonymity (Table 2).

### 3. Results

#### 3.1. Demographic data

More than 30 % of respondents in the survey were over the age of 50. More than 70 % having received a secondary education, while only 18.5 % had a bachelor's degree or higher in Tršić and 15.8 % in Korenita. Observed emigration in Korenita was 57.9 % while it was 33.3 % in Tršić. Similarly in terms of immigration, results show high disparity, only 2.6 % of Korenita's respondents reported people moving to the village, whereas 40.7 % of Tršić respondents reported this. It is interesting to point out that in Tršić 25.9 % of respondents observe seasonal migration in their community.

#### 3.2. Socio-economic status

Physical capital, which is a key influencer of socio-economic status, was rated as the most lacking livelihood asset in terms of quality and availability in the region by the respondents (Fig. 6). In Korenita, 57.9 % of respondents and 44.4 % in Tršić say that poor infrastructure (lack of sewage, water supply network and paved roads) is the biggest problem for life in the village. In relation to this, there is data that certain water sources used by these communities do not meet microbiological

drinking-water quality standards, due to the penetration of surface waters caused by the absence of a sewage network (Cvijić et al. 2015). Inadequate infrastructure in the villages was also mentioned in the open question by the respondents: "We don't have an asphalted/paved road or sewage system, and they (Government) would like to dig a mine under our feet. We don't have the basics needs covered... Well, it's shameful" (R1).

This statement underscores a paradox in the authorities' investment priorities, particularly given the subpar management of water quality due to the absence of essential infrastructure.

The second prominent source of problems for life in the villages was the lack of job opportunities (23.7 % in Korenita and 29.6 % in Tršić). The largest segment of working respondents in both villages is engaged in agriculture full-time (22.0 % in Tršić; 26.0 % in Korenita). Tourism is another key sector, identified by 19.0 % of respondents in Tršić and 16.0 % in Korenita. Approximately 50.0 % of those surveyed have a full-time job in both communities, while 21.0 % of respondents in Korenita are unemployed, with this figure being even lower at 18.5 % in Tršić, which shows a relatively low level of financial capital. In both communities, the majority of people own agricultural land, 75.0 % in Korenita and 66.7 % in Tršić, however, it is worth noting that in Korenita, where agriculture is more dominant than tourism, there is a slightly higher unemployment rate. This can be explained by the seasonal work that is prevalent in this agricultural community.

Although agriculture is the main economic branch, tourism is perceived as an attractive sector for those who do not work in it. In both communities, most respondents believe that tourism is not sufficiently developed as an economic branch (74.0 % in Tršić; 68.0 % in Korenita). Amongst those who are not involved in the tourism sector, we asked, "Would you work in tourism?" In Tršić, 78.0 % of respondents answered positively, compared to 69.0 % in Korenita, which supports the premise that local people see tourism as a viable economic prospect. In both communities, more than 70.0 % of respondents are open to collaborating with the protected area management administration on further tourism development.

#### 3.3. Attitudes towards landscape conservation and implementation of lithium extraction project

Balancing landscape conservation with local communities interests and a large lithium extraction project in Serbia is a complex challenge. Meeting the demand for renewable energy while safeguarding ecosystems raises important economic, environmental, and ethical questions. This interplay requires nuanced examination from local communities' practical and principled perspectives.

Table 3

. Spearman's correlations for selected variables.

Tršić variable		Q5 Age	Q6 Education	Q10 Income	Q23 Conservation support
1. Q5 Age	Spearman's rho	—			
	p-value	—			
2. Q6 Education	Spearman's rho	-0.203	—		
	p-value	0.311	—		
3. Q10 Income	Spearman's rho	-0.110	0.115	—	
	p-value	0.584	0.567	—	
4. Q23 Conservation support	Spearman's rho	-0.173	0.125	0.345	—
	p-value	0.389	0.534	0.078	—
Korenita Variable		Q5 Age	Q6 Education	Q10 Income	Q23 Conservation
1. Q5 Age	Spearman's rho	—			
	p-value	—			
2. Q6 Education	Spearman's rho	-0.025	—		
	p-value	0.883	—		
3. Q10 Income	Spearman's rho	-0.040	0.275	—	
	p-value	0.810	0.095	—	
4. Q23 Conservation support	Spearman's rho	-0.101	-0.210	0.075	—
	p-value	0.548	0.206	0.653	—

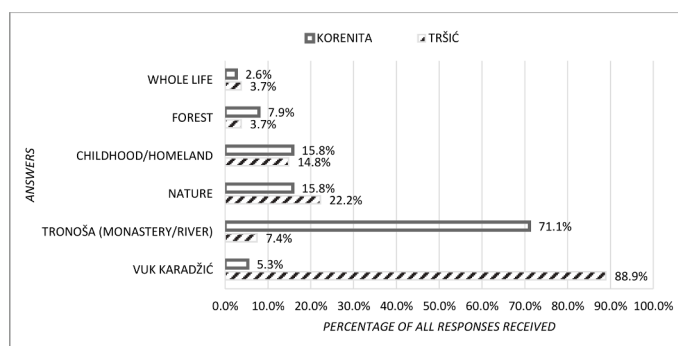
\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Fig. 7. Responses to the question "What word(s) best describe the landscape where you live?" or "What word(s) do you assign to the landscape?".

Given that this cultural landscape is a complex of natural environments and local community traditions, respondents' perceptions regarding the importance of landscape conservation and support for further landscape development were investigated. In Tršić, 89.0 % of respondents think that the conservation of cultural and natural values should be a key priority of the protected area's governance, while in Korenita, 68.0 % share this view. Results from Spearman's correlation show there is a slight positive correlation for variables 'conservation support' and 'income' in Tršić (Table 3). Also, in Tršić 'conservation support' correlates with higher 'education' attendance. Even though the correlation is not statistically significant, and this applies only to one community in this case, still could suggest that people with higher socio-economic status are more likely to support conservation, which is consistent with the findings of Tomičević (2005).

The fact that there is no significant correlation between socio-economic variables and support for conservation in statistical sense, we link with the phenomenon of the intimate relationship between people and their landscape. Amongst all the locals surveyed, there is a strong attachment to their local landscape, which lies at the heart of their strong sense of belonging to the place in which they live, regardless of socio-demographics. Almost all the respondents assigned to the local landscape a connection to their tangible cultural heritage, be it Vuk Karadžić's house, the Tronoša Monastery or the natural environment comprised of forests, rivers and so forth. (Fig. 7).

People associate the local landscape's attributes with their childhood as memories and a part of the meaning of their life. This argument is illustrated by the following statement of one respondent: "This landscape

is part of my identity, the place where I grew up, where I made my home and where I take care of my family. As a producer of blackberries and raspberries, I feel connection with the land and the nature that surrounds us, which is key to our existence" (R13).

Statement highlights how the local community's tradition is closely linked to their way of making a living through agricultural production. Explaining the essence of their existence and way of life from early childhood to the present moment.

Awareness of the value of the cultural landscape in the local community is illustrated in statement: "... in 2019, the Tršić-Tronoša Cultural Landscape was designated as protected area, but now we are faced with the fact that Rio Tinto's spatial plan threatens our cultural heritage..." (R10).

Next statement show that these communities are inextricably linked to the intangible values of the cultural landscape through the Farmers Candle festival,<sup>6</sup> and Vuk's Convocation.<sup>7</sup> Local especially empathizes the worry that practicing this festivals could influence the decline of tourists and wild bees due to mining: "If the mine is developed and opened, I wonder what kind of tourists will come here, including school trips and hikers. People visit Tršić and Vuk's House, but our Farmer's Candles are also a special attraction. Where/how will we collect wax from wild bees if everything is razed to the ground? Even

<sup>6</sup> The custom of pouring and lighting farmers' candles is a part of the Easter customs in western Serbia and includes making candles from pure wax and offering them to the Tronoša monastery during the last week of Easter fasting. During the Easter fast, residents of villages in the vicinity of the monastery collect contributions (wax or money used to buy wax) to make the candles. On the Wednesday before Easter, two candles are poured, each weighing 50 kilograms and standing about 1.5 meters high. In the afternoon of the next day, community members bring the candles to the fountain near the monastery, where they decorate them with flowers and carry them in a procession to the monastery courtyard (Cvijić et al. 2015; Ministry of Culture and Media of the Republic of Serbia 2022b). By practising this ritual, local people believe that they have protection from natural disasters and 'evil phenomena'.

<sup>7</sup> Vuk's Convocation, the oldest cultural festival in Serbia (first held in 1933), is dedicated to the preservation of the Serbian language and alphabet and is a living memorial to the Serbian language reformer. Vuk's Convocation is a time for the residents of Tršić and the surrounding villages, as well as their friends and relatives from other regions that visit, to participate together in the festival programmes. The festival's goal is to promote oral storytelling, traditional songs and fiddling competitions as well as epic poetry performance, that is, the presentation of oral traditions and expressions involving various forms of performing arts.

though exploitation is not directly planned here... Here is the cradle of our country's culture..." (R9).

The local community play a major role in designing the festivals programme, which is why it forms a part of their identity (Ministry of Culture and Media of the Republic of Serbia, 2022a,b). Furthermore, results from the study show that there is strong and lasting cooperation between local communities and the protected area management administration related to the joint organization of these events, which is a positive example of joint collaboration between authorities and locals.

To understand what people, see as the biggest threat to landscape values, we asked an open question without suggesting any answers. Interestingly, most of the of respondents in both communities believe that the newly proposed Jadar project poses the biggest threat to the landscape (63.0 % in Tršić; 41.0 % in Korenita). Further results showed that when it comes to mineral extraction, both communities are closely bonded to their landscape and are not willing to sacrifice it for the promise of economic opportunities that could potentially lead to landscape degradation.

Results from qualitative analysis also shows that local people have strong opinion on this subject, mostly negatively:

"None of us wants Rio Tinto here...it's not about Rio Tinto... we don't want the mine, landfill, and especially the landfill. The landfill is what will destroy us and will decide our final fate, to cultural landscape and the whole Jadar Valley" (R1).

The statement shows pessimistic scenario that the locals expect if lithium extraction takes place, not only for their local community but also for the entire Jadar region. The following statements succinctly illustrates this: "We also fear displacement, flooding and negative impacts on demographics..." (R2) and "...most of us are concerned about preserving our beautiful natural environment" (R11).

As the major development opportunities respondents identify tourism and agriculture. Bearing in mind the relatively high unemployment rate amongst respondents, the results showed that in Tršić, 96.0 % of respondents said they prefer tourism, while in Korenita, 68.0 % of respondents indicated tourism is their preferred main development model. Next statement depicts how locals see development of lithium extraction project collides with tourism: "...I think the extraction of lithium will lead to a decrease in the number of tourists because the changes in the landscape and the potential noise and pollution can reduce the attractiveness of this beautiful place. And there will probably be an increase in competition from new industries that can reduce visits and revenues" (R12). In combination, locals see these factors can reduce the area's overall attractiveness to tourists.

In Korenita, a 21 % of respondents said they would prefer a focus on agriculture as main economic sector, which is understandable given that this community is more rural and has more members already employed in this sector. "The Jadar valley and all that we have been doing here for generations, almost 1000 years, we produce food and other locals can make money and stay on their land simply by living off their agricultural work" (R1), clearly illustrates that agriculture is not only favoured as a livelihood strategy by locals in Korenita, but also as practice rooted in tradition.

Although the authorities and the mineral company announced great economic benefits to the local population, the following statement shows great distrust in those promises: "The battle of Cer was only 20 km from here, and down in the Jadar valley are found dinosaur fossils. I don't understand why anyone would trade all that we have, for all sort of promises, money and jobs. That storytelling and promises are just eye candy, as they are forcing us to let go of the sparrow in our hand and catch the dove on the branch" (R9).

It is important to note that some households are not *per se* against mining but expect the opinions of independent environmental

experts on the impact of lithium extraction: "I don't want to be an opponent of the mine, but only on the condition that environmental experts give their opinion. We need to hear from ecologists who will assess whether it is good for our country and whether our environment will be protected" (R4).

A particular aspect of the controversial lithium extraction project is the local community's feeling that they are not included in the decision-making process and that their voices are not being heard. The negative perception is particularly expressed towards mining giant Rio Tinto, but also towards the state administration, which the locals saw as biased in favoring the mining company interests. The following statements describe this: "... We feel neglected by Rio Tinto... The problem is the constant change of plans that Rio Tinto has..." (R2). People state lack of transparency and consistency in mining company communication approach: "Almost eight years ago, Rio Tinto came with promises of industrial development and well-paid jobs, but everything changed three to four years ago, maybe even five years ago. We discovered that their story was false. They kept their secrets until we got in touch with them and started talking about the problems surrounding the factory premises, the landfill and other things... they invited us to talk openly only once..." (R2). Similarly: "...on a personal level, I participated in several meetings with Rio Tinto, but we never got clear answers about the safe distance from the mine" (R4).

Rio Tinto's negative image across the globe, also reflects in responses: "Our concerns do not end only at the economic level but also in relation to environmental protection. The question that arises is: who guarantees security? Given the company's history of operating in other countries, where they have left behind tragic consequences, we have no confidence that it will be any different here" (R3).

From the perception of the local community, as revealed through the analysis of open question interviews, the biggest problem that causes opposition to the lithium extraction project is their feeling that they are uninformed and insufficiently involved in the implementation of the project. Out of the 13 in-depth responses, in each of them the following were mentioned at least once by the respondents: 'lack of information', 'feeling helpless to influence decisions', 'poor communication', 'lack of involvement in the decision-making and planning process', and the perception of 'favouring of the company by government authorities'. Sentences with these semantic meanings were coded as "Negative perception: Involvement in process". In Fig. 8 we showed that this code overlaps with "Negative perceptions" of Mining company, and the Government, followed by links with "Vulnerability context".

One statement describes the relationship between a company's history with governments in developing countries around the world, and its perception of the current situation, which favors the company's behaviour: "I want my voice to be heard and our concerns and needs taken into account when planning this project. But I don't believe that it will be like that, if I take into account the history of the Rio Tinto projects and the

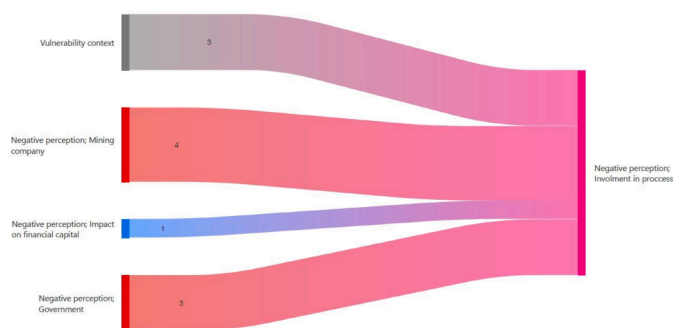


Fig. 8. Links between coded statements with "Negative perception: Involvement in process".

political situation in the country, corruption and clientelism, primarily.” (R13)

Nevertheless, a next statement indicates that the local population has a stronger preference for obtaining communication and information regarding the lithium extraction project from government authorities rather than a private company, highlighting a higher level of mistrust towards the mining company: “So, we want every minister here, every day, if necessary, to explain to us, not the Rio Tinto company, the Rio Tinto company came here to broker, it does whatever it wants” (R1).

Some even perceive that the project is the result of international pressure and has links to foreign government involvement, illustrated by the following statement: “Perhaps the pressures of foreign influences on the country are part of this puzzle. Somehow, we have no other explanation for all this happening to us. It seems that we, the locals, have no voice in these decisions and our concerns and opinions are ignored. This all seems like part of some kind of deal between power players, and our well-being is not their first priority” (R10).

### 3.3.1. Interplay between coded statements

When analysing statements, parts of one statement can have several semantic meanings, which show the complexity of the situation and a positive and/or negative attitude towards the issue. It is also possible that statement has more than one positive but different negative semantic meanings, i.e., overlapping perceptions towards different types of capital. Our qualitative analysis shows links between negative perceptions (coding overlaps) of projects influence on physical and natural capital. These overlaps are shown in the comprehensive Sankey diagram in Annex 3 and the coding co-occurrence Analysis Table in Annex 4.

Locals perceive that natural environment and water resources will be strongly affected by lithium extraction which is linked with livelihood strategy that ensures income. Perception of agriculture as a livelihood strategy and negative perception towards its impact on physical and natural capital are strongly connected through the next statement: “During the cooperation with the authorities and Rio Tinto, they invited us to talk openly only once, and that was last year, in order to consider the possibility of installing a tailings pond in the Jadar river valley (Natural capital). However, this would have disastrous consequences because this valley and the surrounding area is crucial for the agriculture (Livelihood strategy = Financial capital) of this region. If they take away our land or fill the river with tailings, we will face major technical problems, including seasonal floods (Vulnerability context) that would threaten the settlements (Physical capital) along the Jadar River and even up to the hills (Natural capital)” (R2). This passage underscores the complex relationship between livelihoods, environmental concerns, and the potential consequences of industrial projects in the area.

Negative perception on impact on social and human capital are linked with negative perception on natural capital and vulnerability context. This is illustrated in following statements: “We also fear displacement (Social capital), flooding (Vulnerability context) and negative impacts on demographics (Human capital)” (R2); “The place where the school is, already is a victim of that project, people sold their properties and left (Human & Social capital) because they knew what is going to happen to them. I am in a different zone of influence and it worries me a lot. I just hope this project is stopped before it's too late” (R7); and “I am afraid that the extraction of lithium may threaten the health of our environment (Natural capital) as well as our own (Human capital)” (R13).

The quotes collectively underscore the complex interplay between the well-being of human communities, the physical environment, and development activities.

Especially revealing perception is the link between project negative impacts on financial capital and agriculture and tourism as livelihood strategies: “...this restaurant has been in our family for two generations

(Financial capital). If the mine is developed and opened, I wonder what kind of tourists will come here, including school trips and hikers (Livelihood strategy)” (R9); “...many residents are sceptical of the entire project, given that until now they were mostly engaged in agriculture (Livelihood strategy; Financial capital).” (R5); and “...If the wages will be so high in Rio Tinto, everyone will go to work there, then there will be no agriculture, no tourism, (Financial capital; Livelihood strategy) no cultural manifestations (Social capital) from which people live... the entire cultural landscape of Tršić-Tronoša (Natural capital) is deteriorating” (R11). Statements shows that local people understand potential drawbacks of lithium extraction: like landscape changes and increased competition from new industries that could adversely affect the local economy, especially agriculture and tourism as a livelihood strategy.

## 4. Discussion

Researching the attitudes and needs of local communities can support decision-makers in improving their awareness of existing local issues and needs as well as lead to improved landscape governance and the effective implementation of regional policies. In our study selected socio-economic variables had no significant influence on respondents' attitudes towards landscape conservation. However, our results show that the overall majority of respondents, irrespective of their socio-economic variables, have a negative opinion of Jadar project and mineral extraction and favour tourism as the leading economic opportunity as it is better aligned with the conservation of landscape values. This is understandable since rural tourism has repeatedly been shown to play a significant role in socio-economic progress and the regeneration of rural communities (Yang et al., 2022). Regarding the lack of job opportunities faced by rural communities, where Tršić and Korenita are typical examples, rural tourism development is also seen as having potential as shown in other studies (López-Sanz et al., 2021; Hassan et al., 2022), especially when community participation in tourism planning and development in protected areas is embraced as a route to sustainable tourism practice and poverty alleviation (Bello et al., 2017). Božović et al. (2019) found that tourism attracts new inhabitants to the Tršić community, which is a well-known tourist destination at the national level. Also, there is data indicating that 59.0 % of Tršić's population perceives that the owners of local tourist facilities (restaurants and bars) make the most profit in tourist sector and that this economic opportunity attracts people to move permanently or seasonally to the town (Božović et al., 2019). Given that this region faces a long-term depopulation issue, tourism could be important for improving not just financial but also human capital.

Overall, community apprehension about their local landscape is influenced by landscape elements, prior experiences as well as the sociological and cultural context of the observer. Landscape perception not only governs how a landscape is received and perceived but is also a manifestation of a particular subjective bond with a landscape and its elements (Appleton, 1975; Rogatka et al., 2018). For both communities, it can be said that the landscape they live in is their “...cultural construction, a mirror of our/their memories and myths encoded with meanings which can be interpreted.”, as explained by Taylor (2008, p.3).

The findings of the present research showed that the biggest issues faced by the two surveyed local communities were poor infrastructure and a lack of job opportunities. Investments and development in infrastructure are factors that would not only enhance daily life for these communities but also support greater tourism and improve livelihood prospects in both communities. This research has also shown that improved governance of the “Tršić-Tronoša” cultural landscape requires establishing better and regular communication between government entities (both national and local) and local communities. This is now

especially salient with regard to the mineral extraction plans associated with the Jadar project as improved communication with local communities and their organised participation could alleviate conflicts and mistrust. Selman (2004), discussing the cooperation of local communities in the planning and management of cultural landscapes, believes that it is not possible to maintain "...intimate interaction between communities and land..." (Stenseke, 2009, p. 215) only through government intervention or management, rather that management needs to be based on constant feedback from local communities (Selman, 2004; Stenseke, 2009). The conservation of the 'Tršić-Tronoša' cultural landscape is important not just for those local communities located within its confines, but also for a broader segment of Serbian society that has a strong cultural attachment to it. This is unsurprising given that around the globe ancient settlements and museums, are regarded or designated as cultural landscape, that can have profound historical and cultural significance that allow societies to learn about their own histories and experience their cultural heritage (Li et al., 2022).

Serbia is not an isolated case in this regard, as a lack of local community participation has been documented in many environmental conservation efforts around the world (Rodríguez-Izquierdo et al., 2010; Endl, 2017; Espinosa, 2021; Prado, 2022), especially when intensive and larger scale developments of mineral extraction projects are planned (Steudt et al., 2020; Espinosa, 2021). What is specific to Serbia is that it underwent a sensitive and long transition process with many governmental changes in the transition period, which induced a long period of instability in the country (Živojinović et al., 2019). This has affected the attitude of the population in many ways and has resulted in an overall lack of trust in government institutions (Drndarević and Protić, 2020), especially regarding environmental issues.

Serbia's centralized and strict bureaucratic processes in conducting Strategic Environmental and Social Impact Assessments (SESIA) and Environmental and Social Impact Assessments (ESIA), (Fagan and Sircar, 2015) may have also influenced local communities negative perceptions because of a lack of an effective participatory approach. Both assessments demonstrate how local populations are not fully integrated into participation processes, despite legal prerequisites to do so and the high levels of interest of local communities. In the case of the Jadar project, a SESIA was conducted and prepared in 2021 as an integral part of developing the Spatial plan. As with other parts of the process of adopting the Spatial plan, the SESIA did not include a broad spectrum of stakeholders or local communities, contrary to assurances from the authorities that local people will be collaboratively included in important decisions (Bogdanović, 2021). The SESIA recommended, amongst other things, the displacement and relocation of local communities that are closely connected to the cultural landscape to mitigate the human-health impacts of pollution emitted from the mine (Miljić, 2021). However, the Government of the Republic of Serbia, under public pressure and in the face of widespread protests, revoked Rio Tinto's licence, meaning the Spatial plan and SESIA were never implemented. With this, the legal and planning basis for the mine's design, preparation of the technical documentation and conducting an ESIA was all cancelled. As such, no detailed research on the human and environment impacts of the proposed mineral extraction project was ever carried out. There is a substantial and broad legal basis for local communities' participation in environmental planning and decision-making processes in Serbia (see Annex 5) (Obradović et al., 2022; Komnenić, 2012; Fagan and Sircar, 2015; Drenovak-Ivanović, 2016). It is interesting to note that 79.6 % of the Serbian population believes that public institutions do not sufficiently cooperate with the citizenry (Čikić, 2012). The Serbian government's openness to cooperate with its citizens was also measured in 2021 by the Regional Index of Openness (BTI, 2022). This index incorporates separate evaluations of factors such as accessibility, transparency, integrity and the efficiency of institutions. Public institutions in Serbia are ranked at the low-end concerning openness of institutions, with a mark of just 38.6 % (BTI, 2022), which makes Serbia's institutions amongst the least open in the Western Balkans countries

(Tosić, 2022). Only 13 % of Serbia's citizens reported having initiated or actively participated in solving problems or decision-making in their communities. Some slight improvement could be observed with regard to the involvement of citizens,<sup>8</sup> mainly supported by the activities of different civil society organizations (BTI, 2022).

Contrary to the government's assurances that the Jadar project will be 'environmentally friendly' with multiple economic benefits, a call often echoed by governments supporting such development projects around the world, mineral extraction has been identified as one of the main causes of livelihood losses for local communities, environmental damage and loss of cultural heritage (Wetzlmaier 2012; Al Rawashdeh et al. 2016; Mwakesi et al., 2021; Mestanza-Ramón et al., 2022). Given that mining activities fundamentally and often irreversibly alter cultural landscapes, with long-term consequences for local communities as well as cultural and natural heritage resources (Malijani, 2021). Environmental experts in Serbia warned the public via news media about the potential consequences of the Jadar project. This resulted in a hardening of public opinion against the project and the escalation of the conflict that eventually resulted in widespread protests (Nadić, 2022). In this regard, Lacey et al. (2019) argue that "...a little information can initially raise concerns about environmental and health impacts, and quite high levels of public understanding may be needed to alleviate those concerns and increase overall acceptance, especially for emerging mining technologies." (Lacey et al., 2019, p. 134). Communication and participatory approaches are thus fundamental to both successful planning as well as obtaining and retaining an SLO, however, such approaches are seemingly less well defined in a practical sense, especially in the European context (Mercer-Mapstone et al., 2017; Gugerell et al., 2020).

In a wider geopolitical perspective, lithium's important status within the European Union (EU) is evident in its inclusion on the EU's list of critical raw materials in 2020, which underscores its importance in sectors like electric vehicle battery production and renewable energy systems. It is important to note that this is the time when the Government of Serbia made a decision on establishing a spatial plan and when this conflict began. In 2023, lithium still retains its crucial position on this list, emphasizing its strategic value to the EU's economic, environmental, and technological goals (European Commission, 2023). This is especially significant in the political context of Serbia, a country with substantial lithium reserves actively seeking and currently negotiating EU membership. All this shows an important dimension of international relations and high political interplay in mineral extraction conflicts, which are well understood by local communities in our study.

This has led to local frustration and disillusionment, with residents feeling excluded from decision-making and believing their well-being is not a priority. These sentiments strain relations between communities and decision-makers, highlighting the need to better balance local interests with broader geopolitical considerations in development projects.

Furthermore, the reservations of the two local communities studied here are supported by a number of claims and facts that undermine the overall viability of many mineral extraction projects for interests of local communities (Conde and Le Billon, 2017; Lempinen and Lindroth, 2021). For example, data shows that communities that are close to mineral extraction activities have a 33.9 % higher poverty incidence than others (Shiquan et al., 2022). Since governments often prioritise macro-economic and Western mining industries' interests, affected local communities appear to receive little or no consideration in decision-making processes (Kügerl et al., 2023), leaving them both voiceless and without benefits from mining initiatives (Hilson et al.,

<sup>8</sup> Citizen initiatives related to participation in environmental decision-making are growing, with some initiatives succeeding to become widely recognized and supported on national level (e.g., the citizens' movement 'Odranimo reke Stare Planine' on the issue of constructing mini-hydropower plants without the participation of local communities) (BTI, 2022).

2016). All of the above helps to explain why the proposed Rio Tinto mineral extraction project generated such negative sentiments from the survey respondents in our study.

#### 4.1. Lessons for a wider context

As in Serbia, there is much evidence of local communities from South Asia, Latin and North America fighting, and even giving their lives, to protect their landscapes from destructive logging, mining and damming industries (Borrow and Pathak, 2004). Local stakeholders' attitudes and perceptions of landscape conservation and policy implementation are critical for long-term conservation (Weladji et al., 2003; Tomićević 2005; Tomićević et al., 2010; Tomićević et al., 2011; Ivanović et al., 2021). Zachrisson (2004) identifies a number of benefits of participation, including reducing conflicts, more flexible and efficient management, increasing legitimacy and, most importantly, implementing knowledge aligned to the local context. Furthermore, a local community's participation in management and decision-making processes of their protected areas can reduce or even prevent conflict (Nastran and Pirnat, 2012) and positively influence the socio-economic status of the local population (Tomićević, 2005). According to Mitchell et al. (2009), cultural landscape management principles should rely on the premise that people associated with cultural landscapes are the primary actors in landscape governance. A cultural landscape can be regarded as a crucial component of its associated nation, and an asset that contributes to the local, or even broader societal, sense of identity and serves as a tourist-destination landmark (Kalutskov, 2007).

#### 4.2. Limitations of the study

We conducted household surveys to better understand local community perceptions of ongoing developments in the 'Tršić-Tronoša' cultural landscape. This method proved to be useful as we were able to contact respondents face-to-face which, given the majority of the region's population is older, this method was more fruitful than other means of eliciting responses (such as postal or online surveys, phone calls, etc.) would have been. However, this method also has certain limitations. We were not able to reach a lot of households or people, which restricted us in doing reliability assessment. However, this does not question the validity of the data, as our survey measures what it is meant to measure and we are able to demonstrate what people think toward specific aspects. Our results illustrate sensitivity of the issue and perception of population that should be communicated and made explicit in order to make right decisions in future.

It is important to point out that the time in which the research was conducted was extremely sensitive. At the national level in Serbia, widespread environmental and political debates were just heating up over the possible negative impact of the proposed mineral extraction project in this region. This was a limitation factor of our study because many respondents were unwilling to participate since they were uncomfortable discussing such controversial development policies. Simultaneously though, the emotionally and politically charged situation in the region, coupled with divergent interests on multiple levels, may have caused some respondents to provide overly subjective feedback in the further open question despite efforts to avoid this.

#### 4.3. Future research

In future surveys, the perceptions and attitudes of the local communities could be more accurately investigated after the government has definitely halted the project. A comparison of the results presented in this paper with future ones can help explain gaps in existing knowledge and understanding, possibly opening up new research questions.

Future research in this area should focus on understanding the development options and socio-ecological systems in the region. Emphasizing transdisciplinary approaches and addressing socially

relevant issues is essential (Pohl, 2011). For instance, to examine the narratives associated with the Jadar project, researchers might consider conducting media analyses, as new media platforms have played a pivotal role in disseminating information and framing the conflict from divergent perspectives, both nationally and internationally. Interviews with institutional actors or participatory methods like focus groups and living labs can also be innovative approaches in this geographical region.

## 5. Conclusions

This study highlights several key factors that significantly impact perception toward Jadar project derived from the perception of local communities with deep cultural connections to the landscape. These factors include the following:

*Communication challenges* and the critical role of transparent and timely communication. When mining companies fail to effectively communicate their plans, intentions and actions to local communities, it hinders the establishment of trust and cooperation.

*Negative business image and the historical reputation of mining companies* is also a major obstacle in obtaining an SLO. Past incidents and controversies may cast a shadow over their current operations, making it difficult to gain community support.

*Lack of trust in government* is another vital component of SLO approval. When local residents lack faith in the ability of government bodies to regulate and monitor mining activities, it can fuel opposition to mining projects.

This research especially underscores the significance of cultural landscapes, traditional practices, and rich cultural heritage in local communities. These aspects are deeply ingrained in their way of life and livelihoods, making them hesitant to embrace mining activities that could disrupt these cherished traditions. According to local communities overall livelihood status and subjective perceptions, future cultural landscape governance should focus on improving local infrastructure, developing tourism opportunities, and exploring to what extent, or even if, the proposed mineral extraction project is compatible with landscape conservation.

Timely and effective local community participation led to a snowballing of problems associated with the Jadar project. Addressing this deficiency will likely be central to integrating local perceptions and needs into future plans and strategies. Which was somewhat confirmed by the government's decision to temporarily suspend the project. This is a paramount concern as development that largely excludes conservation measures and undermines local communities' needs will not lead to a sustainable future in any sense. This is especially important in areas where a multitude of values exists and where these need to be embedded in long-term and holistic planning processes that will address heritage values as an integral part of management planning. Robust descriptions of heritage attributes of specific cultural landscapes need to be integrated into both local and national development planning and done in response to a broad stakeholder participation process. This paper shows that, at least in the 'Tršić-Tronoša' cultural landscape, there is a lack of a workable strategy to support the coexistence of development projects and cultural landscape conservation, an oversight that should be a priority concern for current decision-makers and planners in Serbia. Local communities need to be treated as equal partners and decision-makers in such circumstances, rather than being largely ignored or simply presented with a *fait accompli*.

## CRediT authorship contribution statement

**Stojan Ivanović:** Conceptualization, Methodology, Data curation, Formal analysis, Investigation, Visualization, Writing – original draft, Writing – review & editing. **Jelena Tomićević-Dubljević:** Conceptualization, Methodology, Supervision, Writing – review & editing. **Ivana Bjedov:** Writing – review & editing. **Ilija Đorđević:** Writing – review &

editing. **Ivana Živojinović:** Conceptualization, Methodology, Funding acquisition, Supervision, Writing – review & editing.

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### Data availability

Data will be made available on request.

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### Supplementary materials

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