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# Triggers That Redefine a City: Antifragility, Resilience, and Fragility in the Case of Skopje

**Adelina Fejza**

## Abstract

Cities are constantly transformed or reshaped by various triggering natural or political events, which can lead to positive or negative outcomes in the urban environment. When such events trigger the urban condition of a city, the reaction toward its improvement is more important than the trigger itself. This paper explores outcomes for such reactions in an urban context, relying on the conceptual framework of Taleb (2012) and Lefebvre (2017) regarding antifragility, resilience, and fragility. The city of Skopje in North Macedonia was chosen as a case study area for exploring how this city evolved and reacted to two major events that happened specifically in this city: the 1963 earthquake and the transition period after 1991 independence. By employing a qualitative descriptive literature review and implementing Taleb's asymmetry test, this paper evaluates how these triggering events redefined the city's spatial and social condition. The findings indicate that Skopje reached antifragility as a response to the massive earthquake, then stabilized into a resilient state in terms of seismic controls, and afterward dropped into a fragile state as a response to the socio-political and economic challenges during the post-independence period. The paper opens a discussion about the future development of Skopje, arguing that in order to improve the current state of the city and reach the antifragility condition again, lessons from the previous situations should be considered.

**Keywords:** triggering events, urban development, Skopje, antifragility, resilience, fragility

## Introduction

The urban environment is in constant change, being influenced and gradually shaped by various triggering events. These triggering events, which can be natural or political, play a crucial role in defining the future development of a city. A triggering event can be explained as a situation that causes several transformations in the spatial, social, and economic aspects.

Triggers can have various meanings according to different perspectives. They can appear suddenly, or they can be caused intentionally. A triggering event can be defined as “a tangible or intangible barrier or occurrence which, once breached or met, causes another event to occur” (The Definition, n.d.). These triggers redefine the city under different conditions: from *antifragile* to *fragile*, with a *resilient* moment in between.

The term *antifragile* combines the ideas of delicacy and strength. It goes beyond recovery from disorder, chaos, harm, or uncertainty; it describes a system that gains more than it loses and improves as a result of these conditions (Taleb, 2012). Lefebvre (2017) defines antifragility as “the ability to thrive and prosper in chaos and adversity.”

The concept of *antifragility* was introduced by Nassim Nicholas Taleb (2012), who argued that no existing word in major languages captures its meaning. He explains it by contrasting it with “*fragile*” and “*robust*” (or “*resilient*”). For example, if a package of champagne glasses is labeled “*fragile*,” it risks damage if mishandled. A “*robust*” package might survive mishandling but will not improve from it. Taleb proposes the idea of an “*antifragile*” package, which would actually benefit from mishandling (Taleb, 2012, pp. 49–50). In his words: “The fragile is the package that would be at best unharmed; the robust would be at best and at worst unharmed. And the opposite of fragile is therefore what is at worst unharmed” (Taleb, 2012, p. 49).

Lefebvre (2017) categorizes systems into *fragile*, *resilient*, and *antifragile*. *Fragile systems* perform well under normal conditions but fail instantly under stress (e.g., race cars). *Resilient systems* endure stress without improving (e.g., farm equipment). *Antifragile systems* benefit and evolve under stress (e.g., the human body strengthens through exercise; the mind develops through learning).

The analogies from Greek mythology can be convenient metaphors. According to the legend, Hydra is a creature with multiple heads that, if harmed, grows more

heads, representing *antifragility* (García & Miralles, 2016, p. 174). Whereas Damocles is a courtier threatened by a hanging sword on the ceiling that can hit him in a matter of time, representing *fragility* (Taleb, 2012, p. 51).

## Research Objectives

This research deals with how to recognize the state of antifragility, resilience, and fragility in a certain city, caused by triggering events, and what lessons can be extracted from them. The research is focused on the city of Skopje as a case study area, due to its experience in terms of both a natural trigger, such as the 1963 earthquake, and a socio-political trigger, such as independence after the dissolution of Yugoslavia. The main objective of this research is to determine how these events affected the city and to evaluate in which direction Skopje has evolved under different conditions, positioning it within the framework of antifragile, resilient, or fragile.

## Methodology

In order to recognize antifragility and fragility in cities, the methodology of this research follows the theoretical framework of Taleb (2012) and Lefebvre (2017), who define the three systems: *antifragile*, *resilient*, and *fragile*. Taleb (2012) states that it is crucial to note that these terms are relative and limited to a specific situation. Therefore, he suggests a simple asymmetry test as a method for detecting these conditions:

- Systems with more upside than downside from shocks are antifragile.
- Systems with more downside than upside are fragile.

In this paper, the asymmetry test is drafted for the city of Skopje. It is based on a historical literature review of this city to identify its crucial events and their effects on the whole urban context. Positioning the literature findings into these three categories: *antifragile*, *resilient*, and *fragile* phases of development, enables a comparative analysis that defines how the city of Skopje has evolved.

## Results

### The Antifragile Phase: Post-Earthquake Reconstruction

On the morning of July 26th, 1963, a massive earthquake hit the city of Skopje, which was then part of the Socialist Republic of Macedonia in Yugoslavia. In this disaster, 1,070 people lost their lives, 150,000 people were left without their homes, and 80% of the city was destroyed (Ivanovski et al., 2015; Niebyl, 2021). This event created vague feelings and chaos all around, questioning the future of the city, whether it would remain like that and become fragile, whether it would become resilient toward natural disasters, or whether it would rise from the ashes and become antifragile.

As a response, an international collaboration emerged, in which 80 places from all over the world joined forces and donated to rebuild the city of Skopje. An international competition was opened for a Master Plan for the city, which resulted in a collaborative winning solution between the Japanese team led by Kenzo Tange with 60%, and the Zagreb team of Radovan Mišević and Fedor Wenzler with 40% (Ivanovski et al., 2015; Niebyl, 2021).

This Master plan was more than just a plan for rebuilding the city of Skopje and rethinking the entire city structure. "It was a chance to shape a modern society" (Deipenbrock et al., 2011, p. 90). Tange's idea can be identified within the framework of the modern style of Structuralism and within Japanese Metabolism. He focused on human communication and interaction as key elements for the spatial structure, mixed use as a new urban enhancement, and megastructures that could "grow, change and regenerate depending on people's current needs" (Deipenbrock et al., 2011, p. 96). His unique and outstanding futuristic concept was more representative in the central part of the city, which consisted of two significant components: the *City Gate* - a complex of vertical towers that symbolize the entrance to the city and a transportation center, and the *City Wall* - a complex of housing units with a ground-floor commercial space along a pedestrian zone, positioned like a borderline that defines the center of the city (Ivanovski et al., 2015; Niebyl, 2021).

Unfortunately, this Master plan did not realize its fullest due to insufficient funds, the long duration of planning and realization, and a mentality of solving issues straightforwardly but not in the best way. In the process of realization, there were many modifications, adaptations, and even completely unbuilt structures, such as the *City Gate* (Deipenbrock et al., 2011, pp. 101-182). That is why it is hard to read Tange's goals and visions when the whole urban plan cannot function at its best because pieces of the puzzle and their connections are missing.

Even though this Master plan was not realized completely, the realized parts reflect the zeitgeist of Modernism and have become landmarks of the city. During the post-earthquake period, Skopje developed like other world architectural legacies, with a high degree of quality and professionalism, in a rather short period (Ivanovski et al., 2015, pp. 81-82). It became more than just resilient toward natural disasters. Based on the asymmetry test, the right path was chosen. Skopje became a symbol of solidarity (Deskova et al., 2020; Trajanovski, 2021) with a huge modern legacy. It was antifragile.

### The Resilient Phase: Institutional and Technical Adaptation

“Urban resilience is the capacity of a city’s systems, businesses, institutions, communities, and individuals to survive, adapt, and grow, no matter what chronic stresses and acute shocks they experience” (Resilient Cities Network, 2022).

After the earthquake in 1963, the first seismic design codes, *Privremeni tehnicki propisi za gradenje vo seizmicki podracja. SI. List na SFRJ br. 39/64* were enforced, and since then they have been implemented and upgraded (Milutinovic & Garevski, 2005). “This mechanism assured the high quality of construction works, its full compliance with seismic safety requirements in effect, and monitoring/inspection (physical and financial) during the entire construction process” (Milutinovic & Garevski, 2005, p. 7).

In addition, the Institute of Earthquake Engineering and Engineering Seismology was formed in 1965, which represents a crucial institutional advancement and still functions as a research center, playing a mandatory role in the approval process for all construction activities, thereby reinforcing the city’s capacity to manage seismic risk.

Through these initiatives, Skopje became (and still is) resilient in terms of natural disasters such as earthquakes. However, this resilience remained largely within the technicalities and regulations of the seismic domain. It did not extend to the maintenance and preservation of the modern legacy established during the post-earthquake period. The existing modern buildings of that timeframe are nowadays renovated to a minimal extent, or even hidden, because another trigger occurred that did not make the city antifragile, but quite the opposite.

## The Fragile Phase: Post-Independence Transformation and Urban Reconfiguration

On 8th September 1991, North Macedonia gained its independence from Yugoslavia and became a democratic state. This huge step looked like another positive opportunity for North Macedonia, but instead, crisis, uncertainty, ethnic issues, and national identity problems prevailed (Deipenbrock et al., 2011, p. 186).

Just like all countries of the former Yugoslavia that entered a transition period, North Macedonia, with its capital city of Skopje, endured profound socio-economic changes that had a direct impact on the planning systems, regulatory frameworks, and the overall urban form. According to Stefanoska and Koželj (2012), this process can be divided into three stages. The first one (1992-1993) represents the initial stage of privatization with undefined building regulations; the second one (1993-2004) represents urban instability marked by rapid spatial development under decentralized governance; and the third one (1993-2004) represents the market-oriented stage, where private profit dominates over the public interest.

Within this context, the then-ruling Macedonian government, the Ministry of Culture, and the Municipality of Centar joined forces and, in 2010, presented a project called *Skopje 2014* to its citizens (Macedonian Information Centre, 2010). The purpose of this project was to redefine the visual identity of the city center through the adoption of a neoclassical architectural style. It consisted of a wide range of interventions, such as the construction of new buildings, multi-story garages, new facades, squares, underground garages, bridges, sculptures, fountains, and other infrastructural elements (Skopje 2014 Uncovered, 2018).

This project disrupted the financial situation of the country, costing over 684 million euros (Skopje 2014 Uncovered, 2018). Spatially, it also contributed to the reduction and fragmentation of public space in the central part of Skopje, occupied by the new developments. Architecturally, the style of the buildings has been critically described as “kitsch,” characterized as superficial and unauthentic (Deipenbrock et al., 2011, p. 206). Among economic, urban, and architectural issues, other fragile moments occurred.

This response to the transitional crisis revealed and emphasized core problems that were more than just architectural. “Reconstruction in Skopje is no longer purely architectural. It goes beyond a matter of taste, provoking questions of political or social intent” (Deipenbrock et al., 2011, p. 188). The “new look” of Skopje fueled

the ethnic conflicts between Macedonian and Albanian communities and provoked even more tensions with neighboring countries by promoting contested historical narratives as a foundation for identity construction. It also ignored and suppressed the built legacy from the post-earthquake period, as well as the voices of citizens and professionals who protested and debated against this project. “Skopje 2014 was an undemocratic, opaque, top-down, and nepotistic undertaking. It was also an assault on Skopje’s architectural heritage” (Sidzimosvska, 2019).

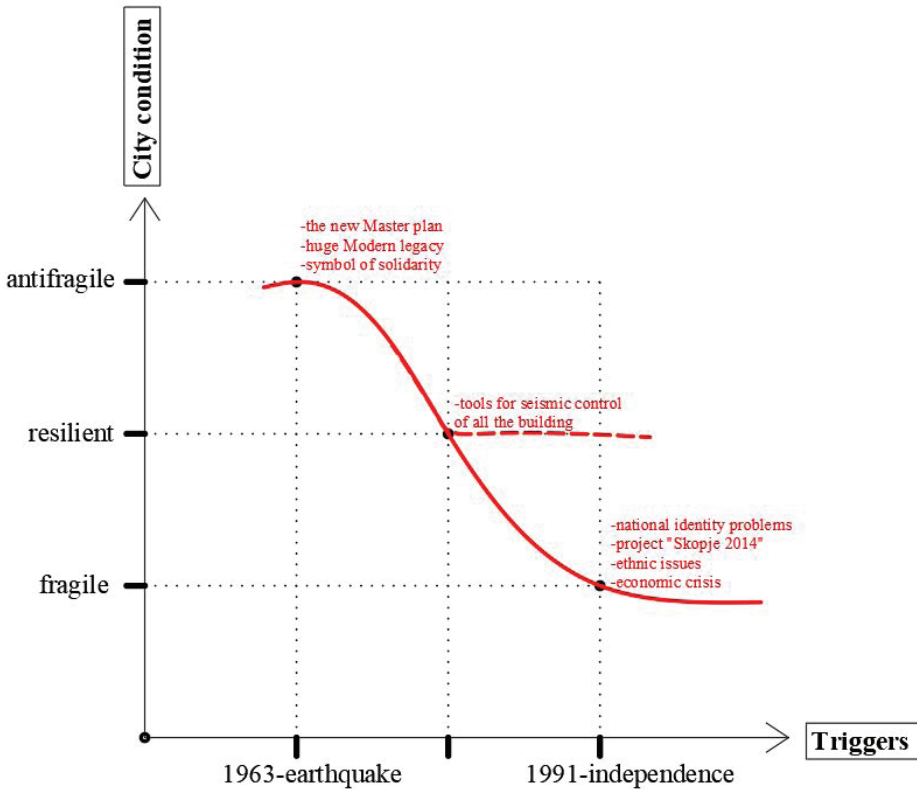
This project officially stopped in February 2018, when the new government replaced the former one that initiated it. Some of the projects remained stuck in the construction phase. This layer of Skopje reflects a critical period, as it deteriorates the image of the city and the spatial memories of its inhabitants. As a result of this situation, spatial and social alienation appeared (Petrunova & Rustemoska, 2019; Sidzimosvska, 2019).

“Architecture has always been a product of its time and sparked resistance, but the question in Skopje has taken on new dimensions” (Deipenbrock et al., 2011, p. 188). In contrast to the post-earthquake phase, this phase represents a regression, interpreted as a shift from authenticity to constructed imagery, from solidarity to alienation, and ultimately from an antifragile to a fragile city.

Based on the literature review regarding these three phases explored in the city of Skopje, **Diagram 1** is formed as a visual representation of the asymmetry test according to Taleb (2012). It represents how Skopje has evolved in response to two major triggering events: the 1963 earthquake and the 1991 independence. The curve shows how Skopje gained its peak moment of antifragility as a response to the big earthquake, then stabilized during a resilient state where the tools for seismic control took place, and reached its lowest point of fragility during the post-independence phase due to socio-political and economic changes. This diagram highlights that whenever a city faces a triggering event, it is up to the governance, social responsiveness, and adaptive planning to determine whether the outcome will be antifragile or fragile.

## Diagram 1

Triggers that redefine a city, explored through the asymmetry test by Taleb (2012), in the case of Skopje. (Source: Author, 2026).



## Discussion

Nowadays, North Macedonia, with its capital city of Skopje, still remains in a state of liminality, aiming for entry into the European Union. These two major trigger events (the 1963 earthquake and the 1991 independence) have reshaped the city of Skopje in both positive and negative ways (Diagram 1), leaving behind layered interventions, each carrying its own narrative. Deipenbrock et al. (2011, p. 264) note that the city appears as a compilation of contrasts between Modern and Baroque, poor and rich, large and small, old and new, as well as Muslim and Orthodox Christian elements, all positioned in proximity. In the transitional period between these two events, a moment of resilience can be identified, expressed through the

implementation of seismic control measures applied to buildings in response to earthquake risks (Diagram 1).

Can a city that once performed successfully in the asymmetry test of antifragility, but later declined (Diagram 1), rise again and become antifragile for a second time? Or will it evolve into something else?

This paper opens a discussion around this question and reflects on several lessons that can be drawn from the situations the city of Skopje has undergone, such as:

- the importance of following contemporary architectural expressions that reflect their time while maintaining a vision for the future;
- the need for collaboration with citizens to prevent forms of spatial and social alienation;
- the development of urban resilience tools when necessary;
- the promotion of inclusive governance to restore trust in professional practices;
- and the strengthening of an inclusive cultural approach, to foster acceptance of the built environment.

As Bakalcev (2017) suggests, “we should avoid the method that *Skopje 2014* used, to destroy everything else.” He further argues that *Skopje 2014*, despite its controversial nature, represents a distinct layer in the city’s biography and should be preserved as such, serving as evidence that “the top-down planning of monolithic cities is not possible anymore.”

What is needed is “an awareness that fosters the ability to critically engage in dialogue with existing vulnerabilities and to define forms of redress that can meaningfully reshape the situation” (Zupančič, 2021). It is crucial to detect the vulnerabilities of a city in order to understand what kind of initiatives for improvement can be implemented. For example, the Happiness Research Institute in Copenhagen is constantly researching the aspect of happiness in different contexts. The results have an impact on public policy, and working according to them has ranked Denmark as *the world’s happiest country* (Wiking, 2016).

In the case of Skopje, there is no need to wait for another sudden trigger to occur in order to take action. The state of liminality is the trigger itself. A possibility for improving the curve in the asymmetry test can be found in the lessons extracted from previous situations. Creating different tools in practice, based on those lessons, can be the first step toward the future development and improvement of this city.

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# Sarajevo's Multi-layered Urban Fabric: A Spatial Reading of Memory and Identity

**Belkis S. Top**

## Abstract

Sarajevo is a city shaped by different cultures, identities, and social or political developments ranging from the first settlers in BCE to the present. Later, in the Medieval and Middle Ages, the city hosted three major periods and rulers: the Ottoman Empire, Austria-Hungary, and Socialist Yugoslavia. Moreover, World War I, World War II, and the Bosnian War (1992-1996), which had intensely affected the civilians and the city, were experienced by the city. This fact opens a wide range of historical and cultural resources to preserve, reinterpret, and contribute to urban identity. The paper aims to investigate how Sarajevo and Sarajevo people generate urban identity by preserving remnants, traces, and memories, while also integrating them into everyday urban life. To achieve this, the city of Sarajevo was visited. Remnants in urban life were observed, analyzed, and photographed. Face-to-face conversations were held with some citizens. Accordingly, different remnants belonging to the Middle Ages, World War II, and the Bosnian War are selected from Sarajevo's urban fabric to be analyzed. The paper researches how the Sarajevo people tend to keep traces of the history that the city has witnessed. I argue that they preserve urban memory within the present urban life, which contributes to the formation of urban identity. It is a way of not forgetting the past, whether it is dark or not. This work attempts to contribute to the literature on how urban memory is valued and preserved within the city, integrating everyday urban life and becoming a city's characteristic feature and identity.

*Keywords:* urban memory, urban identity, trace, everyday urban life, Sarajevo

## Introduction

Sarajevo, the capital city of the Federation of Bosnia and Herzegovina, is a multi-ethnic city with a rich history that embodies cultural and political diversity. The first settlers of the territory were Illyrians around 1-2 BCE, and Slavs arrived in the territory in the 6<sup>th</sup> century. Between the 15<sup>th</sup> and 18<sup>th</sup> centuries, Bosnia came under the control of the Ottoman Empire (Tülüce, 2014, pp. 116-118). After nationalist movements and rebellions, Bosnia became a state of the Austria-Hungarian Empire in 1908. The assassination of the Austrian-Hungarian Archduke Franz Ferdinand by Serbian Gavrilo Princip started World War I. As a result of rising nationalist movements in the multi-ethnic region, the empire collapsed with the First World War, and the Kingdom of Yugoslavia was established.

Bosnia and Herzegovina had three major ethnic groups linked with three religions: Muslim Bosniaks, Orthodox Serbians, and Catholic Croats. During the Ottoman and the Austria-Hungarian periods, the classification between groups was based on religious diversity. However, with the help of nationalist ideas during the Austria-Hungarian era, the groups started to be defined by ethnic identities. In this way, Bosnian Muslims, who are Bosniaks, Bosnian Serbs, and Bosnian Croats, became the three dominant ethnic groups in Bosnia (Malcolm, 1994, pp. 150-155). The Kingdom of Yugoslavia fell, and the Socialist Federal Republic of Yugoslavia was established during World War II by Tito against Nazi occupation. In this way, Bosnia and Herzegovina became one of its federal republics (Malcolm, 1994, pp. 161-162). By the death of Tito and the fall of Yugoslavia, Croat and Muslim citizens of Bosnia aimed to establish an independent Bosnia and Herzegovina where each ethnic group could coexist peacefully, as they had historically. On the other hand, Donia indicates in his report "Republika Srpska Assembly, 1992-1995: Highlights and Excerpts" that Serbs aimed to be separated from other ethnicities and to divide Bosnia and Sarajevo accordingly (Bećirević, 2014, p. 66). Because of these conflicting aims, the Bosnian War broke out, and the Bosnian Serb Army (BSA) laid siege to Sarajevo on 5 April 1992. BSA benefited from the topographical feature of Sarajevo, which was settled in a valley, around the River Miljacka, and it is surrounded by hills and mountains; the city was targeted by these hills. Ristić (2018, p. 59) indicates "Sarajevo was transformed into a form of 'panopticon' in which spatial practices of movement and encounter were controlled through the omnipresence of the snipers". Two types of assaults were employed by the army, which are sniper attacks and shelling. These assaults were targeting civilians and their everyday practices. The simplest movements in urban spaces, such as walking or crossing a street, were targeted by sniper fire. Thousands of people

were killed due to sniper bullets while walking in the streets (Ristić, 2018, p. 52). Due to fear of sniper fire, people were not walking in a straight line, but they were drawing zig zags and running to avoid bullets (Coşkun Aral Anlıtıyor, 2018). Furthermore, shelling with heavy arms was targeting the everyday urban life of groups of people. Public spaces such as market areas, squares, bread lines, and parks, were shelled. The army aimed to obstruct the co-living of different ethnic groups together and their access to basic needs (Ristić, 2018). The assault targeted not only people on the streets but also residential, cultural heritage, or symbolic buildings of Sarajevo. The National Library building, which remains from the Austria-Hungarian period, the parliament and the governmental complex, and the Oslobodenje newspaper building were destroyed. Additionally, residential buildings were in danger. Some parts of the buildings were destroyed by shells, while almost every facade of the buildings was damaged by bullets. The use of spaces in houses was transformed because of the danger. The safest spaces were middle zones of flats, staircase cores, and basements (Ristić, 2018).

In such conditions, the Siege of Sarajevo lasted for 1425 days between April 5, 1992, and February 29, 1996. Morrison & Lowe (2021, pp. 1-3) say it was the longest siege in European history, with unstoppable shelling and attacks. At the end of the siege, the death toll was estimated by ICTY (International Criminal Tribunal for the former Yugoslavia) as 10,603 (Tabeau et al., 2003, p. 2) while it was also counted as 11,541 (Morrison & Lowe, 2021, pp. 1-3). Additionally, the number of people wounded was more than three times the death toll, as Donia (2006, p. 334) mentions. The horrible violence against people lasted for 1425 days, with thousands of victims who should be discussed and not forgotten. Not forgetting the violence is essential due to conveying the memory to future generations, commemorating the loss, and preventing possible future ones. Sarajevo and the Sarajevo people are conscious about preserving their hard memories because of the mentioned reasons. The violence left physical traces in the city and cityscapes inevitably. Those traces are preserved and integrated into everyday urban life today, which this study examines. The Siege of Sarajevo and its memory can be considered as a layer in the history of Sarajevo. However, the city cannot be considered with the layer alone. As mentioned above, cultural and political diversity creates a rich history. Which means, the city of Sarajevo has multiple layers belonging to multiple periods. In this respect, it is aimed to discover how Sarajevo's multi-layered features are conducted, how memories of different periods and events are kept, preserved in the city, and integrated into life. Both pre-war period memories and war memories are studied to grasp the relation between urban identity and multi-layered features.

## Literature Review

For discussing ways to preserve urban memory, memory itself is studied. Both individual and social memory are examined in relation to objects and past experiences. In this concept, Bergson dealt with the perception of matter with the terms “image” and “matter”. Each “matter”, which is an object that exists in the world, is perceived by people differently. Perception is related to people’s consciousness, and each real object “matter” is perceived diversely as “image”. Differences in perception that turn matters into images are shaped by people’s own memory and past experiences (Bergson, 1962, pp. xi-xxi). In other words, one object means different things to each person who observes due to each person’s memories and old experiences.

The memory and experience relation is not only valid for individuals but also on a social scale. Societies perceive things under the influence of their past experiences. When a group of people has common past experiences, this perception becomes the social group’s own way of remembering the past. Halbwachs (1992, p. 49) indicates “...[W]e do not forget that even at the moment of reproducing the past our imagination remains under the influence of the present social milieu”. When the notion is adapted to the multi-ethnic context of Sarajevo, the events that the Sarajevo society experienced are open to being perceived differently by each ethnic group. The environment or the objects were perceived by the group’s own experiences. Shortly, an individual’s remembering is influenced by their past experiences. Similarly, social groups remember under the influence of the social context they belong to and the collective experiences. Additionally, interaction with the physical environment and physical objects enhances the memories being kept in mind. Connerton (2009, p. 37) mentions as such: “We conserve our recollections by referring them to the material milieu that surrounds us”. By considering these, it is possible to claim that members of a social group may live with memories without forgetting with the help of their physical environment. The physical environment of a social group can be considered as the city itself, and what they encounter in urban life. That is because preserving urban memory or preserving different layers of the city can contribute to preserving the memory of society. The importance of preserving the layers and how to handle it is examined by the architect Lebbeus Woods. Woods visited Sarajevo during the siege in 1993. According to his visit, he published the book “War and Architecture” in which he discussed how to deal with post-war cities and preserve the war memory (Pilav, 2020, pp. 707-712). Woods mentions old cities as they are “woven over centuries and generations” (Woods,

1993, p. 8). Complex layers of masses and voids in cities are created over different periods of time. They come together and create layers of a historic city. In this respect, Sarajevo, which hosted several rulers and empires, is a multi-layered city. Each era, such as the Ottoman period, the Austria-Hungarian period, the Yugoslavian period, or each event, such as the Siege of Sarajevo, World War II, Olympics held in Sarajevo, creates a layer of the city. When the layers overlapped on the city of Sarajevo, a historically rich, multi-layered city occurs. In this respect, "the attempt to restore the fabric of old cities to their former condition is a folly that not only denies present conditions, but impedes the emergence of an urban fabric and way of life based upon them" (Woods, 1993, p. 10). Reconstructing a layer of the city is cremergediticized by Woods since it means erasing a period of reality. Woods (1993, p. 14) also claims that accepting suffering or a loss becomes something gained by the city as a new experience and a new memory for the city. In other words, the destruction and the loss that is created by war is gained to the city when they are accepted. The Siege of Sarajevo, which affected thousands of people for almost four years, has a crucial role in both urban memory and social memory in this manner. What should not be done is not to erase the traces left from the conflict, but accept and gain from them according to the discussions of Woods. For sure, it is not limited to preserving the memory of the Bosnian War and the Siege but also some other events or periods' memory which take an important place in the history of the city.

In this regard, traces of Sarajevo's history, past events, and the Siege of Sarajevo are aimed to be observed and analyzed in the location. In this way, the influence of urban memory on urban identity is studied based on the theoretical background of memory, object, and experience relation, in addition to Woods' notions on urban memory.

## Methodology

Under the influence of the mentioned theories above about memory and preserving war traces, I visited Sarajevo to observe and discover ways of keeping urban memory in Sarajevo's multi-layered urban fabric. Traces and remnants from the past were chased in the city. The relation between traces and citizens in their everyday urban life was observed in the location. Several photographs were taken to show the urban memory in people's everyday life, which creates the urban identity of Sarajevo. Additionally, I made face to face conversations with the

Head of the Memorial Center of Sarajevo Kanton, Dr. Ahmet Kulanić, Assistant. Prof. Dr. Nerma Omićević, Senada C., and Ulvi T. Their daily experiences with war remnants, their thoughts about preserving war traces were discussed with them by the author.

## Results

### Traces of Older Periods

The city of Sarajevo was expanded throughout history in a linear way. Each new period built the city in its own way of construction without touching the older parts of the city. The eastern part of the city was built during the period of the Ottoman Empire. Later, the Austria-Hungarian rulers expanded the city westward to the old Ottoman part. Similarly, during the Yugoslavian period, the old cities were preserved, and a new socialist city was built in addition to them. Each period's architecture, urban spaces, or street organizations are kept, and today each layer of history can be observed and experienced in the city sequentially. Additionally, to these three main periods of Sarajevo history, some other traces, such as excavated traces belonging to older periods, are preserved by the Sarajevo people. Tombstones from the Middle Ages, which are called Stećaks, were excavated from Donja Zgošća (Bajić & Dimitrijević, 2020). They were brought and exhibited in the National Museum of Bosnia and Herzegovina in Sarajevo. However, a replica of one of the tombstones is on the side of Boulevard Zmaja od Bosne and exhibited in the daily life of Sarajevo. According to observation of the site visit, I can infer that a historic remnant from an old period is preserved and integrated into daily life; both cars driving along the boulevard and pedestrians walking along the side of the boulevard witness the trace of history. Very close to the tombstone, a memorial is located that commemorates two students who were killed in a traffic accident while they were crossing the street in 2016. At the location where the event occurred, in front of the Faculty of Philosophy, the memorial is erected. The memory of the event at that location is preserved. For the ones who witnessed the event, or who knew the event, the location and the object remind the event, and the memory is kept. During the site trip, one more memorial is observed near the memorial mentioned above. It was a marble cube which is located on the grass, and it commemorates fifty-five victims who were killed during the Second World War period by guerrillas. Each of the victims' names was inscribed on the faces of the cube. On the same walkway, near the

boulevard Zmaja od Bosne, a Sarajevo Rose and a symbolic tombstone for one of the victims of the siege are located, which will be mentioned in the next section as traces of the siege.

**Figure 1**

*Stećaks exhibited near the Boulevard Zmaja od Bosne (Photograph taken by the author, 2025).*

**Figure 2**

*Memorials or traces located near the pedestrian of the Boulevard Zmaja od Bosne (Photograph is taken by the author, 2025).*



Remnant tanks, trucks, and helicopter pieces are some of the other remnants from World War II, and are preserved in everyday urban life. The real objects remaining from the war are exhibited in an open public space. On a location where citizens face them during their daily routine, near the Cafe Tito, it is possible to observe and touch the real traces of history.

**Figure 3**

*War vehicles from World War II exhibited in an open space (Photograph taken by the author, 2025).*



Additionally, making graffiti and leaving traces on urban surfaces is a common behavior that can be observed in the city of Sarajevo. Political tendencies, supported figures, and political or sociological events are painted in the streets, facades, or grounds. One example is the 1984 Olympics held in Sarajevo. Another example is a written text again, which inscribes “I stand with Palestine” on the ground. In this way, the events of the Olympics and humanity’s opposition to crime are traced to everyday urban life. During my visit to Sarajevo, I infer from these examples that the city is used like an exhibition space. The whole city includes several objects, textures, and traces exhibited in the city on different scales. It enables the memory of Sarajevo to be preserved and integrated into life. In addition to these, the siege, which is experienced harshly by citizens while the violence left traces on the city’s surfaces, is an important part of the city’s history. The period of the siege is considered one of the layers of the city of Sarajevo. In the following parts, the preserved memory of the siege is discussed.

**Figure 4 – Figure 5**

*Examples from graffiti and murals in the city (Photographs taken by the author, 2025).*



## Traces of the Siege of Sarajevo

### *Traces on Facades*

Due to the geographic features of Sarajevo, the city was threatened by sniper fire and shelling from the tops of the hills and mountains. For four years unstoppable attacks; buildings were damaged by fire a lot. Based on my one-to-one conversation with the Head of the Memorial Center of Sarajevo Canton, Ahmet Kulanić, it can be said that almost every building that exists in the city was damaged by sniper fire. Additionally, they could not be repaired due to financial and psychological problems in the post-war era. Although many of them were repaired during the thirty years, many of the facades with bullet holes are observable in the city.

## Figure 6

*Bullet holes remained from the siege (Photograph is taken by the author, 2025).*



I argue it in accordance with the theoretical framework that each hole opened by a bullet targeted human life, today exists in the urban fabric thirty years later, which enables the memory of harsh reality to be preserved and integrated into the urban fabric. Citizens of Sarajevo pass through the buildings, witnessing those bullet holes each day. They live in buildings that have scars on the facade. Although the people living in the building, people passing, and experiencing the streets have changed, the scars left from the war exist as a trace and as a reminder.

### **Sarajevo Roses**

The shells targeted public spaces, and the co-living of the society caused the deaths of massive numbers of people. The traces left from the shells were filling by bloods of the victims. According to the suggestion of the professor at the University of Sarajevo, Nedžad Kurto, the scars on the ground were filled with red resin after the war, and they are called "Sarajevo Roses" (Ristić, 2018, pp. 178-179). In this way, the reality that many people were killed in inhumane conditions while they were conducting their everyday needs is not allowed to be forgotten. Although the people who lost their lives do not exist anymore, the Sarajevo Roses exist in the urban fabric as a reminder.

**Figure 7**

*Sarajevo Rose in daily life (Photograph is taken by the author, 2025).*



Many Sarajevo Roses were created in the post-war era. However, many of them were erased from the ground surface, or they were erased during the ground renovation projects. On the other hand, still several Roses exist. The repetition of the Roses scattered all around the city creates an urban texture. In this respect, it is claimed by the author that the Roses create a layer from the siege period, contributing to the multi-layered historic city. Today, it is possible to witness a Rose in random places in the city. On a pedestrian road, on a street, on a square, or on a market space. They exist silently on the ground surface while everyday life in urban spaces is ongoing. Whether they are noticed while walking or not, they are preserving the urban memory and the victims' memory by themselves as traces.

**Figure 8**

*Sarajevo Rose in Markale (Photograph taken by the author, 2025).*



One of the Roses exists in the open market space of Sarajevo, which is called Markale. The market space and the people providing their basic needs were targeted by a shelling attack on the 5th of February 1994. Due to the attack, 67 people were killed on that day. Markale is still used actively as a market space today. The scar of the shell that fell almost 32 years ago still exists on the ground as a Sarajevo Rose. While urban life is ongoing, people are shopping, having conversations, encountering in the space, the memory is preserving its existence in a very integrated way in everyday life.

### *The Symbolic Tombstone of a Child Victim*

On Zmaja of Bosne Boulevard, which was the most dangerous zone targeted by snipers during the siege, it was called “Sniper Alley”. On November 18, 1994, a seven-year-old child, Nermin Divović, was killed on the boulevard, across the Holiday Inn Hotel. Since it was quite a dangerous zone, UN officers and conflict photographers were close to the location. With the voice of a shot, they run to the location where he was killed. Nermin was lying on the street with a pool of blood. The moment was photographed by Enric Martí. The photograph was published, and the tragic event was conveyed to the world through the media (Sniper Alley Photo, 2023). In 2015, a symbolic tombstone was erected at the location where he was killed. The name of the child, with the date he was born and killed were inscribed on the stone. Although thousands were killed in the boulevard, Sniper Alley, Nermin was commemorated at the exact location as a trace with a symbolic stone.

#### **Figure 9**

*Symbolic tombstone located on where Nermin Divović was killed on the Boulevard.*



It is possible to see the memorial while walking on the pedestrian strip just near the Boulevard Zmaja od Bosne. Since it is an active path, citizens use the Boulevard while they are going to work or school on their everyday route. The existence of shopping malls around also increases the number of people using the road and witnessing the memorial. Although it is hard to see the symbolic tombstone from the car at high speed, it can still be seen by passengers. The existence of it on the boulevard among such an active urban life makes the memory of Nermin Divović, all other victims, and the location is preserved.

## Discussion

Based on my observations during the site trip, I claim that the Sarajevo people have a tendency to keep memories in urban life. They somehow leave a trace, whether it has a bad memory or not. In addition, they integrate the traces into everyday life, enabling the memories not to disappear or be forgotten. Each preserved remnant from some period of Sarajevo history means accepting and preserving different layers of the city together. Tombstones remained from the Medieval Age, and the graffiti remembers the Olympics held in Sarajevo in 1984, which were examples of good memories exhibited in urban life. They work with the theory of memory and object relations. They stand in the urban fabric as objects and keep the heritage of the city. Monuments located at the location where the event occurred preserve the memory in relation to their location. The aim is not only to commemorate the loss but also to sign the location with the event and integrate it into daily life. The location where Nermin was killed on Boulevard Zmaja od Bosne is marked with a memorial. A seven-year-old victim is commemorated at the same time; attention is drawn to how a public street becomes a grave for a child. Ulvi T., who is not Bosnian and has been living in Sarajevo for two years, shared his memories with me about what he felt and thought when he saw the memorial. He says he was affected emotionally by witnessing the trace of a reality that a child was killed in the middle of a street. Besides, he highlights that the year when Nermin was born affected him a lot because it is the same year as his year of birth. That means, if the child had not been killed that day, he would be the same age as Ulvi T. today. It is a relevant example of both object memory and experience memory relation. Ulvi T. is influenced by the memorial based on his own life and experiences. Every single observer will feel and remember differently, while the memorial commemorates the same event. Additionally, the society that witnessed the siege together will be affected and not forget it. Both the Sarajevo Roses and bullet holes are silent memorials keeping the

social memory and urban memory, and not communicating with people via words. They do not describe, or they do not represent anything. They are exact traces the war left so that only they can convey the harsh reality of the war to today. Accepting the reality of the war and not erasing it results in gaining the memory and contributing to the urban fabric as a layer of the siege. Additionally, these traces are integrated into urban life successfully, so that sometimes they become invisible, as Musil (1995, p. 64) indicates. Thousands of people are walking in the streets, witnessing Sarajevo Roses and bullet holes on facades. Experiencing this each day repetitively makes the traces invisible to the citizens at some point. It means for me that the integration with urban life and urban fabric is so successful that they remain harmonious. Even if they are not recognized by every human each time they pass through, they stay in urban texture as a silent reminder of the war. They keep the war memory as a layer on the urban fabric.

## Conclusion

In conclusion, Sarajevo hosted different rulers and empires throughout history. It also experienced many different events, whether they are good or bad, such as wars and sieges. It reasoned that Sarajevo has many layers to preserve. In this respect, a site trip is conducted, and the aim is to discover how the memories are kept in the multi-layered Sarajevo. As a result of observations in the field, it has been figured out that Sarajevo keeps the memories in everyday urban life. It is possible to witness many different memories experienced in the past while walking in the city. Locations of some specific events in urban spaces were signed in various ways. In this way, the memory of location is still a part of the urban space even after years have passed. Seeing an information plaque on where the first victim was killed, and the siege started, where the Austria-Hungarian Archduke Franz Ferdinand was assassinated, or where a shell fell, and numbers of people were killed, is possible while walking in the streets. Similarly, several types of memorials are available to be observed while walking around, where two students were killed in a traffic accident while they were going to school, or where a child was killed horrifically. Keeping the memory of the exact location is not the only method Sarajevo and the Sarajevo people adopt. Some memories that do not relate to any specific location are also preserved and integrated into urban life. War remnants, which are vehicles and memorials for World War II victims, are some of them. Additionally, graffiti and murals that express an idea of citizens or record an event or a memory on urban surfaces are also examples of that. People pass around them, witness them in

many diverse urban spaces in the city. If observers raise their heads while moving through the city, they will also realize some other memories recorded in the city, which are bullet holes on facades. The real scars targeted human life ones that remained from the siege period still exist all around the city, although many of the facades have been renovated already. In different buildings, belonging to different periods of history or serving with different functions, it is possible to observe the scars. Moreover, the density of scars and the level of damage on a single facade even communicate with the observer about the severity of attacks on the location in real-time during the siege. Oppositely, if experiencers move through by looking down, they will notice some other memories and traces as well which are Sarajevo Roses. The Roses exist in diverse locations that can be found while walking in the overall city. While walking randomly, a rose appears surprisingly and takes the observer's attention. Then, around some Roses, informative plaques about the day and the victims can be looked at. Again, the exact location where the shell fell and people were killed, is preserved. Also, it gives information about which kinds of spaces were targeted by the army.

For a visitor, it is possible to witness a new memory of the city in each step. For citizens, the memories are not recognized each time since they become part of their normal life. Generally, they do not look at them specifically because they pass between them millions of times in years. Which is not a problem, even a precious thing for the condition of Sarajevo, that the urban memory is integrated with urban life clearly. They create a complete working system together. This is a unique experience for Sarajevo, which creates its urban identity, which I claim.

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**BALKAN  
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# Spatial Resilience of Historic City Centres in the Face of Climate Change: A Comparative Study of Selected Balkan Cities

**Çağla Ercanli**

**Abstract**

The threats to historic city centres are mounting due to climate change, which affects their densely packed cultural heritage resources, aging infrastructure, and multifaceted governance systems. In fact, they are extremely sensitive environments, as they have little room for manoeuvre, and must perform two tasks that, for the most part, appear to be conflicting tasks: conservation and climate transformation. This paper focuses on the spatial and institutional robustness of five historic city centres in the Balkan states – Skopje, Mostar, Prizren, Belgrade, and Thessaloniki – in the face of climate challenges such as extreme heat, floods, and long-term drought. The study assesses how well climate adaptation and cultural heritage protection are integrated in space and policy, and pinpoints the main barriers and entry points for heritage- attuned resilience planning. The paper follows an interpretative, multi-scalar approach comprising policy and planning documents analysis, spatial mapping, and comparative evaluation. The analysis focuses on three aspects at once: nature-based solutions, participatory governance, and cultural heritage in climate-resilience strategies. The results show significant variability among the cases. While some cities are making headway with green infrastructure and disaster risk reduction programs, others continue to face institutional fragmentation, insufficient financing, and weak coordination. In all the cases, lore about culture was at best peripheral to climate adaptation agendas, and often represented as a passive good rather than one of adaptive capacity. The research develops an integrative, place-based resilience approach that considers tangible and intangible heritage in climate adaptation processes. By analyzing a previously neglected subnational context, this research adds practical and policy-relevant knowledge for those dealing with historic urban landscapes.

**Keywords:** historic city centers, cultural heritage resilience, climate adaptation strategies, Balkan cities, urban climate vulnerability

## Introduction

Climate change and its effects pose a threat, especially to cities with rich cultural heritage, inadequate and under-maintained infrastructure systems, and limited adaptive capacity, that is, those that cannot respond rapidly to negative impacts. These historical cities are exposed to effects such as extreme temperatures, floods, sea level rise, and drought. These cities are also places of collective memory through their historical and contemporary building stock, cultural and social structures. They have developed through the accumulation of tangible and intangible cultural heritage rather than through standardized planning approaches. Such cities have to develop a compromise between the preservation of their form over time, constant morphogenetic adaptation, and transformation pressures. Hence, adaptation strategies that combine matters of conservation and transformation capacity are required (Fatorić & Seekamp, 2017; Aktürk & Hauser, 2025).

In this sense, the Balkan region provides an ideal terrain for researching climate resilience in historic cities. While one can find cultural heritage or cultural diversity in Balkan cities, it is difficult to find positive governance and financial stability. Furthermore, the sensitivity of the rich historical and cultural fabric of these cities to changing conditions, such as climate instability, constitutes a hindrance to securing the long-term viability of the cities. While there are many studies in the literature on urban climate resilience, research that provides a comparative analysis addressing the relationship between cultural heritage and climate adaptation in Balkan cities is limited. There is a lack of research and information on how climate change adaptation and heritage protection intersect spatially and institutionally with historically and culturally rich urban fabrics. This research addresses this gap in the literature by comparatively analyzing five historical city centers in the Balkan geography: Skopje (North Macedonia), Mostar (Bosnia and Herzegovina), Prizren (Kosovo), Belgrade (Serbia), and Thessaloniki (Greece). These cities come from different climatic risk levels and cultural and geographical diversity, management and planning traditions, and a great cultural heritage, which allows for good comparative analyses. The objective of this paper is basically an evaluation of the way strategies for adaptation to climate change are being integrated into the conservation of cultural heritage at spatial and institutional dimensions. Three major criteria will take part in the assessment: nature-based solutions, participatory governance, and heritage-sensitive planning approaches. It has identified cultural heritage as a possible resource for building sustainable urban areas in the Balkans. In so doing, the paper positions climate resilience in the architectural and spatial conditions of Bal-

kan historic city centres, partaking in debates on Balkan architecture/urbanness. It promotes a place-based resilience approach that acknowledges cultural heritage as an enabler for adaptive and sustainable urban futures in the Balkans.

## Theoretical Framework and Literature Review

Cultural change management deals with the long-term vulnerabilities of culture to values amidst natural and human-induced stressors. In this respect, the frameworks of UNESCO, ICOMOS, IUCN, and ICCROM are very relevant. These approaches develop methodologies in the process of assessing risks from disasters to heritage and World Heritage Sites—at that. This includes several methodological tools in the plans for risk reduction and preparedness. These studies clearly articulated the imperative of preservation of heritage value notwithstanding conditions of environmental stress (Valagussa et al., 2021; Aktürk & Hauser, 2025). UNESCO's *'Disaster Risk Management for World Heritage'* (2010) report noted that disaster risk reduction has not been fully incorporated as part of the heritage management practice. Therefore, cultural heritage falls under the broader disaster risk management systems. Similarly, risk mitigation principles take a secondary place in the policies of conservation of heritage (Aktürk & Hauser, 2025).

Urban resilience is already established as the core analytical tool in climate change adaptation studies, conceptualizing the capacity of urban systems to resist, respond, and recuperate from environmental, social, and economic perturbations (Meerow et al., 2016; Cao, 2023). This definition implies that resilience cannot be evaluated by using infrastructure-centric solutions. Resilience is a situated virtue, not a technical capacity. The durability of spatial resilience in the long term is determined not only by armouring but also by how cultural heritage is safeguarded, and social relations and place identity are sustained. UN-Habitat (2020) discloses that resistance strategies for historic urban landscapes could not rely on material actions alone but had to be balanced with architectural continuity and the socio-cultural principles inherent within the morphology. This way of thinking also distorts how interventions relate to the spatial character of the city. UNESCO's *'Historic Urban Landscape'* (HUL) approach (2011) complements this framework and argues for the active integration of cultural values, sense of place, and community traditions within planning processes. Spatial resilience must be pursued through the integration of the physical environment with a city's social, institutional, and regulatory frameworks rather than through piecemeal strate-

gies (Jigyasu, 2016; Ripp et al., 2024). With the changing climate, heritage is under more and more pressure. Deterioration of material, which can be slow and gradual over time, is among the most obvious consequences of this. Flood events, in turn, pose a great threat to structures. Extreme temperature-related thermal stress places a heavy strain on vulnerable structural components (Fatorić & Seekamp, 2017; Tringa et al., 2025). These effects demonstrate that climate risks in heritage sites are increasingly becoming more complexly organized. Climate risk will need to be factored into inheritance planning decisions earlier. But physical exposure can often explain vulnerability on its own; institutional capacity, bureaucratic rules, and policy compliance also heavily influence this condition. This shows that risk is a technical issue, but also a managerial one. Internationally, immediately recognizable cultural heritage has started to emerge as a significant international commodity. Yet it remains marginal within climate politics frameworks (Orr et al., 2021). Heritage's (cultural) place in many climate policy debates is still a poor second. The IPCC (2022) recognises loss of heritage as one of the major non-economic impacts of climate change and highlights the implications of such loss on social identity and cultural continuity. Changes in place identity, however, are often marginal and change over time. UNESCO (2022) urges better integration of the climate and cultural-historical agendas. But this appeal is not in equal measure heard in practice, especially in resource-poor and transitional regions. And so there is a gap between global goals and local practices, and in the process, the global goals prove to be incompatible with local practices. The approach to climate resilience in historic towns and cities is no longer focused solely on technical interventions; NbS and participatory governance are emerging as more important options. This change is a dramatic shift in attitude. The difference with this kind of solution is that it can include within social processes technical measures. Adapted to the context, nature-based solutions can be very effective in historical locations. These solutions promote climate adaptation. There is more one can do with these techniques to help historic areas. Green roofs, urban wetlands, and blue-green infrastructure are illustrations of such practice (Raymond et al., 2017; Liu et al., 2025; Marzio et al., 2025). However, this ability depends on the nature of the application. The participatory planning processes that are developed can do so in a way that enlists the support of local stakeholders in its own decision-making processes. Such participation often strengthens and makes the tensions of conservation-urban-transformation more manageable (Mehr & Wilkinson, 2020; de Manuel et al., 2025; Zarei & Shahab, 2025). In contrast, top-down management strategies are typically ignorant of local knowledge. The omission of local participation also un-

dermines the success and the sustainability of adaptation efforts (Jing et al., 2025; Parsons et al., 2025). Although the body of global studies is increasing, Southeast Europe is still marginal in scholarship on the convergence of climate resilience and heritage conservation. Cities in the Balkans are often situated within fragmented governance patterns where environmental planning and heritage protection are separated institutionally and strategically (Cotella & Toto, 2021; Vulevic et al., 2021). Historical legacies of conflict, decentralisation, and uneven European integration further complicate cooperation and limit capacity for delivery (Cierco Gomes, 2019; Knez et al., 2022; Pajvančić-Cizelj, 2025). Through a cross-city analysis of Balkan cases and their responses to converging climate/heritage pressures, this article advances a more contextual and regionally grounded conceptualisation of spatial resilience in culturally-significant urban landscapes.

## Methodology

This paper applies a qualitative and multi-sourced methodology to investigate the spatial resilience of historic city centres in the context of climate change. Concentrating on a limited number of case cities, the study combines systematic document analysis and spatial mapping with a comparative analysis of climate adaptation and cultural heritage at the local level. Cases were selected using purposive criteria: the existence of historically significant urban cores, vulnerability to climate-related hazards, such as heatwaves and floods, diversity in governance planning systems, and availability of pertinent policy-related documents and spatial data. This selection technique permits the examination of wider regional trends and, at the same time, can go deeper into city-specific inquiries. The key data includes national and city-level policy documents, climate action and adaptation strategies, and heritage management plans. Documents were analysed in order to identify the degree of convergence between climate resilience and heritage preservation agendas. The spatial analysis drew upon open-access geographic information system (GIS) data from sources such as the Copernicus Urban Atlas and other municipal datasets to map climate vulnerabilities and adaptation-related activities in historic urban contexts. Moreover, secondary sources, such as peer-reviewed academic literature, project reports, and grey literature, were employed to provide context to the findings and enhance the analysis. The analysis is centered on three spatial resilience aspects: (1) the application of nature-based solutions within or proximate to historic districts, (2) participatory governance at the targeted community level in adaptation planning, and (3) the embedding of cultural heritage in the climate resil-

ience agenda. Results for each case city and overall result for each dimension were assessed using a qualitative evaluation matrix specifically designed for this study and labeled low, moderate, and high. The study also notes there are several limitations, such as data availability differing across cases, linguistic limitations, and the lack of primary data collection, such as interviews. However, the foilation of documentary analysis, spatial data, and secondary sources strengthens the rigor, validity, and richness of the findings.

### **Case Studies: Historic City Centres in the Balkans**

This part outlines a brief comparison of five historic centres in Southeast Europe through the concept of spatial resilience in a changing climate. The chosen case studies illustrate a variety of geographical, cultural, and institutional settings within the Balkan region, providing a sophisticated analysis of how historic urban landscapes may cope with climate-related challenges. The focus of this analysis is on three interconnected components that are key to conceptualising resilience in urban contexts rich in heritage. The analysis focuses on the nature-based solutions (NbS) in the historic cities or in near proximity to the historic city centres, taking into account mitigation of the climate risks, while considering heritage values. Secondly, it assesses the availability and effectiveness of tools for participatory governance, especially for the involvement of local grassroots actors and other stakeholders in the processes of planning for climate adaptation and resilience. Finally, it assesses how briefly cultural heritage is mentioned in climate resilience plans (including planning instruments, policy frameworks, and local interventions). Each case study is analysed by applying the qualitative analytical framework presented in the methodology, based on a synthesis of policy analysis, spatial mapping, and secondary data. This permits both within-case and cross-case analysis to identify similarities and differences in the manner in which spatial resilience is articulated among the five selected Balkan historic city centers.

#### ***Skopje (North Macedonia)***

The historic core of Skopje presents a fragmented form of climate-resilient city making, predominantly defined by long-term aftershock of post-earthquake rebuilding and institutional coordination (City of Skopje, 2018; Rajkovchevski & Dorevski, 2019; World Bank Group, 2024). The area is particularly prone to flash flooding in the Vardar River corridor, and to rising heat stress induced by compact urban form and inadequate green infrastructure provision (City of Skopje, 2018a). While nature-based solutions to the acknowledged climate-associated risks are

referenced in city-level planning documents, these have limited integration with heritage-focused planning regimes. Participatory governance at all levels is also weak and mainly project-based, subject to external funding rather than secured within institutional frameworks. Considerations of cultural heritage are almost invisible in climate adaptation strategies, with little or no coordination between resilience development and heritage management. Skopje is a city that can be described as having a low to medium level of spatial resilience, which is a result of institutional complexity on the one hand, and the growing silencing of cultural heritage in the local climate (in) action on the other (Donevska, 2017; Popovski & Sterijovski, 2024).

### **Mostar**

The old town of Mostar is recognized within the UNESCO World Heritage framework and is at risk from climate hazards such as river flooding, rising temperatures, and extended drought. Despite the internationally stated heritage protection, climate adaptation measures are inconsistent and largely based on projects (Makaš, 2011; World Bank, 2023; Popovac et al., 2024). Implementation of NbS is limited and mostly reactive, focusing on water-sensitive interventions along the corridor of the Neretva River. Participatory governance mechanisms exist but are often best channelled through international and NGO actors rather than being institutionalized locally. The city's intricate post-conflict governance structures also make it more difficult to coordinate environmental and heritage management. As a result, the spatial resilience level of Mostar is moderate, with the residents indicating a strong symbolic recognition of cultural heritage but a weak perception of including heritage into climate change adaptation (Djurasovic & Knieling, 2015; Meteoblue, 2025).

### **Prizren**

The historical centre of Prizren is characterized by its intact urban fabric from the Ottoman period and a unique cultural character that was subjected to various vulnerabilities, among them climate vulnerabilities, such as floods and heat stress (Jagxhiu, 2011; Municipality of Prizren, 2022). Climate adaptation planning is in its infancy, and the development of appropriate institutional arrangements has been hampered by limited human resource capacity and financial constraints. The use of nature-based solutions is very limited and pretty much restricted to maintaining existing green areas without any introduction of proactive/transformational adaptation solutions. Even though community-led cultural production and civil

society participation have some visibility, these modes of operation have not yet achieved any substantive linkages to official climate governance and planning frameworks. Considerations of cultural heritage are hardly ever included in city climate plans, leading to limited synergy between heritage preservation and urban resilience planning. In this sense, Prizren reflects a limited spatial resilience, emphasizing the necessity of enhanced multilevel coordination and the advocacy for heritage-sensitive climate change approaches (Municipality of Prizren, 2022; UNICEF, 2024).

### **Belgrade**

Belgrade has introduced a series of climate-resilience policies, notably concerning flood risk management and urban greening measures along the Sava and Danube river corridors. These initiatives are reflective of relatively high institutional capacity and increasing reliance on nature-based solutions in urban climate organisation (Green City Action Plan for City of Belgrade, 2021; SECAP, 2021). Nevertheless, adaptation is seldom tailored to the unique spatial, material, and symbolic qualities of the old city centre, and integration between climate and heritage conservation planning is weak. While participatory governance is formally acknowledged in planning documents, the process of decision-making remains predominantly top-down, thereby limiting effective stakeholder participation. Protection of cultural heritage is primarily operative as an independent policy field, and as such, only a fraction of resilience approaches are incorporated. Belgrade is an example of moderate spatial resilience, with a strong technical culture despite limited heritage-sensitive adaptation (City of Belgrade, 2015; Kapović Solomun et al., 2025; Radić Sibinović et al., 2025).

### **Thessaloniki**

Among the case studies, Thessaloniki exhibits the highest level of incorporation of climate resilience strategies in a historic urban setting. The city has been an active participant in international resilience networks as well as in European Union-funded programmes, allowing it to implement NbS solutions in the form of green roofs, blue-green infrastructure, and solutions for urban cooling (Lionello & Scarascia, 2018; IUCN, 2019; City of Thessaloniki, 2020). Participatory governance arrangements are relatively more developed, although their success is mixed across projects and institutional arrangements. The protection of cultural heritage, which includes Roman, Byzantine, and Ottoman layers of urbanism, is also being woven into climate resilience and urban regeneration processes, especially in the

historic upper town. Though problems with long-term financial security and continuity of execution plague most efforts, the city of Thessaloniki demonstrates a moderate to high level of resilience potential and provides promising practices for heritage-adapted climate change across the Balkans (Yiannakou & Salata, 2017; ISCI, 2019; Tringa et al., 2025). The five case studies together highlight common regional trends as well as city-specific dynamics in spatial resilience patterns shaping historic urban cores across the Balkans. The institutional capacity of the cities is different, and so are their governance structures and level of exposure to climate hazards, but shared concerns can be identified, among them the low mainstreaming of cultural heritage into climate adaptation policy environments, the uneven application of nature-based solutions (NBS), and weak or fragmented forms of participatory governance. They also show how resilience outcomes are not only determined by physical vulnerability, but also by policy coherence and institutional coordination. In order to synthesize the results and to allow a systematic comparison, the following figure and table show a qualitative evaluation of each city along the three analytical dimensions. This multi-case research is good to find commonalities and disparities between the cases and leads us to the spatial resilience in Balkan historic city centres analysis in chapter four.

## Findings and Comparative Analysis

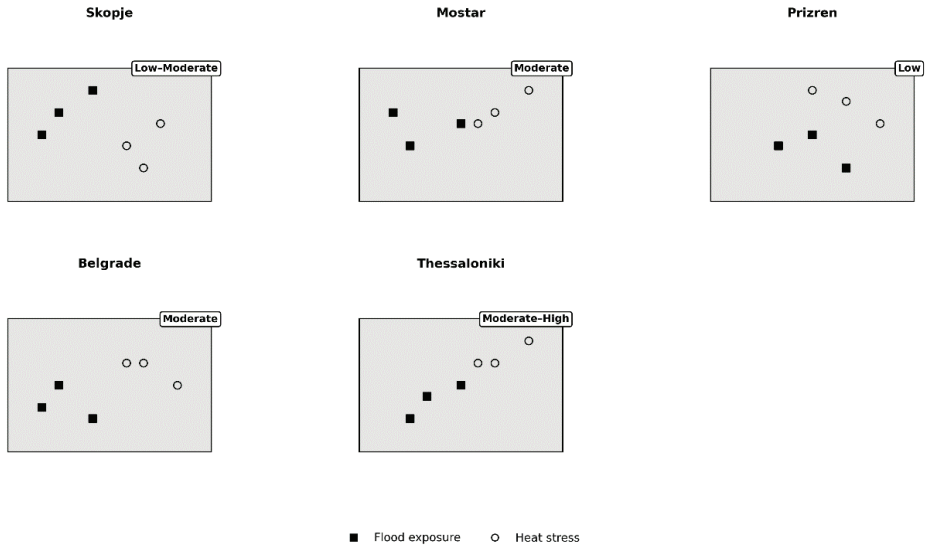
Figure 1 and Table 1 concisely present a comparative evaluation of spatial resilience for each of the five historic city centres. Whereas Figure 1 represents relative levels of flood exposure and heat stress in historic cores and dense urban areas, Table 1 presents the qualitative basis for the resilience types in the form of governance, nature-based solutions, and integration of heritage. The comparison between five historic city centres showcases shared regional challenges and divergent resilience outcomes influenced by governance capacity, planning cultures, and approaches to heritage integration. Meeting qualitative assessments with the schematic spatial patterns presented in Figure 1, the analysis points out how climate-related risks interrelate with institutional and spatial conditions in Balkan historic urban areas. Flood exposure and heat stress exist in all case studies (Figure 1), but their spatial patterns and associated resilience differ widely. Cities like Skopje and Prizren show greater relative vulnerability due to the high concentration of climate hazards in their small historic cores and their designation as low or low – moderate in resilience. Here, profound nature-based solution implementation markets, participatory governance practices, and cultural heritage are marginalised in cli-

mate adaptation concepts and plans. Measures for climate resilience still appear as disjointed and definitely not in tune with both the material and symbolic vulnerability of historic urban tissues. Mostar and Belgrade are placed in an intermediate category, a level of sensitivity moderately high for relative resilience. As can be seen in Figure 1, both cities show some reduction of climate risks with flood control measures and urban greening measures. However, these are frequently run completely separately from heritage conservation agendas. In Mostar, post-conflict governance fragmentation and dependence on externally generated projects constrain long-term cooperation, and in Belgrade, top-down planning approaches obstruct the effective mainstreaming of heritage within climate resilience strategies. Thessaloniki turns out to be the most developed case, with a medium-high resilience to climate-generated risks. As shown in Figure 1, the historical centre shows a spatially more balanced flood exposure, heat stress, and adaptive measures. This relative performance can be attributed to stronger institutional capacity, better access to European Union (EU) policy frameworks and funding instruments, and more engagement with international resilience agendas. EU membership has enabled the take-up of nature-based solutions and aided the gradual alignment of cultural heritage into resilience-focused urban regeneration projects via strategic planning and cross-sectoral planning. Yet long-term financial and implementation feasibility concerns remain, suggesting that while governance enhancement is capable of reducing operational and governance barriers, it does not eliminate them completely.

Overall, the comparative analysis highlights a general regional trend that cultural heritage is mainly regarded as a passive asset and not an active source of urban resilience. Climate adaptation, heritage conservation, and participatory governance are still unevenly aligned, indicating there is a need for integrative, place-based models. With its depiction of relative levels of vulnerability and resilience, Figure 1 therefore lends support to the argument that successful climate adaptation in historic city centres is reliant upon physical risk reduction and institutional rigour in conjunction with heritage-sensitive modes of planning.

**Figure 1**

*Comparative climate-related risk patterns and relative resilience levels in Balkan historic city centres*



Note. The spatial distribution of flood exposure and heat stress is schematic and indicative. The locations are derived from a synthesis of city-level risk assessments, policy documents, and illustrative mapping conducted for each case study. They do not represent precise geospatial measurements but are intended to highlight relative patterns of vulnerability for comparative analytical purposes.

**Table 1**

*Comparative assessment of spatial resilience dimensions in selected Balkan historic city centres*

City	Nature-based Solutions	Participatory Governance	Heritage Integration in Resilience Planning
<b>Prizren</b>	Low	Moderate	Low
<b>Skopje</b>	Moderate	Low	Low
<b>Mostar</b>	Moderate	Moderate	Moderate
<b>Belgrade</b>	Moderate	Moderate	Moderate
<b>Thessaloniki</b>	High	Moderate-High	Moderate-High

Note. Assessments are based on qualitative analysis of policy documents, spatial mapping, and secondary sources, and indicate relative rather than absolute levels of resilience.

## Discussion

The results of the research show that vulnerability in historic city centres goes well beyond the physical exposure to climate-related hazards and includes institutional fragmentation, governance weaknesses, and the further marginalization of cultural heritage in climate adaptation agendas. As shown in the cross-case analysis in Figure 1 and Table 1, variations in resilience among the cases regarding spatial exposure to flooding and heat stress are as much a function of policy coherence and governance capacity as they are of overexposure to fluvial and heat hazards. It calls into question prevailing resilience approaches in which heritage is understood predominantly as a static asset to protect rather than as an enabler of adaptive potential. Instead, the findings support a developing conceptual lens that sees cultural heritage as a facilitator of resilience through contribution to social connectedness, place-based identity, and adaptive spatial governance (Mochizuki et al., 2018). But this remains a largely untapped potential across the Balkans' cases. Heritage is often treated separately from climate adaptation planning, which restricts its ability to guide spatial-scape, nature-based solutions, and community mobilisation. From a policy perspective, the findings highlight a need to realize that including heritage in climate resilience planning is not simply a case of technical retrofitting or generic nature-based solutions. Participatory, cross-sectoral, and

culturally informed governance models have been identified as crucial to effective adaptation within historic urban fabric (McGill, 2020). While the ‘UNESCO *Historic Urban Landscape*’ (HUL) approach (UNESCO, 2011) can offer an appropriate conceptual basis to aid such holistic approaches to integration, the case study analysis demonstrates how this can be operationalized to a limited extent in the context of the Balkans. Planning processes across donors and institutional barriers continue to stifle heritage-sensitive resilience planning that is long-term. In doing so, by placing its analysis in the relatively neglected region of Southeast Europe, a region deeply affected by post-conflict governance patterns, uneven decentralization, and economic restrictions, this paper adds to the scholarly discussions on heritage-sensitive climate governance. The comparative insights highlighted both barriers and potential avenues. Thessaloniki showcases the ability to enhance adaptive capacity through greater coordination at the institutional level and gradual mainstreaming of heritage into resilience-focused urban regeneration, while Prizren’s community-based cultural projects underscore the significance of local agency even in conditions of severely limited formal capacity. Together, these results highlight the fact that resilience in old city cores is not about defending the space of the inherited built environment, but rather about the strategic use of cultural heritage as an enabler for inclusive, adaptive, and forward-looking urban policies. This discussion provides the theoretical foundation for the conclusions, which outline operational avenues for mainstreaming cultural heritage within climate resilience regimes at local and regional levels.

## Conclusion

This paper assesses how five historic urban cores in the Balkans cope with the dual contemporary problems of climate risk and cultural heritage preservation. Results show that while cultural heritage is contributing in varying degrees to the enhancement of climate resilience in urban policy on the local level, its inclusion into frameworks of climate adaptation is not consistent, is fragmented, and, to a great extent, reactive in terms of. As in other places, although Thessaloniki possesses relatively developed governance capacity and spatial strategies, the concrete application of heritage-sensitive climate adaptation is far from fully realized. In other case studies, more deep-seated barriers remain, such as weak institutional ability, poor cross-sectoral coordination, and ongoing dependency on short-term, donor-led projects. Resilience in the context of historically layered urban environments, thus, cannot be achieved only through technical or infrastructural

solutions, is the message emerging from this project. Instead, adaptive capacity is driven by the coming together of place-based, institutional, and socio-cultural elements (including collective memory, identity, and indigenous knowledge) that are often rendered invisible within mainstream accounts of adaptation planning. To fill these gaps, sectoral methodologies are needed to transcend, and cultural heritage should be considered as a core factor in urban resilience rather than a constraint to it. Based on the comparative lessons learnt from the case studies, the research advocates for a place-based resilience approach that mainstreams climate adaptation and fits within the heritage management framework. The analysis also identified the following key priorities: enhancing institutional coordination among heritage, environmental and planning sectors, and mainstreaming heritage into climate change adaptation and disaster risk reduction; supporting context-sensitive nature-based solutions that are compatible with the tangible and intangible attributes of historic environments; promoting community engagement, including by strengthening governance to facilitate community participation in co-developing adaptation strategies; developing interdisciplinary expertise of those working at the interface of climate and heritage; and, creating flexible funding mechanisms that support integrated environmental and cultural actions. Regional cooperation within Southeast Europe would be necessary as well to promote peer learning and the transfer of good practice. Filling a critical gap in the research on climate resilience and heritage in the Balkan region, this study presents both theoretical and practical implications for academics, policy makers, and practitioners. In the end, historic city centres' long-term resilience in the face of mounting climate stressors is about inclusive governance, institutional synergism, and the adaptive capacities inherent in cultural heritage as a vehicle for community and place identity. Therefore, heritage mainstreaming in climate resilience plans is no longer a demand but a prerequisite to guarantee the cultural continuity and urban functionality of ancient cities in the years to come.

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# Materiality in Urban Space: Student Case Studies on the Experiential Path to Rožnik Hill

**Nada Rožmanec Matičič, Dragan Čalović and  
Tjaša Čakš**

## *Abstract*

Through an analysis of a conceptual design of an experiential trail to Rožnik Hill, the study discusses the symbiosis between materiality in design and human perception. It examines how spatial planning co-shapes the human experience of the environment. The presentation of the student project of practical examples of design addresses the question of how we deepen our relationship and connection with nature.

The research focuses on a design that stems from location and the experience of space. The study is interested in how spatial planning can deepen ideas about social context, urban spaces, and landscape through the design process. The design approach in interventions uses the principles of sustainability through the application of sustainable materials and recycling. As proposed solutions to spatial problems, it encourages innovative, multifunctional design with various usage scenarios. Through the project, we want to show how space design can strengthen spatial awareness and contribute to the formation of cultural identity.

The research addresses broader questions directly related to materiality in the formation of rational, sustainable urban experiences. The results of the research highlight the challenge of converting the abstract meaning of the path into a tangible spatial experience, which is expressed through various reinterpretations of the location through the eyes of young designers. The meaning of recreation and relaxation can be experienced in various ways, which the research itself contributes through the multifaceted approach of creative urban space design.

*Keywords:* materiality, urban design, sensory engagement, site-specific design, connection with nature, relaxation, spatial experience

## Introduction

Ljubljana, as the macro-location of the study, is located in central Slovenia at the transition between the Alps to the north and the Dinaric Alps to the south. The quality of life in Ljubljana is high due to the preserved nature. The city is surrounded by hills covered with native forest, which make up 46% of the total area of the municipality. To the south lies the Ljubljana Marshes, the largest area of marsh meadows, featuring a system of hedgerows, forests, scrub, and water areas in Slovenia. Twenty percent of the total area of the municipality has the status of protected nature. Four landscape parks, numerous tree-lined avenues, parks, gardens, and majestic trees have been declared in the Municipality of Ljubljana. According to data (WHO), in developed European countries, as much as 50% of the population is exposed to a daily noise level above 55 dB(A) due to traffic. Residents are exposed to high levels of traffic noise (above 65 dBA) significantly less (14%) than the European average (20%) (Mestna občina Ljubljana, n.d.). The natural environment of Ljubljana influences the multisensory perception of space. Various green spaces affect the acoustic and microclimatic conditions of the space. The architectural interventions that are the subject of the study below are designed as a response to the environment in which they are placed. The main idea behind the design and placement of the object is to connect the user with the space through a multi-layered sensory perception of the space.

Architecture encourages a multisensory experience of space. The user's perception of space goes beyond the visual aspect. A thoughtful selection of materials with a reaction to light and the presence of scents shapes the character of the space (Meselhy & Malkawi, 2024). Architectural design is expressed through materiality, which affects the user's experience through sensory response with texture, weight, and thermal properties (Pallasmaa, 2012). An important architectural element is also light. It controls how spaces are presented to people, and it also influences their emotional responses and environmental conditions (Zumthor, 2006). The interplay of natural light and shadows creates a healthier atmosphere. Spaces with natural light feel spacious and energetic, while darker spaces encourage contemplation. Design decisions determine the choice of materials and the architectural language of the design. Architects who study multiple sensory elements can design environments that create deeper emotional connections between people and their built environments (Pallasmaa, 2012). With intentional design, architects create structures that change the way people experience the environments they inhabit (Zumthor, 2006).

Interventions along the trail to Rožnik Hill – from architectural interventions to urban design – emphasize sustainability through the use of local materials from Slovenia and innovative design approaches. The project addresses the challenges of rapid urbanization in relation to the preservation of natural heritage, tradition, and the use of local craftsmanship skills. The research offers insight into how a thoughtful selection of materials in projects can promote a sense of belonging and cultural identity. The research creates a model of sustainable design approaches that can be transferred to the broader context of urban design in cities in the Balkan region.

## Site Context and Regional Significance

Rožnik Hill is the green infrastructure of Ljubljana, the capital of Slovenia. The landscape park, part of which is Rožnik, northwest of the Ljubljana city center, includes Tivoli, agricultural areas, and the forested areas of Šišenski hrib and Koseški Bajer. The area covers 459 hectares.

The central topography characteristic of the area is a wooded hilly relief with the peaks of Rožnik, Šišenski Hill, and Debeli Hill. The most valuable areas include the natural reserves Mali Rožnik and Mostec. The forest merges with arable land and meadows to the west; the park ends at the Path of Remembrance and Friendship. A large area of Rožnik is forested, which is why it is recognized locally as a green urban park and a key center of biodiversity. Rožnik is a natural oasis in the urban environment, with a diverse range of plant and animal species. It also boasts a rich cultural heritage that reinforces the historical and cultural significance of the area (Nose Marolt et al., 2019).

Rožnik is one of the most popular walking and running spots in the Ljubljana countryside. Known as the wooded hill above Ljubljana's largest park, it is intertwined with macadam paths and trails. Most paths lead to the most popular destination among users: Cankar's Peak (the highest peak of Rožnik is Šišenski Hill, 429 m). The peak is named after the Slovenian writer Ivan Cankar, who lived in the building where the Rožnik restaurant is today between 1910 and 1917. The restaurant also features a memorial room dedicated to Cankar, in front of which stands his bust. Above the restaurant, on top of the hill, is the Church of the Assumption of Mary, which offers a view of the center of Ljubljana (Turizem Ljubljana, 2025).

## Figure 1

*Tivoli Landscape Park, Rožnik and Šišenski hrib – panoramic view (Čeak, n.d.)*



The integration of the park into the Ljubljana urban fabric was heavily influenced by the architect Jože Plečnik. Tivoli Park was renovated between 1921 and 1939 according to Plečnik's plans for the central promenade, named after the painter Richard Jakopič. According to the plans of Stanko Bloudek, the Ilirija swimming pool was built in 1929. Subsequent modernist layers also included sports infrastructure developed a ski jump at Galetovo and a sports park beneath Cekin Mansion in the 1950s. In 1965, the Tivoli Hall was built according to the plans of Marjan Božič, and it serves for sports and cultural events. Today's landscape typology of the park combines systematic gardening arrangements with functional sports and cultural infrastructure. The park's landscape design includes more than 80 native and exotic tree species. The park is recognized as a meeting point between the primeval forest and the geometrically precise urban park (Nose Marolt et al., 2019).

## Experiential Quality and the Identity of Urban Space

In modern urban planning discussions, urban planner Kevin Lynch states that a city is not defined by its physical structure alone. A city is defined by its experiential nature or „sense of place.“ The design should be a strong and legible structure that promotes the development of local identity on an emotional and experiential

level (Banerjee & Southworth, 1990). Although sight is considered the primary sense, the identity of a place is shaped by a determined by a multi-faceted spectrum of sound, touch, and smell. A „feeling“ of the place is created by the combination of all these senses (Llewelyn-Davies, 2000).

The conceptual framework of the Rožnik experiential trail project is based on the theoretical background of architect Peter Zumthor. In accordance with his views, the materials used in the project not only play a functional role but also act as mediators, drawing the user into the ambient experience of the natural and forested space of Rožnik.

Zumthor defines architectural practice as an interactive process of exploration, based on self-reflective dialogue. It is understood by Zumthor as finding answers to spatial problems through design. His pedagogical approach focuses on the conscious exploration of personal history of living and interaction with architecture. His approach is based on the assumption that understanding the architecture originates from the individual's living experience, which he experiences through the entire spectrum of human emotions. The effective design approach does not only follow from rational knowledge, but from the link between the senses and intellect. The essence of Zumthor's thinking is the image of the built environment. The materials are not seen as a medium for the transmission of ideas, but as real, physical substances that occupy space through their presence. They are important due to their physical properties: texture, weight, and the interaction of the surface with light and shadow. As Zumthor states, through this „anatomy of construction,“ the work transcends utility and expresses itself as a strong, tangible atmosphere (Zumthor, 2010). The space fully utilizes its potential only when its surfaces are included in the user's sensory dialogue (Zumthor, 2006).

Based on Zumthor's insights, the conceptual design of a project for an experiential path on Rožnik Hill through the design approach develops the concept of „urban materiality“. This can be understood as a set of comprehensive elements that are connected to the location on a conceptual level. These are the topographical characteristics of the territory, the socio-historical dimension, and the construction of the implication of the materials used in the spatial intervention. The intertwining of individual project elements creates an experiential component of the project that blends with the city – it operates on a physical, symbolic, and experiential level simultaneously.

## Case study - The Path of Remembrance and Comradeship (PST)

The conceptual design of the Rožnik path is a symbolic transfer or re-interpretation of the language of the Path of Memories and Comradeship (PST). The Path of Memories and Comradeship is a linearly designed landscape architectural monument that is 32.5 kilometers long, linearly designed, and surrounds the city of Ljubljana, which during World War II had been surrounded by barbed wire. The spatial concept of the monument is based on the traces of the former Italian barbed-wire fence that surrounded the city during the period from 1942 to 1945. The original defense system consisted of 206 forts and guardhouses that surrounded the city of Ljubljana and turned it into a sort of prison. After the war, the area was transformed into a memorial site, which nowadays symbolizes the resistance of the local population and the activities of the underground movements of the Liberation Front.

### Figure 2

*Octagonal pillars (monument) and a bench (urban furniture) along the Path of Remembrance and Comradeship (Društvo Zeleni prstan, 1980)*

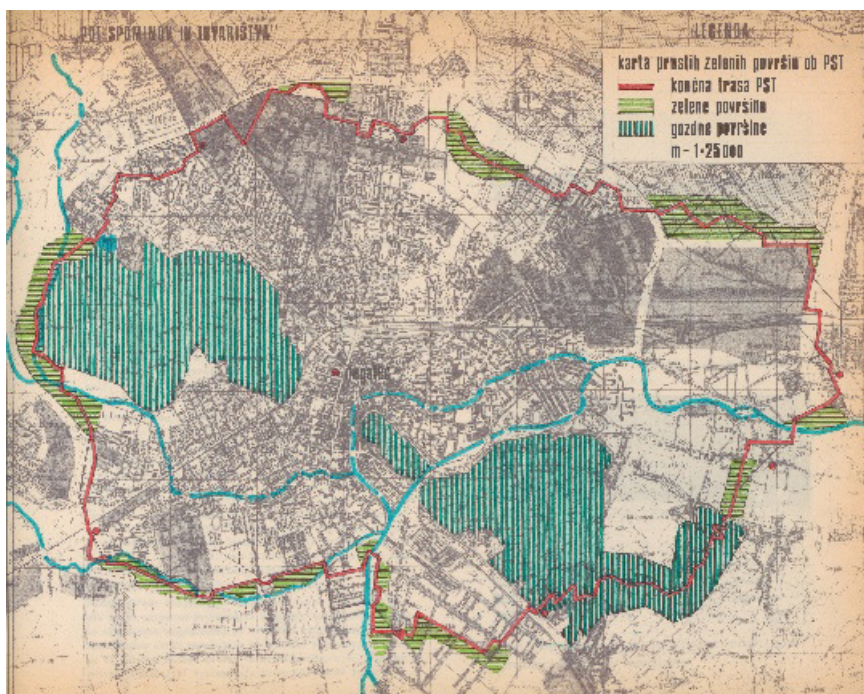


The path was marked in 1957 by architect Vlasto Kopač along the route of the former barbed wire fence. Two years later, six stone obelisks with reliefs by sculptor

Božo Pengov were placed at the checkpoints on the entrance roads. From the liberation of the city until 1962, 102 memorial stones in the shape of an octagon were placed along the path to mark the positions of the occupier's bunkers. The path is 4 meters wide and made of natural gravel. It passes through different spatial units and typologies, ranging from residential areas, agricultural land, and the edge of the forests to the green infrastructure of Ljubljana. PST is a monument in motion with everyday recreational use. The use of natural materials, recurring architectural marks, and urban equipment as an architectural design language establishes a visual identity throughout the monument area (Koželj, 2020). The idea of designing urban equipment for the design of the experiential trail to Rožnik Hill is based on the existing urban equipment of the Path of Memories and Comradery and draws inspiration from its design and spatial elements.

### Figure 3

*Plan of The Path of Memories and Comradeship: Monument to Ljubljana – a Hero City as an Element of Urban and Horticultural Planning of the City (Omersa, 1980)*



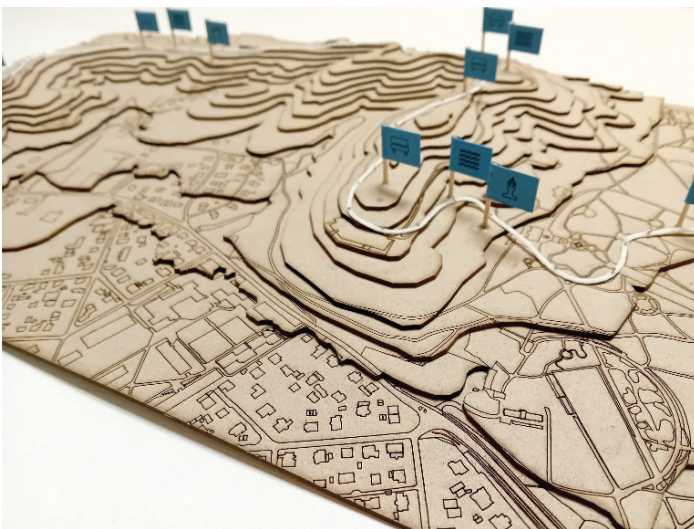
## The Rožnik Experiential Trail: Conceptual Framework and Student Interventions

The Rožnik Experience Trail is designed as a series of spatial interventions. The trail starts at Tivoli Park and ends at Cankar's Peak on the Rožnik Hill. The route passes through forest and meadows. The natural environment for the relaxation path is chosen primarily to encourage psychological recovery and sensory engagement through recreation for the user. Architectural interventions are placed in a way that the user moves from a densely populated urban edge to a peaceful environment according to their spatial needs. The effects of fast city life are mitigated by sensory experiences through spatial planning as they pass through interventions.

The path program includes a relaxation pavilion, a greenhouse integrated with a community library, outdoor reading nooks, innovative seating systems, water fountains, public restrooms, and a retreat unit. Each intervention reflects a holistic approach to the materiality of the project, which is reflected through the user's experience with the environment and sustainability. The placement of the points in the space is based on views or surroundings of the location, oriented towards the Kamnik-Savinja Alps and the Ljubljana Basin.

### Figure 4

*Conceptual model of the Experience trail to Rožnik Hill, with marked points along the path (Faculty of design, 2024)*



The path from Tivoli to the top of Rožnik is marked by a 300-meter elevation difference, which the user can cover in approximately 40 minutes. At the threshold of the city, the interventions use materials and design that are reminiscent of the regional identity. As the climb progresses, the design of the urban furniture and structures changes, using textures and materials that blend into the forest environment.

By incorporating the selection of materials into the environment, the path encourages a gradual transition from the urban fabric to the natural environment. The main goal that the project aims to deepen through interventions is to deepen human relationships with nature. An in-depth relationship with nature leads to the recreation of cultural identity in spatial interventions through this connection.

## Relaxation Pavilion

The design of the meditation pavilion represents an architectural intervention at the beginning of the experience trail to Rožnik Hill. As an architectural intervention, it is recognized as a mediator between physical activity and the user's psychological well-being. The project addresses the modern need for creating intimate spaces by establishing a yoga studio. The interior design, with its selection of materials, encourages the user's sensitivity and emotional well-being.

The main task of the pavilion is to create an environment in which the user can relax. The project attempts to achieve this by directly integrating the interior and exterior spaces of the pavilion. Through the metaphor of connecting with the surroundings and awareness, the visitor is enabled to make a gradual transition from the city center to the natural environment.

**Figure 5**

*Exterior of Relaxation Pavilion: wooden and stone functional unit (Faculty of Design, 2024)*



The material design of the pavilion is based on combining warm organic and cool industrial elements. The pavilion's structure combines natural and industrial materials: wood, stone, and concrete. Natural materials are used to ensure user comfort and a direct biological connection with nature. Industrial materials are primarily used to establish the stability of the structure and as a contrast to the landscape. The fluidity of the interior and exterior of the building is created with the help of glazed surfaces that erase the boundary. A large percentage of the pavilion's glass surfaces allows natural light to enter the building, providing users with a direct visual connection to Tivoli Park.

The pavilion is spatially designed from two functional units. The pavilion is entered from a concrete platform that opens onto Tivoli Park. From the concrete platform, the user moves into an enclosed, introverted volume where meditation and relaxation take place. The main architectural element of the pavilion is the movable wooden panels, which are conceptually designed to resemble the flow of water. The user adjusts the level of privacy and exposure to sunlight in the space using movable panel elements installed on the glass surfaces of the pavilion. The interaction of light with the wooden sliding panels in different lighting conditions creates various shadows in the interior of the space (*chiaroscuro*), which introduces a sense of movement into the static structure of the architecture. The interior furniture ele-

ments of the wooden part of the building are designed from bleached wood, which creates a contrast to its exterior.

The Tivoli Castle is located in the immediate vicinity of the pavilion, so the architectural intervention takes advantage of both the historical and recreational significance of the area. The pavilion is located at a strategic node of the Tivoli City Park, which serves as the green infrastructure of Ljubljana. The pavilion is placed on a support, and the wooden functional unit is elevated from the ground. The architectural design takes advantage of the topographical environment, so the design blends with nature.

### Figure 6

*Interior of Relaxation Pavilion: Yoga studio (Faculty of Design, 2024)*



### Quintessence

The design of the experience trail to Rožnik Hill upgrades the landscape by subtly integrating public facilities into the natural environment. The project, in terms of urban equipment, proposes a series of drinking fountains and public toilets that emphasize the ecological and cultural importance of regional water sources. It thematizes the water identity of the Slovenian landscape. Urban furniture is placed at strategically important locations in the space based on the user's needs, depending on the steepness of the climb.

The design concept is based on the hydrographic diversity of the region, characterized by rivers, lakes, waterfalls, and underground caves. Design of drinking fountains revives the connection between humans and water sources. Its shape reminds the user of natural heritage and is a metaphor for the direct relationship between human beings and nature.

For the production of water fountains and toilets, Karst limestone is used. The use of materials for the project is symbolic of the main connection that the new interventions have with the geological environment. By incorporating indigenous materials into the urban furniture project, it respectfully complements the natural environment in which it is placed.

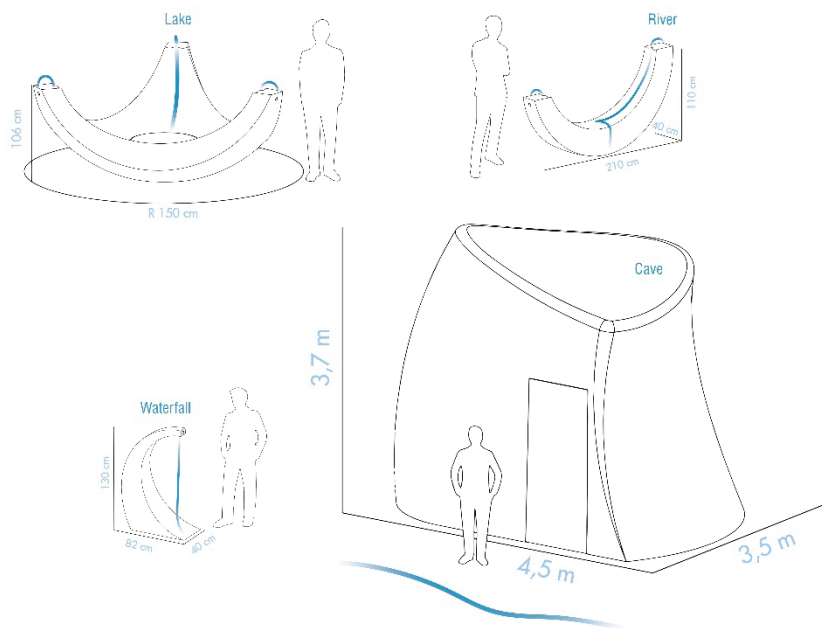
An integrated design approach to urban planning was used in the design of urban equipment. Public spaces recreated by urban furniture use their symbolic value to reinforce awareness of the importance of natural landscapes. The design represents a sustainable model of urban equipment design, as it contributes to the spatial identity through a tribute to natural heritage. The design of the urban equipment of the drinking fountains and public toilets was based on natural water bodies – the 4 key water ecosystems of Slovenia: waterfall, river, lake, and cave. Natural water phenomena shape the structure of the landscape and water ecological processes uniquely.

The Waterfall represents the movement of water in an upright position. The River represents the continuous flow of water, circulating through the landscape. The symbolic meaning of the lake represents the peace and stability of the water body. The cave represents an ecosystem where water flows into hidden underground spaces.

The Alpine Lake Fountain is located at the beginning of the path near the relaxation pavilion. It is made of natural stone and embodies the serenity of Alpine lakes in Slovenia. These are usually placed in the background of mountain peaks in a panoramic sense. Due to its representative image, it has a monumental effect. The choice of placement is, for this reason, at major architectural interventions on the path. The design and placement of the fountain embody the peaceful character of high-mountain waters. It serves as a source of drinking water and at the same time as a meeting point for visitors to socialize.

## Figure 7

*The Alpine Lake Fountain, The Creek Fountain, Cave facilities, and Waterfall Fountain - dimensions (Faculty of Design, 2024)*



The location of the Creek Fountain is on the flat sections of the path, rising to the top. The sculpture is made of natural materials found in the area to match the environment. It depicts Slovenian rivers. Its use and placement were inspired by the river's flow through the valley. Rivers bring peace, and a sense of natural water flows. Its use is to offer refreshment while ascending to Rožnik.

The cave facilities are placed along the route at points where users need functional support along the way. This is a service facility that supports the operation of public space. They are constructed from terrazzo, which is made from the remains of natural stone that was originally used to make fountains. The interior design is inspired by caves, which is reflected in the dark atmosphere and ambient lighting. The interior design mimics the mystery and depth of underground spaces with its design.

The Waterfall Fountain is placed at the end of the route, representing the culmination of the experience. Serves as the last source of refreshment for hikers on the route. The position of the fountain in the environment symbolizes not only phy-

sical regeneration but also the experience of visiting the waterfall. Since it is not easy to access the waterfalls in their environment, there is a focus on the ambient experience, which is reached at the end of the route.

The selection of material for the design of urban equipment is based on a comparative analysis of samples of indigenous limestone from the Kras region. In collaboration with experts from the local stone industry, three types of stone were selected based on geological properties, durability of the material, and availability of resources in the area: Lipica Fiorito, Repen, and Kopriva.

**Figure 10**

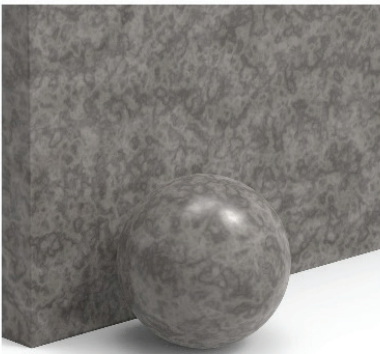
*Krast Lime Stone & Krast Terrazzo: Samples (Faculty of Design, 2024)*



Natural stone Lipica Fiorito – Alpine Lake Fountain



Natural stone Repen – Creek Fountain



Natural stone Kopriva – Waterfall Fountain



Kras Terrazzo – Public facilities

Lipica Fiorito is a stone from the Karst group, which has been used for a long period of time, including the Roman period. The stone is characterized by its light grey tones with clear pink shades, which are caused by the presence of rudist fossils from the Cretaceous period. Lipica Fiorito can be used for both interior and exterior design due to its long-lasting properties. Repen is one of the densest and strongest grey limestones in the world, as the fossil structure enables the stone to have high resistance to weathering, making it suitable for exterior structures with high loads. Kopriva is a local version of Repen. The stone is characterized by its uniform texture and light grey base with darker fragments of shell fossils uniformly distributed (Marmor Sežana, n.d.).

The choice of materials for each fountain was based on the assessment of block dimensions and the availability of natural resources. The assessment helped to rationalize the design vision in light of practical limitations. The largest sculpture, The Alpine Lake Fountain, was planned to be made of Lipica Fiorito karst stone due to its availability in formats. The medium-sized fountain, The River Fountain, was intended to be made of Repen stone, given its structural integrity. The rarest stone, Kopriva, was used for the smallest fountain, The Waterfall Fountain. The material was intended to give a unique look in a compact form with its characteristic fossil pattern.

**Figure 9**

*Drinking Fountain collection; Krast stone (Faculty of Design, 2024)*



As a sustainable aspect, the design of the project utilizes the reuse of stone remnants that were used for smaller fountains. In the process of recycling, stone remnants from smaller fountains are reused in the design of public restrooms and mixed into concrete aggregate. A new composite material, provisionally named Krast Terazzo, has been created. The process of material processing has transformed potential waste into a new, sustainable building material through an innovative design approach.

**Figure 10**

*Public Facilities; Krast Terazzo (Faculty of Design, 2024)*



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## Canopy of Reading Joy

The conceptual design of the open library is located at the end of the experiential path. It establishes a public space that organically connects with the natural environment and offers the visitor a peaceful retreat from the noise of the urban environment. The space has a dual function: it is intended for users to socialize and for the transfer of knowledge. It is intended for students and passers-by who are looking for an intimate space to study. The location at the edge of the forest at the very end of the path deepens the user's contact with nature. The rational spatial organization, placing reading zones on the ground floor level and social interaction areas on the upper floor, and thoughtful ambiance, favors a tranquil atmosphere. The design encourages intellectual concentration and emotional well-being.

### Figure 11

*Exterior of Open Library; geometric shape of the building (Faculty of Design, 2024)*



The primary goal of the functional design was the building's year-round adaptability to weather influences. The building's use in winter takes advantage of its introverted nature. By closing the impermeable facade envelope, the functionality of the object focuses on insulation and user comfort. In terms of design, this is expressed through interior design, with the application of wood in the interior, textiles, and warm ambient lighting. In this case, the interior design functions as a microclimate space to protect against the cold. The building is used in the summer with the idea

of natural ventilation, as the building can be opened almost entirely. The approach with microclimate in mind, the design extends the life of the building and emphasizes its multifunctional use in all weather conditions.

The library's spatial plan is based on the floor plan of the number 8, which symbolizes infinity and the transmission of knowledge. The shape of the number eight is simplified in design through geometrization for easier practical application. Although these two forms are geometrically shaped, the conceptualization of the fluid form of the number is concretized by transferring the form into the floor plan design. The selection of geometric shapes also stems from the idea of creating contrast, which is a leading theme in the design of the project.

The architectural expression of the design is a modern interpretation of Plečnik's heritage, directly linking to the National and University Library (NUK). The design of the facade of the library, which can be opened at the corners, takes up Plečnik's motif of the window as an open book. The project symbolically reinterprets this both through its aesthetic design, as it metaphorically unites the function of the building with its content. The spatial elements of the corners of the building, reminiscent of an open book, are used as intimate reading niches that have a directed view into the natural environment. This design approach allows users to retreat to an intimate space dedicated to reading and learning while remaining in direct contact with the natural environment. The contrast between the exterior and interior is created by a different selection of the colors of the same material. The exterior is designed with dark wood, while the interior is designed with light wood.

The design of the building as a simple, geometric shape creates contrast with the natural environment, with the aim of making the building stand out from the environment. The building is designed minimally with both exterior and interior design. It enables the flexibility of space and individual spatial elements, allowing the space to adapt to different usage scenarios. During different uses of space, it emphasises providing a sense of privacy and peace, from individual study to social interaction of the user.

## Figure 12

*Interior of Open Library; wood interior with Ambiental lighting (Faculty of Design, 2024)*



## Conclusion and Materiality Guidelines

The experience trail to Rožnik Hill, with the application of innovative design approaches, highlights the importance of materiality in the creation of modern urban spaces. The study has confirmed that architectural interventions with the application of sustainable practices and local materiality create a greater emotional connection between the user and the environment. An integrative urban planning concept considers environmental awareness as an emotional aspect of the user. It makes it possible to transform the natural potential of the environment into a new context that increases the cultural identity of the place. Considering the above-introduced urban interventions, the guidelines for materiality in urban spaces highlight the importance of local and renewable resources for the minimization of environmental impacts and the creation of *genius loci*. The principles of urban design must include the application of materiality, which the user perceives visually through all the layers of sensations, to enrich the user experience in the created urban solutions. Therefore, it is not for aesthetic or visual purposes; it has a cultural and social message that, in the long run, encourages the creation of high-quality urban environments. Design principles should allow adaptability to user needs over time, while also expressing respect for nature and the historical context of the city.

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# From Past to Future: Spatial Revitalization of Public Spaces in Radovich

Viktorija Miteva, Damjan Balkoski

## Abstract

The research aims to examine the revitalization of the historical urban area (HUA) in the town of Radovich, a small town in the southeastern part of North Macedonia known for its urban and cultural heritage. Particular attention is paid to the revitalization of the old bazaar area, which has played a significant role as a link between the city park and the main square in the town. The area is currently facing various challenges, such as the reduction of pedestrian activity, the deteriorated infrastructure, and the presence of unused commercial spaces.

The research is based on a three-phase methodology. The first phase of the research is based on an empirical analysis based on the relevant literature. The second phase is based on the implementation of the research through the use of photographs, spatial analysis, and the evaluation of the current situation. The third phase is based on the creation of a conceptual design proposal for the revitalization of the area.

The research is based on the principles of placemaking that consider the spatial, social, and programmatic aspects of the area. The research proposes a revitalization of the old bazaar area that will enhance the functionality and attractiveness of the area. The proposal is based on the creation of a pedestrian corridor from the bazaar area to the city park. The proposal will also include the activation of unused commercial spaces in the area. The revitalization of the area will enhance the sustainability of the area according to the principles of contemporary urban planning.

*Keywords:* Methodology, Placemaking, Public space, Radovich, Urban revitalization

## Introduction

Radovish, is a small town situated in the southeastern part of North Macedonia, whose development has been shaped by a combination of historical, geographical, and socio-economic influences. With a population of 14,460 inhabitants (SSO, 2021), the town functions as an administrative, cultural, and economic center for several surrounding rural settlements. Located in a valley at the foothills of Mount Plačkovica, Radovish developed in close relation to its natural setting, which influenced both its spatial structure and its economic activities. Historically, mining activities, agriculture and local trade played an important role in the formation of the town's urban character.

Radovish, similar to many towns in the Balkan region, carries a number of levels of past development. There are still visible signs of the Ottoman period, especially around the old bazaar and the traditional settlements surrounding it. The later periods of development, especially those related to the socialist period, have added a number of public facilities and housing areas to the town. However, the town of Radovish has recently experienced some of the common difficulties faced by many smaller towns. Some of the issues have included a decline in the resident population, the out-migration of the younger population, and a decline in investment. This has meant that some of the public areas have lost some of their vitality.

A distinctive feature of Radovish is the location of its historical urban core (HUA) which is not positioned at the geometric center of the town, but rather on its southwestern edge (fig. 1). This area includes three interconnected public spaces: the main city square, the old bazaar, and the so-called "Youth Park,". Historically, these spaces formed the social and economic heart of the settlement. The bazaar functioned as a lively commercial corridor, the square served as a place for public gatherings and ceremonial events, while the park functioned as a green recreational zone. Together, they created a compact yet multifunctional system of public spaces (fig. 2), that supported daily urban life.

**Figure 1** (left) - location of the urban core of Radovish (source: Google Earth),

**Figure 2** (right) – the urban core of Radovish (source: Google Earth, authors sketch)



Over time, the expansion of the town toward other areas and the changing socio-economic context have weakened the role of this historic cluster of public spaces. Today, the bazaar experiences reduced pedestrian movement, outdated infrastructure, and an increasing number of inactive commercial premises. The main square lacks diverse activities that could sustain everyday social interaction. Similarly, the Youth Park remains underutilized due to insufficient maintenance and limited integration with surrounding urban functions. These conditions have gradually reduced the attractiveness of the HUA, contributing to a broader sense of spatial stagnation.

In the field of urban planning, the topic of revitalization of public spaces has become one of the primary strategies for overcoming challenges in the urban environment. The concept of public space is seen as a physical space, as well as a space for social interaction, culture, and economic activity. The lack of public space is seen as a factor affecting the vitality of the urban system as a whole. Thus, for the city of Radovish, the re-examination and redesign of its historical urban core represents a valuable opportunity to strengthen its local identity, as well as create a strategy for the promotion of sustainable urbanism within the city.

This research aims to assess the current status of the central urban area of Radovish, as well as create a strategy for the revitalization of the city center, focusing on the revitalization of the old bazaar, the main square, and the Park of the Youth as a pedestrian zone. The research, grounded on the placemaking concept, which focus-

es on the integration of spatial, social, and programmatic elements, aims to create a strategy for the improvement of the quality of public space, as well as promote social interaction and economic growth within the city center.

This research contributes to the existing body of knowledge within the field of architecture and urban planning, as it focuses on the integration of the principles of sustainable urbanism within a smaller city, such as Radovich, within the Balkan region, as well as the preservation of its cultural and historical significance. The city of Radovich, with its unique position, history, and current challenges, represents a relevant case study for the promotion of public space revitalization as a strategy for the promotion of sustainable urbanism within the Balkan region.

## Conceptual-Theoretical Framework – the Placemaking concept

In recent years, the revitalization of public spaces has become an increasingly important issue in urban planning, particularly in situations where socio-economic change has resulted in fragmented or under-used historic centers. There are many theoretical and practical frameworks that have been developed over the last few decades and they provide helpful tools for understanding and facilitating the transformation of these spaces.

The placemaking concept was first proposed in the second half of the 20th century by sociologists and designers, particularly Jane Jacobs. Jacobs' work highlighted the importance of vibrant streets, diversity, and people-oriented urbanism. She proposed that successful public spaces are those that are informed by the needs and actions of people rather than planners (Jacobs, 1961).

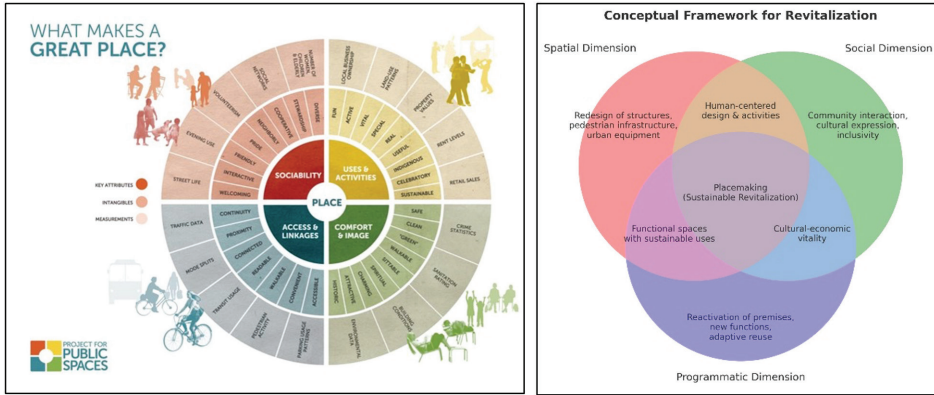
Following these early theories, William H. Whyte proposed a method for observing people's usage of public spaces, which formed the basis for the development of empirical methods (Whyte, 1980). Jan Gehl further contributed to the development of the theory by proposing criteria for evaluating public spaces. He focused on the importance of human-scale design, human activities in public spaces, and the quality of the urban environment. His "12 Quality Criteria" for evaluating public spaces have become a standard tool for assessing the environment (Gehl, 2010; 2011).

Since the 1970s, the organization *Project for Public Spaces* (PPS) created a methodology that outlines the principles for transforming underperforming areas into vibrant public places. The PPS model emphasizes that successful public spaces are not just about good design; they require programming, management, and com-

munity participation as well. The PPS framework/diagram (fig.3) emphasizes four essential qualities of a good public space: accessibility, comfort, sociability, and activities (PPS, 2024).

**Figure 3** (left) – PPS’s place diagram (source: [www.PPS.org](http://www.PPS.org))

**Figure 4** (right) – conceptual framework for Radovish’s public spaces (source: authors)



In this sense, placemaking is a multi-layered strategy that combines the spatial dimension (design) with both the social and cultural functions of a space. This view of placemaking has particular relevance for smaller towns where the public life of that town is dependent on a limited number of key public spaces, including the town’s bazaar, square and park.

While most of the literature on urban revitalization and placemaking has typically been focused on larger cities, smaller towns have unique issues (and opportunities) associated with their revitalization. The Balkan context is often defined by a combination of the physical structures created from Ottoman urbanism, the spatial planning from the socialist era, as well as the spatial evolution that has occurred post-socialism. Many towns within the Balkans, such as Radovish, have historic downtowns with both a bazaar and religious buildings existing side by side with a more recent overlay of large cultural centers and public squares from the socialist era. Thus, the continued declining industrialization and demographic changes, coupled with an uneven economic development pattern has created a level of neglect and disrepair in the public spaces located in the historic parts of these towns.

In order to revive these types of environments, it is important to strike a balance between the preservation of their heritage and their adaptation to today’s con-

temporary requirements. Stanilov argues that the transition to a market economy in Southeast Europe requires a flexible and community-oriented method of urban planning to help bring back a vibrant public life to small and medium sized localities (Stanilov, 2007).

The framework for revitalizing the central urban area of Radovish has three levels of experience (fig.4):

- The spatial level: redesigning and developing physical elements of the environment (i.e., structural elements, pedestrian infrastructure, and urban equipment) per Gehl's principles and the Project for Public Spaces guidelines.
- The social level: creating opportunities for social interaction, cultural expression, and inclusiveness by developing and activating public space through a community-driven programming model.
- Programmatic Level: Reactivating commercial spaces, developing new uses for existing spaces, and adapting existing structures to ensure future viability.

This framework offers a concept of placemaking that is seen as a complex strategy that incorporates not only the historic fabric of a place but also its contemporary needs in the urban environment.

## Methodology

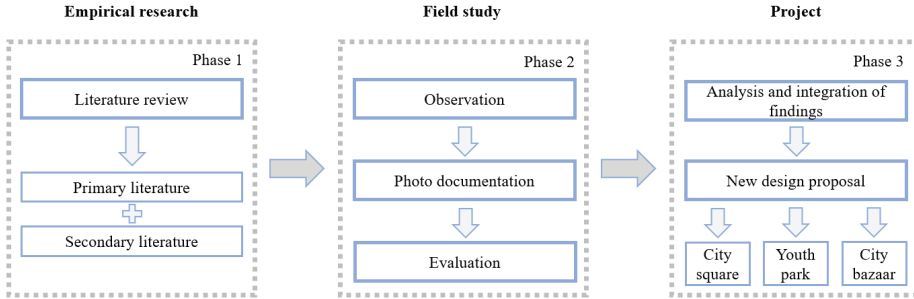
The methodological framework of this research is structured in three phases (fig.5):

1. Empirical research
2. Fieldwork
3. Development of a conceptual design proposal.

Each phase builds upon the previous one, allowing for a comprehensive understanding of the spatial, social, and cultural dynamics of the central urban area of Radovish.

**Figure 5**

*Research methodology (source: author's drawing)*

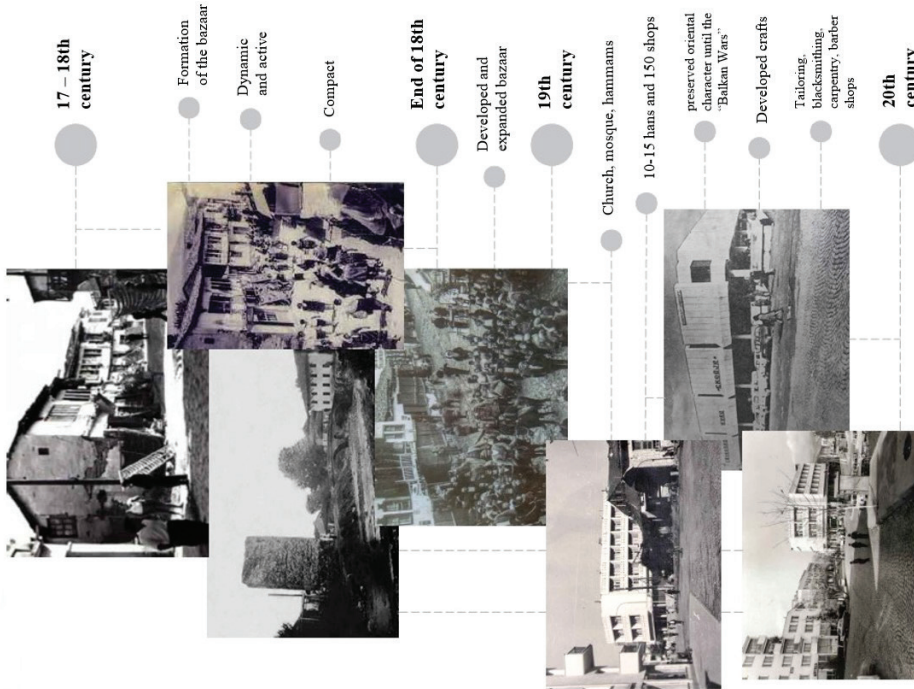


The first phase involved a literature review which was conducted to identify historical and theoretical sources associated with Radovich's urban development and public spaces. The literature consulted was primarily secondary literature, such as books on the history of Radovich, as well as urban studies, in order to identify the historical development of both the old bazaar and the central area of Radovich. Along with these sources, archival materials and historical photographs were studied in order to determine how the public spaces of Radovich have been transformed from the Ottoman Era, through the Socialist Era, to today.

In addition, the photographs and archival materials provided a framework through which to analyze the current conditions in Radovich relative to those of the traditional city (fig.6).

**Figure 6**

*Historical timeline of the bazaar (source: authors diagram, based on research)*



In the second phase, the existing status of the HUA was documented and evaluated through photo documentation of the public spaces, an inventory of the urban furniture in each of the public spaces, and studies of pedestrian movement patterns using various times of day. These methodologies provided a thorough overview of how functioning today as well as how they will function in the future.

An important part of developing this methodology was evaluating the condition of three major public spaces (main plaza, Youth Park, old bazaar) against internationally accepted standards for assessing public spaces. Through this evaluation, we could determine the significant and specific strengths and weaknesses of each public space.

The evaluation of the square and the park was conducted using the Project for Public Spaces (PPS) methodology, which is based on 27 criteria grouped into four main categories:

- 1) Access and Linkages – physical and visual accessibility, connections to surrounding streets, proximity to public transport, and ease of pedestrian movement;
- 2) Comfort and Image – cleanliness, safety, quality of design, seating availability, and the general sense of comfort experienced by users;
- 3) Uses and Activities – diversity of functions, presence of programmed activities, adaptability of space, and intensity of use;
- 4) Sociability – opportunities for social interaction, inclusiveness, cultural expression, and the ability of the space to foster a sense of community.

The evaluation of city bazaar is conducted using the methodology developed by Jan Gehl, known as the “12 Criteria for Quality.” This methodology assesses whether various features of public spaces effectively protect users and whether these spaces are comfortable and enjoyable for those who frequent them. The results are presented using graphic symbols with specific colors to indicate whether the values are positive, negative, or neutral.

The results of the evaluations were brought together in one overall diagnosis for the central urban area analysed. The comparative tables and analyses provided a working document for establishing priorities for intervention. Therefore, the design proposal responds to the deficiencies identified in the evaluations from both PPS and Gehl methodologies, and thus is based upon evidence and the user’s perspective.

## Results

This research reports its findings based upon the systematic evaluation and analysis of three important public open spaces located within Radovish’s central urban area; the primary town square, the Youth Park, and Old Bazaar, and to which, internationally accepted methodologies (PPS and Jan Gehl) were used to conduct the analyses, and the results presented using tables, photographs, and descriptive summaries.

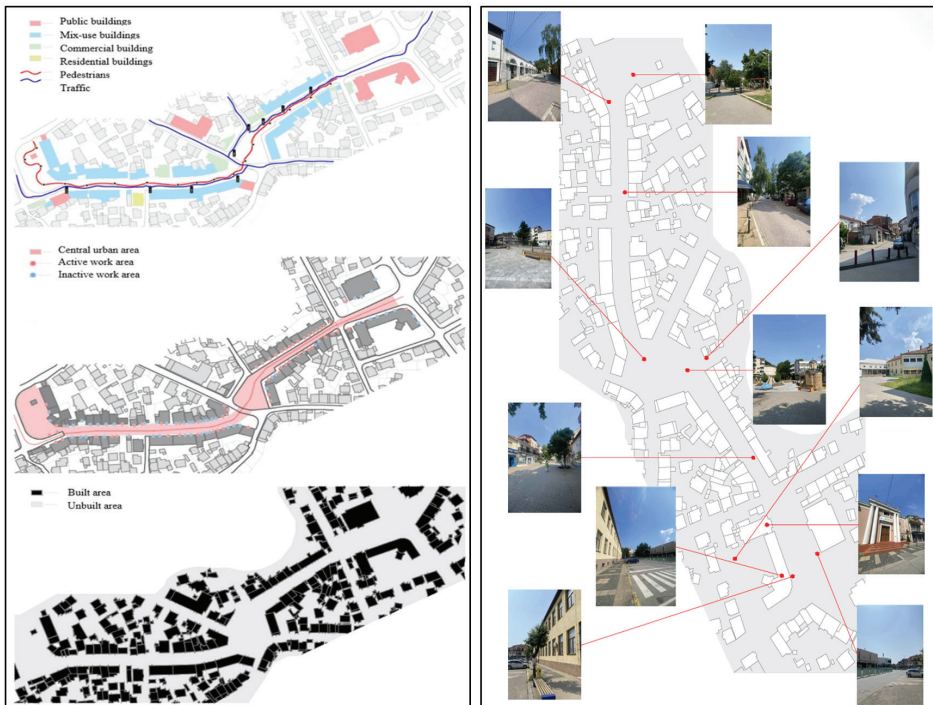
Additionally, an array of urban core analyses identifying the central core proportions of build fabric and site area, active vs inactive surrounding structures (Commercial, Residential, Public, and Bazaar), and pedestrian and vehicle movement patterns, were conducted within a 3-kilometre radius of the core (fig.7).

The results form the spatial and functional context in understanding and clarifying the dynamics of the square, park, and bazaar relative to the broader urban structure.

Fieldwork included an extensive amount of photography (fig.8) documenting the historical urban area with an emphasis on the active and inactive streetscape segments. The photographs illustrate locations of degradation as well as spaces for potential adaptive reuse. In reference to the overall site plan of the bazaar, the photodocumentation locations are shown, creating the spatial context for analyzing and interpreting the findings of the evaluation.

**Figure 7** (left) – urban analysis of the historical urban area of Radovich (source: authors)

**Figure 8** (right) – photo documentation of the central urban area of Radovich (source: authors)



- City Square

The PPS evaluation of the main square using 27 criteria showed both advantages and disadvantages. Each criterion was evaluated based on field observation, photo

documentation and user experience evaluation. The results (tab.1) indicated that the main square has a fairly good level of accessible connections to adjacent streets, as well as clarity in its spatial organization. The open layout of the main square provides visual prominent in the urban form, and ease for pedestrian movements.

**Table 1**

*Evaluation of the city square of Radovish, (source: authors)*

RADOVISH – CITY SQUARE			
Elements of public space	CRITERIA	EVALUATION	
		Summer	Winter
Access and linkages	Easily accessible	●	●
	Sidewalk access	●	●
	Access to various types of transportation	●	●
	Parking space provided	●	●
	Ramps for disabled people	●	●
	Proximity to services and activities	●	●
	Signaling and information	●	●
Comfort and image	Attractiveness of public space	●	●
	Representativeness	●	●
	Safety during use	●	●
	Historical significance and age	●	●
	Cleanliness, hygiene and maintenance	●	●
	Good and comfortable urban equipment	●	●
	Digitization of public space	●	●
Uses and activities	Daily Use (Liveliness)	●	●
	The most common period of use	All day	All day
	Use of various age groups	●	●
	Offering different activities	●	●
	Active surrounding facilities and places	●	●
	Unused parts and spaces	●	●
	Security and supervision	●	●
	Temporary entertainment activities	●	●

RADOVISH – CITY SQUARE			
Elements of public space	CRITERIA	EVALUATION	
		Summer	Winter
Sociability	Attracting people	●	●
	User grouping	●	●
	Interaction and socialization	●	●
	Night use of space	●	●
	Encourage positive feelings	●	●
Evaluation	<ul style="list-style-type: none"> <li>● a positively evaluated aspect</li> <li>● a neutral evaluated aspect</li> <li>● a negatively evaluated aspect</li> </ul>		

There are also significant limitations within the findings. The square does not provide a diversity of uses and activities, limiting its attractiveness beyond occasional public events. There is little seating or shade provided within its design, which inhibits the ability to use the square comfortably on a daily basis. The lack of a variety of functions such as cafes, kiosks, or cultural programming prevents the square from being a continuous generator of social life. Thus, although the square has a significant symbolic position in the community, it is underutilized on a daily basis.

- Youth Park

The park indicates a presence of green/ recreational area within the historical urban core and was assessed with the PPS methodology (tab.2). The findings about the strengths of the park included the fact that it enhances mobility within the park through the use of green infrastructure to enhance the quality of the environment, provides patrons an accessible location to engage in leisure and activities and is an effective contributor to informal gathering opportunities through its size, ability to provide green infrastructure, and ability to visually appeal to users.

**Table 2**

*Evaluation of the city park of Radovish, (source: authors)*

RADOVISH – YOUTH PARK			
Elements of public space	CRITERIA	EVALUATION	
		Summer	Winter
Access and linkages	Easily accessible	●	●
	Sidewalk access	●	●
	Access to various types of transportation	●	●
	Parking space provided	●	●
	Ramps for disabled people	●	●
	Proximity to services and activities	●	●
	Signaling and information	●	●
Comfort and image	Attractiveness of public space	●	●
	Representativeness	●	●
	Safety during use	●	●
	Historical significance and age	●	●
	Cleanliness, hygiene and maintenance	●	●
	Good and comfortable urban equipment	●	●
	Digitization of public space	●	●
Uses and activities	Daily Use (Liveliness)	●	●
	The most common period of use	All day	All day
	Use of various age groups	●	●
	Offering different activities	●	●
	Active surrounding facilities and places	●	●
	Unused parts and spaces	●	●
	Security and supervision	●	●
	Temporary entertainment activities	●	●
Sociability	Attracting people		●
	User grouping	●	●
	Interaction and socialization	●	●
	Night use of space	●	●
	Encourage positive feelings	●	●
Evaluation	<ul style="list-style-type: none"> <li>● a positively evaluated aspect</li> <li>● a neutral evaluated aspect</li> <li>● a negatively evaluated aspect</li> </ul>		

Because there are several weaknesses associated with the park's operation, the overall effectiveness of the park is reduced. The underutilization of the park is due to limited opportunities for active programming. Field observations indicate that the park is utilized infrequently during non-programmed periods as a result of having limited to no active programming or amenity support. In addition to the lack of active programming or amenity support, other maintenance issues were also identified, which included outdated urban components (e.g., benches), inadequate lighting and poorly maintained walking paths. The inadequacy of these components has compromised the level of comfort and safety for park users, resulting in limited utilization after hours.

- Old Bazaar

The old bazaar was assessed according to Jan Gehl's 12 Quality Criteria as they relate to protection, comfort and enjoyment (tab.3). The findings identify several areas of deficiency: the pedestrian pathways are narrow/unlevel, there is inadequate illumination throughout the bazaar, there is a lack of seating for customers wishing to rest, and only a few functions remain active since most of the storefronts are now vacant. As a result of this decline in business activity, less foot traffic and vitality exist at the bazaar than at other times.

**Table 3**

*Evaluation of the old city bazaar in Radovich, (source: authors)*

City	RADOVISH – CITY BAZAAR			
Category	Criteria	Evaluation		
		positive	negative	optimal
Protection	1.	Protection against traffic and accidents – feeling safe		
		Protection for pedestrians	●	
		Eliminating fear of traffic	●	
	2.	Protection against crime and violence – feeling secure		
		Lively public realm		●
		Eyes on the street		●
		Overlapping functions day and night		●
		Good lighting	●	
	3.	Protection against unpleasant sensory experiences		
		Wind		●
		Rain/snow	●	
		Cold/heath		●
		Pollution		●
		Dust, noise, glare		●

Comfort	4.	Opportunities to walk			
		Room for walking without obstacles		●	
		Accessibility for everyone		●	
		Interesting façades		●	
	5.	Opportunities to stand / stay			
		Attractive zones for standing / staying			●
	6.	<b>Opportunities to sit</b>			
		Good places for sitting with good view		●	
		Benches for resting			●
	7.	<b>Opportunities to see</b>			
		Reasonable viewing distances			●
		Interesting views			●
		Lighting (when dark)			●
	8.	<b>Opportunities to talk and listen</b>			
		Low noise levels		●	
		Street furniture that provides “talkscapes”		●	
	9.	Opportunities for play and exercise			
		Invitations for creativity, activity, play		●	
By day and night / in summer and winter			●		
Delight	10.	<b>Scale – buildings designed to human scale</b>	●		
	11.	Opportunities to enjoy the positive aspects of climate			
		Sun / shade			●
		Heat / coolness			●
	12.	<b>Positive sensory experiences</b>			
		Good design and detailing		●	
Good materials				●	
		Trees, plants, water			●

The data presented confirms and reiterates that the bazaar possesses considerable spatial and cultural significance. The bazaar’s linear form provides a naturally existing pedestrian connection between the Park of the Youth and the city’s primary square. The human scale of the buildings and streetscape provide an intimate ur-

ban condition that is well-suited for social and cultural activities. In addition, the strong historic identity of the bazaar may provide a backbone for its revitalization. These latent qualities suggest that, through a focused focus on intervention, the bazaar can be again become the centre of Radovich's urban activity.

## Discussion - newly proposed project

The revitalization project is a response to the evaluation findings and aims to develop Radovich's central public spaces into vibrant, functional and accessible environments. Negative or neutral characteristics found in the assessment will be addressed through specific spatial, social and programmatic interventions. Improvements to accessibility, urban equipment, safety and programming will take place to ensure that the town square, Youth Park and old bazaar become mutually supportive areas that will collectively improve the livability and identity of the city's core.

The proposed solution (fig. 9,10) redesigns the old bazaar as a continuous pedestrian route through the entire HUA, reactivates previously non-commercial spaces, modernizes urban equipment and provides additional items to encourage social interaction and increase public safety.

**Figure 9** (left) – site plan of the Youth Park (1) (author's design),

**Figure 10** (right) – site plan of the city square (2) and part of the bazaar (3) (author's design)



Primary efforts in the Youth Park are directed at renovating and transforming the existing café bar to align it with the design of the park. The use of vibrant color wooden paneling, as well as decorative lighting, helps create a distinct visual identity for the café-bar while better integrating the café-bar into its surroundings. In addition to the park already having some pieces of children’s playground equipment, urban furniture, such as benches and litter bins, have been added to provide much needed functional amenities to better organize and provide better functionality in the park, (fig. 11).

The interventions within the Bazaar, which constitutes the principal pedestrian thoroughfare of the core regional district have centered on modernizing and augmenting urban furniture, particularly through creating multi-functional parklets (fig.12). The components of these parklets not only provide areas for seating, but also incorporate zones for vegetation, resulting in a unique visual identity to the space. The wooden segments of the parklets are integrated into the finished surface of the pedestrian walkway, enhancing the livability of the public realm and creating an attractive atmosphere for urban life. Waste bins have also been strategically placed throughout the site to enhance functionality and sustainability over time.

**Figure 11** (left) – tactical interventions in the Youth Park, café bar (author’s design),

**Figure 12** (right) - parklets along the old bazaar (author’s design)



For the main square and the street “Spaso Radovichki”, the conceptual design foresees minimal interventions. The fountain located at the center of the square is reactivated, while the surfaces are enriched with urbanization elements and newly formed green areas, thus increasing the quality of the space (fig. 13,14).

**Figure 13** (left) – *design proposal of the city square (author’s design),*

**Figure 14** (right) – *new parklets in the square (author’s design)*



## Conclusion

The proposed revitalization of the central urban area in Radovish demonstrates how targeted interventions can reshape neglected public spaces into functional, inclusive, and socially vibrant environments. By addressing the weaknesses identified through evaluation—lack of comfort, insufficient programming, and decline of traditional functions—the project introduces practical and context-sensitive solutions that improve daily urban life.

Other than physical changes, the project also emphasizes the role of placemaking as a means to achieve the transformation of public spaces to develop a sense of identity, sociability, and cultural expression. The repurposing of Youth Park, the activation of the main square, and the rejuvenation of the old bazaar are all indicative of the role of small-scale but well-thought-out design processes to achieve positive social and economic benefits for the community.

The significance of this research is based on the demonstration of the role of public space revitalization as an instrument for sustainable urban development even for small towns. The connection to heritage helps to develop a sense of identity while also providing an opportunity for growth.

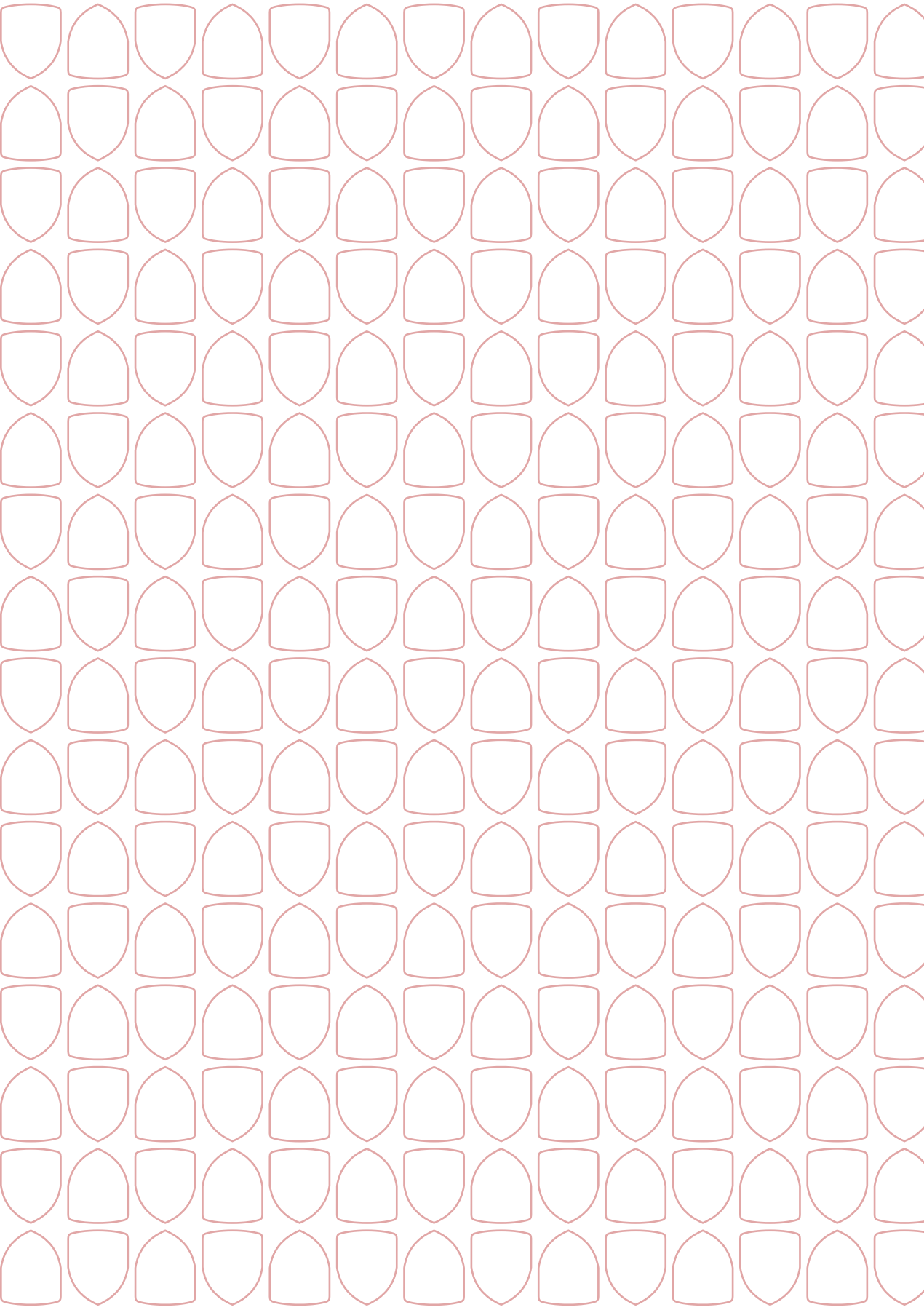
The City of Radovish needs to commit to the building, construction, and maintenance of this facility to achieve the objectives set for the completion of this project. The future direction of this initiative needs to be clearly defined to ensure community participation, community engagement, and activities to ensure the sustainability of the revitalized public spaces for many years to come.

The benefits of the initiative will be felt by the central part of Radovish while also contributing to the discourse on the need to develop public spaces that can contribute to the growth of a community.

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