original research article
UDC xxx

admission date 03 09 2025
approval date 10 12 2025

# TOWARDS HEALTHY URBAN PLANNING IN VALJEVO: ASSESSING LIMITS AND POTENTIALS OF URBAN PLANS

## ABSTRACT

Cities today are increasingly exposed to various challenges, including climate extremes, pollution, and declining quality of the urban environment, that endanger urban health. In response, the Healthy City concept is developed and becomes crucial, as it implies the integration of qualitative aspects of public health and ecological sustainability in all phases of urban planning.

This paper relies on the insights of the interdisciplinary Erasmus+ project CliCCHE - Climate Change, Cities, Communities and Equity in Health, which aimed to support healthy urban planning by developing specific educational methods and tools. The project was implemented through cooperation between academic institutions across the Europe and local administrations and communities. In Serbia, Valjevo was selected as a city for a case study since it was assumed that medium-sized cities are particularly affected by these challenges due to inadequate infrastructure but also to how urban planning documents integrate health issues.

The main goal of the paper is to examine the urban planning potential for guiding cities towards the concept of a Healthy City. Based on the literature review, the initial 2-step methodological framework for assessment of local urban plans is developed that evaluates level and key themes of health-planning integration and tests the potential for urban health improvement through CliCCHE educational projects. The results point to key gaps in current plans, but also to potential opportunities that could improve urban planning and contribute to a healthier and more sustainable urban environment.

Tamara Mladenović
University of Belgrade, Faculty of Architecture, Belgrade, Serbia

KEY WORDS
HEALTHY CITY
CLIMATE CHANGE
URBAN PLANNING
URBAN DESIGN
PUBLIC HEALTH
VALJEVO

## 1. INTRODUCTION

Healthy urban environments are a key goal for urban planning and design today. The negative effects of urbanization are globally recognized as threats to environmental, economic, and social health, and as such require clear design, planning, and strategic measures to achieve more sustainable urban environments. In addition, cities of all sizes are increasingly affected by climate extremes that amplify these adverse effects and cause new threats to urban health. Complexities and urban uncertainties that arise this way present significant challenges for urban planners and architects (Susskind, 2010;Krishnan, Aydin, Comes, 2023).

For that reason, the concept of a Healthy City is introduced and becomes a central focus of city planning (Barton&Tsourou, 2000; Corburn, 2013; Wang, Jiang, & Li, 2021). Urban planning and design are recognized as tools for promoting the health and well-being of cities and communities (Barton, H., Grant, M., Mitcham, C., Tsourou, C., 2009). In the context of climate change, the Healthy City concept unfolds through two main approaches. The first is mitigation, which includes mitigating the effects of climate extremes, and the second is adaptation, which implies greater resilience and the ability to adapt the environment to new conditions (Barton, 2017; Capolongo et al., 2018; ). It is predicted that in the future the greatest environmental risks will be related to weather events, including overheating, more prominent urban heat islands, rising sea levels, increased storms, and rainfall (UN-HABITAT, 2011). Moreover, due to excessive urbanization, cities will be particularly vulnerable to floods (Elliot, Torres-Matallana, Teebken, 2025). These risks can significantly affect economic dislocation, migration, and the occurrence of disease in urban environments (Barton, 2017). In response to these problems, healthy urban planning should be developed to support the implementation of the Healthy City concept through city development strategies, policies, and planning documents.

In parallel, research on integrating health issues into urban planning and design evolves, aiming to inform and support national and local practices. Existing research takes into account that urban planning is a complex process involving a large number of stakeholders and that urban plans are the product

of this process that 'provide guidelines and standards for the growth and development of towns and cities, while ensuring compliance with local laws and regulations' (Pasquali, 2024). Most studies have addressed the theme of *health-planning* integration in a broader sense, providing insights for planning as a process (Barton & Grant, 2012). This mutual relationship between health and planning is seen as them being 'natural allies' (Barton, Grant, Mitcham & Tsourou, 2009). On the other hand, research on how to assess the potential of planning documents to support the implementation of the healthy city concept is recognized as important (Barton & Grant, 2012), but remains scarce. To address this gap, this paper narrows the focus from the broader theme of the planning process to the initial assessment of urban plans as their products that reflect values and knowledge that guide urban development.

The research focuses on assessing the health dimension of urban plans and aims to answer: How can urban plans be assessed for their potential to support the concept of Healthy Cities? By acknowledging that urban plans should not be viewed as finished products, but as 'evolving instruments that undergo continual revisions and updates' (Brody, 2003; Adolfsson, Lindblad, Peackock, 2021) it aims to support development of healthy urban planning. The paper outlines a two-step methodological framework for evaluating the limits and potentials of plans for accommodating the concept of Healthy Cities and applies it in a local context using case study methodology. This framework is based on a theoretical literature review along with an overview of the tools for urban health evaluation. Based on assessments using the proposed framework, the paper identifies the limits and potentials of urban plans and explores them through CliCCHE student pilot projects. These projects test and confirm the detected potentials, thereby suggesting improvements to urban plans towards healthier cities.

The research context is provided by the international, interdisciplinary Erasmus+ project CliCCHE - Climate Change, Cities, Communities and Equity in Health. The project CLICCHE was implemented in Serbia in cooperation with the local government of the city of Valjevo as a partner. The project lasted three years. Universities from several European countries (Portugal, Italy, Cyprus, and Serbia) participated in the project together with their students, in cooperation with local partner cities, various actors, and stakeholders. To represent the Serbian context in which medium-sized cities are particularly affected by public health challenges, the city of Valjevo has been chosen as a case study due to its relevance to the topic. Valjevo faces serious environmental challenges, including high air pollution, weaknesses in waste management and overall governance, insufficient protection of the rivers

running through the city centre, and poorly located industrial facilities. City residents are dissatisfied with the quality of their urban environment, and non-governmental organizations are trying to bring these issues to the forefront. For this reason, Valjevo was used as a case study to assess how planning potentials can be evaluated for the holistic application of the Healthy Cities concept. Findings of this research informed the topics by students at the University of Belgrade – Faculty of Architecture within the CliCCHE project. Examples of their projects will be illustrated at the end of the paper, together with the feedback that their projects give to further inform potential of the local plans.

## 2. HEALTHY CITIES CONCEPT AND PLANNING

### 2.1 Healthy City concept

According to the World Health Organization (WHO) - "Healthy cities are places that deliver for people and the planet. They engage the whole of society, encouraging the participation of all communities in the pursuit of peace and prosperity." The idea of a healthy city emerged in the late 70s and early 80s of the twentieth century, in the fields of medicine and public health. World Health Organization, first initiated the 'Healthy Cities' project in 1978, to promote public health in urban areas (UWE Bristol, n.d.). *Healthy Cities* is a 'long-term international development project'. It aims to place health among the first and most important considerations in the decision-making, management, and planning processes of cities (WHO, 1997). Although the project initially focused on health promotion through health campaigns and the behaviour of the urban population, it soon became clear that this principle has limited reach if the rest of the urban environment does not support a healthy lifestyle.

The theoretical basis of the concept is well illustrated through Barton and Grant's 'The Settlement Health Map' (Figure 1), through which the complex relationship between people's health and various factors of the environment they live in can be analysed. Authors place a person or a community in the center, at the inner circle of the map, around which the factors of influence from the narrowest to the broadest act concentrically. The diagram shows the different spheres of the living environment that affect the health of an individual (Barton, & Grant, 2012).

The authors classify lifestyle as the closest factor to health. Next are the influences of the community, local economy, activities, the built environment, and finally, the entire natural environment. The furthest and widest circle represents the global ecosystem and macroeconomic forces, political decisions,

and climate change itself, which shape the entire context for the functioning of cities and communities. The authors themselves suggest that this map can serve as the basis for a tool for urban environment analysis, as it includes a spectrum of significant characteristics for each urban space. Theoretical models like this one have influenced the rise of many strategic tools for urban health evaluation, planning, and more.

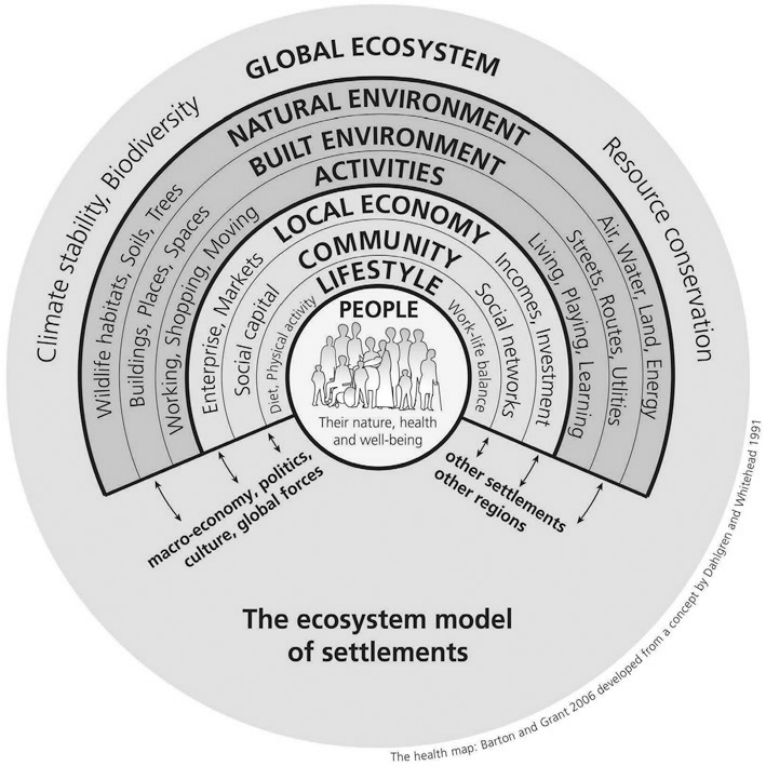


Fig. 1 - . The Settlement Health Map, Barton and Grant 2006. developed from the model by Dahlgren and Whitehead, 1991.



## 2.2. Healthy urban planning

Healthy urban planning refers to creating cities and communities that actively promote and protect the health and well-being of their residents and contribute to the health of ecosystems at all levels. It recognizes that the urban environment significantly impacts physical, mental, and social health. Therefore, the concept involves integrating health considerations into all aspects of urban planning, from the design of buildings and public spaces to transportation systems and access to resources.

"Healty Cities" project developed through several research phases that gradually strengthened the relationship between health and urban planning. Phase II and III put the focus on the *integrated planning* of healthy cities (WHO, n.d.) and since then, WHO has been working with planners to develop guidelines for the urban planning of healthy cities. The role of planning was further stressed through *HUP - healthy urban planning initiative*, which aims to gather, educate, and engage planners in the healthy cities project. As a result, the publication A WHO Guide to Planning for People was created. It defined twelve goals for the sustainable development of healthy cities. The most important goals were the promotion of a healthy lifestyle, regular physical activity, social cohesion, accessibility, quality housing and more (Barton, Grant, Mitcham, Tsourou, 2009). The "Healthy Cities" concept and approach to urban planning are also implemented through EHCN, the European Healthy Cities Network, which applies strategic and planning guidelines for the improvement of their environments.

Today, it is assumed that the concept of a Healthy City should be applied at all levels of city planning and design. It is widely accepted that health does not depend solely on medical care but, to a large extent, on the characteristics of the everyday environment. Poor urban planning can easily lead to poorer lifestyles, reduced active recreation, poor nutrition, and safety. Therefore, the approach to health in cities should be holistic and comprehensive, and combined with equally important aspects of the physical, social, economic and natural environment quality.

### 2.3. Assessing the health dimensions of urban plans: levels and themes

To assess the health dimensions of urban plans, it is crucial to identify the most relevant evaluation methods and factors that contribute to healthy urban planning. In this section, a literature review will be contucted to help create the initial methodological framework for assessing the limits and potentials of urban plans to support the Healthy City concept. Two main approaches for evaluating integration of health into urban planning are revealed that focus on: a) Levels of health integration into urban planning and b) Thematic areas of integration formalized through specific evaluation tools and indicators of health in urban spaces.

*a) Level of health integration into urban planning*

As a part of the WHO Healthy Cities research phases, Burton and Grant (2012) give significant insights into how to evaluate the integration of health into planning, and recognize three different levels of integration:

- The first level is basic and involves recognising the essential role of settlements in sustaining life. In planning, this means 'provision of shelter, access to food and clean water, fresh air and effective sewage treatment'. The authors conclude that in Europe this level is already present to a large extent. It has become normal and is taken for granted, while this is not the case with settlements in other parts of the world. They believe that excessive urbanization leads to difficulties in implementing even this basic level of health planning.
- The second integration level is based on the fact that many characteristics of the environment affect people's health and well-being. This includes parks (for providing opportunities for physical activity and access to fresh air), and gardens (for access to fresh food), but also bicycle networks for active movement, and a safer environment with reduced dependence on cars. The emphasis is on the often fragmented approach to these characteristics, which are conditioned by economic forces and urban development policies. These are often driven by other priorities.
- At the third level, the concept of health is fully integrated into planning. In this case, health is not a concept within the plan, but plans are formed for health as the main idea. In the formation of the plan, all necessary actors participate together to achieve this goal. Here, the focus is on the element of unified cooperation with the goal of 'pursuing economic objectives without creating unhealthy settlement form' (Barton & Grant, 2012). These levels of linking health and planning were considered key, and the authors used them in a later analysis of the development of Healthy Urban Planning within the WHO Healthy Cities project.



*b) Thematic evaluation of the potential of urban plans to support Healthy City concept: Tools and indicators*

The Healthy City concept relies on the principles of resilience, sustainability and guidelines for sustainable urban development. The principles of these different paradigms have major overlaps and are by no means mutually exclusive. While resilience strategies aim at mitigating climate extremes through greening, reducing urban heat island effects (UHI), increasing stormwater storage, flood management and more, the Healthy City concept

guides along similar lines. Improving these factors leads to improvements in overall health and well-being. The concept has already been sufficiently operationalized for implementation in projects and plans through frameworks and toolkits made for the more straightforward implementation in urban planning and design, as well as for evaluating existing spaces. Each of these evaluation tools provides an important set of indicators for evaluating the potential of plans to accommodate health, and they have many similarities.

These tools are heavily based on the existing healthy cities literature and are very useful for research, practice, and educational process. For example, the Healthy City Generator is an online tool that allows users to review the characteristics of the area and health indicators interactively.. The tool enables entering the data on existing spaces into its online generator, which, for a given local context, provides improvement guidelines for a healthier city. Their indicators include five themes: density, mobility, variety, landscape and housing and energy. Each theme is divided into more precise indicators, such as walkability, cyclability, availability of public open spaces, services, green coverage, blue spaces, housing quality, and many more.

Another useful tool is the Healthy Built Environment Checklist that promotes a well-designed built environment that ‘can help reduce risks and improve health outcomes’(NSW Health). It is an Australian practical tool from NSW (New South Wales) for health, building, and planning professionals. It proposes pre-checklist activities, such as understanding the plan in question, what is being proposed, who created it, the relation to other relevant policies, the context, equity, and promoting site visits. The checklist integrates 11 themes in this order: healthy eating, physical activity, housing, transport and connectivity, quality employment, community safety and security, open space and natural features, social infrastructure, social cohesion and connectivity, environment and health, and environmental sustainability and climate change.

Specific focus on application in urban planning has the Healthy Urban Planning Checklist (2014) (Figure 2) which “aims to promote healthy urban planning by ensuring that the health and wellbeing implications of local plans and major planning applications are consistently taken into account” (NHS, Healthy Urban Planning Checklist). The checklist aims to ‘promote healthy, successful places for people to live and work in’, by ‘providing homes, jobs, and services’. It consists of 4 key thematic areas, which cover different dimensions of a healthy urban environment. Each area contains a series of specific questions and guidelines that enable the analysis of the existing state of the city space, along with the planned interventions.

Each of the four main topics: Healthy Housing, Active Travel, Healthy Environment, and Vibrant Neighborhoods, includes planning issues and the related urban health and well-being problems. The checklist can also be used in the planning or evaluation phase of existing documents.

A comparison of the presented tools reveals that they take into account almost the same health criteria. Each tool emphasizes a healthy environment, access to fresh food, opportunities for active living and recreation, active transportation, diverse social infrastructure, connectivity, access to basic needs such as adequate housing, etc. Although these checklists function similarly

Figure 2 - Healthy Urban Planning Checklist (2014). (Source: https://unhabitat-urbanhealth.org/download/healthy-urban-planning-checklist/)

| Theme | Planning issue | Health and wellbeing issue |
|---|---|---|
| 1. Healthy housing | • Housing design<br>• Accessible housing<br>• Healthy living<br>• Housing mix and affordability | • Lack of living space - overcrowding<br>• Unhealthy living environment – daylight, ventilation, noise<br>• Excess deaths due to cold / overheating<br>• Injuries in the home<br>• Mental illness from social isolation and fear of crime |
| 2. Active travel | • Promoting walking and cycling<br>• Safety<br>• Connectivity<br>• Minimising car use | • Physical inactivity, cardiovascular disease and obesity<br>• Road and traffic injuries<br>• Mental illness from social isolation<br>• Noise and air pollution from traffic |
| 3. Healthy environment | • Construction<br>• Air quality<br>• Noise<br>• Contaminated land<br>• Open space<br>• Play space<br>• Biodiversity<br>• Local food growing<br>• Flood risk<br>• Overheating | • Disturbance and stress caused by construction activity<br>• Poor air quality - lung and heart disease<br>• Disturbance from noisy activities and uses<br>• Health risks from toxicity of contaminated land<br>• Physical inactivity, cardiovascular disease and obesity<br>• Mental health benefits from access to nature and green space and water<br>• Opportunities for food growing – active lifestyles, healthy diet and tackling food poverty<br>• Excess summer deaths due to overheating |
| 4. Vibrant neighbourhoods | • Healthcare services<br>• Education<br>• Access to social infrastructure<br>• Local employment and healthy workplaces<br>• Access to local food shops<br>• Public buildings and spaces | • Access to services and health inequalities<br>• Mental illness and poor self-esteem associated with unemployment and poverty<br>• Limited access to healthy food linked to obesity and related diseases<br>• Poor environment leading to physical inactivity<br>• Ill health exacerbated through isolation, lack of social contact and fear of crime |

and ask similar questions, the Healthy Urban Planning Checklist is chosen for the methodological framework in this paper since it is mostly focused on urban planning and best fits into the local context of Serbia, taking into account the structure of plans, and urban problems such as healthy air, soil, and transport management. These issues primarily relate to themes of Active travel and Healthy environment of the checklist, and they will be used for further planning assessment.

### 2.4 Framework for evaluating the urban plan's potential to support the concept of Healthy Cities

Literature review reveals the complexity of assessing the potential of urban planning to support the implementation of the Healthy City concept. On one hand, it is important to understand the general level of integrating health into urban planning, while on the other hand, it is important to reveal how specific health-related thematic areas are covered throughout urban plans. For this reason, this paper proposes an initial model for evaluating the urban plan's potential to support the concept of Healthy Cities, through a two-step methodological framework:

1. *Level of integration*. The first step relies on three levels of integration between planning and health, as set by Barton and Grant (2012), through which the basic concept of the plan and its goals are assessed. It should recognize at which level the plan is connected with the topic of health: whether only at the basic level of providing public services, at the mid-level where health is a concept within the plan, or at a holistic level when plans are formed for health.
2. *Thematic evaluation*. The second step involves the use of the Healthy Urban Planning Checklist to thematically structure and operationalize key urban health issues, and to assess how the plan responds to them, specifically regarding active travel and a healthy environment.

In relation to Active Travel, relevant issues will be analyzed in relation to specific questions:

- Promoting walking and cycling: Does the proposal promote cycling and walking through measures in a travel plan, including adequate cycle parking and cycle storage?
- Safety: Does the proposal include traffic management and calming measures, as well as safe and well-lit pedestrian and cycle crossings and routes?

- Connectivity: Does the proposal connect the public realm and internal routes to local and strategic cycle and walking networks and public transport?
- Minimizing car use: Does the proposal seek to minimize car use by reducing car parking provision, supported by the controlled parking zones, car-free development and car clubs?

In relation to Healthy Environment, relevant issues will be analysed in relation to specific questions:

- Construction: Does the proposal minimize construction impacts such as dust, noise, vibration and odours?
- Air Quality: Does the proposal minimize air pollution caused by traffic and energy facilities?
- Noise: Does the proposal minimize the impact of noise caused by traffic and commercial uses through insulation, site layout, and landscaping?
- Open space: Does the proposal retain or replace existing open space and, in areas of deficiency, provide new open or natural space, or improve access to existing spaces? Does the proposal set out how the new open space will be managed and maintained?
- Play space: Does the proposal provide a range of play spaces for children and young people?
- Biodiversity: Does the proposal contribute to nature conservation and biodiversity?
- Local food growing: Does the proposal provide opportunities for food growing, for example by providing allotments, private and community gardens, and green roofs?
- Flood risk: Does the proposal reduce surface water flood risk through sustainable urban drainage techniques, including rainwater storage, use of permeable surfaces, and green roofs?
- Overheating: Does the design of buildings and spaces avoid internal and external overheating, through the use of passive cooling techniques and urban greening?

Having established the theoretical foundation of Healthy Urban Planning and the evaluation framework, the next section introduces Valjevo as the selected case study within the CliCCHE project. This two-step evaluation framework

will be used to identify limits and potentials, which will provide a basis for improving plans and, in turn, guide cities towards the Healthy Urban Planning goal. The results of the thematic analysis, problems and key areas of interest, will be used to explore the potential for improving urban health through CliCCHE student projects. Their outcomes additionally confirm the identified directions for enhancing urban planning and will be presented in next the section.

## 3. THE CLICCHE PROJECT AND VALJEVO CASE STUDY

Valjevo is a city in western Serbia, with an area of approximately 905 km², and a population of around 59,000 city residents. According to data from 2011, the entire municipality counts more than 90,000 people (Odsek za razvoj i privredu Valjevo, n.d.). The city's biggest challenges stem from its geographical position and management. Valjevo is located in a valley between hills carved by the Kolubara and Gradac Rivers, which flow through the city center. South of the city are protected natural areas of exceptional features, 'Gradac River Gorge', and the Divčibare mountain, which have long been exposed to attempts at excessive construction and urbanization, leading to new planning laws and building restrictions. The Gradac River, with its natural environment, is considered by residents to be the most important natural asset of the city. This leads to residents' dissatisfaction with the river basin upkeep. On several occasions throughout history, Valjevo experienced severe flooding of the city center from the Kolubara River. The issue was partially mitigated with the construction of a large concrete embankment. Apart from floods, residents of Valjevo cited air pollution and poor waste management as the city's most prominent environmental problems. In addition to these issues, the city is experiencing overheating due to the lack of green spaces, permeable surfaces, trees, and shade. There is growing concern about the further destruction of the natural environment and major negative impacts on public health. These characteristics, urban form, and risks led the CliCCHE project to choose Valjevo as a city partner and an adequate case study for evaluation and learning. All these challenges were in focus for the CLICCHE project, which assessed climate vulnerability, the vulnerability of public spaces, a polluted city center, and many other problems.

The CliCCHE project and workshop with the students consisted of seven themes:

A1. Integrated vision of 'Urban Health' regeneration,

A2. Local inquiry and mapping: Get to know the neighborhood from above and from within,

A3. Health and Climate profile Model,

A4. Framework for model Evaluation,

A5. Project Scenarios,

A6. Project proposals selection,

A7. Results communication and dissemination.

Through local inquiry and mapping (A2), this paper, as well as student projects, gained insights into the problems in Valjevo, which further focused on planning analysis and students' choice of themes for their projects. With detailed Health and Climate profile of the city (A3), and theoretical and practical frameworks for model evaluation (A4), students created their project scenarios (A5), which were ultimately checked using the same frameworks also used in this paper. The results of their projects and this paper (A7) together provide inputs that can be implemented back into city plans.

### 3.1. Healthy Urban Planning In Valjevo, Serbia

The structure of Valjevo's plans follows the common structure of plans in Serbia. The plans are ranked according to their significance and the scale at which they address problems. Serbia distinguishes two types of plans: spatial and urban plans. Spatial plans cover larger parts of the country (areas and regions). Urban plans are divided into strategic (General urban plan – GUP), general and detailed plans (general regulation plans – PGR, detailed regulation plans – PDR), addressing entire cities or their parts. The strategic urban plans in Serbia contain wider-scale objectives, strategies, and recommendations for city planning and management. These plans are more likely to incorporate the idea of global concepts of sustainability, resilience, and health. These concepts are often not implemented in general regulations and detailed plans. Recent tendencies in Serbian planning practice emphasize integrated urban development strategies for strengthening local planning capacities (Čolić, 2015). Therefore, in this paper, GUP Valjeva and PGR 'Center' Valjeva will be analyzed, as the current plans for this city.

### 3.2. General Urban Plan of Valjevo, 2013 (GUP)

The first plan in question is the General Urban Plan of Valjevo, 2013 (GUP).

*a) Evaluating the level of health integration into plans*

The General Urban Plan of Valjevo does not use the terminology from the concept of the Healthy City, nor does it mention the concept directly. The plan incorporates health as a public service, but does not explicitly include it in its goals. Using Barton and Grant's system of three-level health and planning integration (Barton& Grant, 2012), GUP would be found to cover only the first basic level, with limited indication of second-level integration. The main goals of the plan include meeting the needs of current and future residents for a general improvement in the quality of life, sustainable and rational planning through democratic management of natural and created resources, flexibility in the use of space, improvement of the uniqueness of Valjevo with historical places and monuments, improvement of traffic accessibility and connectivity of all parts of the city.

*b) Thematic evaluation: Evaluating the plan's potential through the Healthy Urban Planning Checklist*

Table 1. gives more detailed insights into the plan's topics and main ideas.

The analysis of the plan using the Healthy Urban Planning Checklist shows that the plan promotes walking, cycling, and running by proposing a new green corridor for recreation. The plan mentions forming cycling lanes wherever possible alongside the streets. The safety of pedestrians is also considered important, though the introduction of slow traffic zones, similar to those in the previous plan. Regarding connectivity, the plan recommends that the main cycling paths connect major recreational areas and different parts of the city, which directly affects health in the urban environment. Minimizing car use is only slightly present, with guides for cleaning the streets of excessive parking and abandoned vehicles. The second part of the 'Healthy Environment' checklist showed that noise was addressed through spatial zoning, but is not related to noise during construction or from traffic. Regarding air quality, direct guidelines are provided for improvement through the replacement of public transport fuel types and the promotion of electric vehicles. However, this remains only at the conceptual level, which is an expected characteristic of a strategic plan. As for open spaces, there are a number of rules for arranging and maintaining greenery. The most important of all is the planning of new green spaces for recreation that would connect different parts of the city.

| Healthy Urban planning checklist | | General Urban Plan of Valjevo, 2013 (GUP) | |
|---|---|---|---|
| | | Issue | Yes / No / Not relevant Comment |
| | Active Travel | a.Promoting walking and cycling | The document mentions planning of a green corridor for recreation, including walking, running, and cycling tracks. Also, the plan recommends the formation of cycling lanes in those streets where there is a possibility to build cycling paths the account of other public areas should be provided for their construction'. |
| | | b. Safety | 'In the zones of an enhanced conflict between pedestrian and motor traffic, predict the introduction of slow-traffic zones and physical barriers to speed limit.' |
| | | c. Connectivity | The plan recommends that 'the main routes and cycling paths through areas of GUP should connect major recreational areas and zones in the city and out of the city, as well as the main parts of the city and with the city center'. |
| | | d. Minimizing car use | There are some improvements regarding reducing the car use by: for safe and unobstructed movement of pedestrians by surfaces provided for their movement ... it is necessary to clean these areas from vehicles, especially parked and abandoned'. |
| | Healthy Environment | a. Construction | The plan deals with noise protection by space zoning, but not in the context of noise during construction. |
| | | b. Air Quality | The plan provides inputs into changing the vehicle drive from diesel to bio-gas, while promoting electric car use, which would improve the overall air quality. Moreover, the plan also gives some indicators of minimising small-scale residential heating sources while implementing city heating systems. |
| | | c. Noise | The plan does not view noise as an important problem |
| | | d. Open space | The plan manages open spaces and greenery in many ways. It promotes protection and improvement of the city's green infrastructure, insists on dedicating more areas to green spaces, promotes the increase of the total area of the plans of the green areas in terms of protection from all forms of instability and land erodability, rational use of free land, and biological and environmental equilibrium environments'. |
| | | e. Play space | The plan mentions the playgrounds for children, their noise protection, and the presence of the playgrounds in public facilities, but does not elaborate in further detail. |
| | | f. Biodiversity | Nature conservation is not entirely present in the plan. The plan does mention managing 'groundwater lands and watercourses, through the provision of organized collection of solid waste and wastewater collection with adequate channeling and implementation in the city sewer system'. |
| | | g. Local food growing | The plan proposes urban gardens. |
| | | h. Flood risk | The plan does indirectly discuss flooding, drainage techniques, storing rainwater, and re-use of rainwater. |
| | | i. Overheating | The development of better city gas heating networks would help manage costs for heating during winter. |

Table 1 - Healthy Urban Planning Checklist on General Urban Plan GUP, Valjevo, 2013.(Source: Author)

There are also ideas for urban gardens togrow local food, thatare missing from the general regulation plan (PGR), which will be discussed next. The plan also directly explains the methods of flood protection, stormwater drainage, excess water storage, and reuse. However, all of these ideas primarily persist at the level of possibilities.

### 3.3. General Regulation Plan ‘Center’ for Valjevo, 2014. (PGR ‘Center’ Valjevo)

The second plan that will demonstrate problem identification is the General Regulation Plan ‘Center’ for Valjevo (PGR ‘Center’ Valjevo) from 2014.

- *Evaluating the level of health integration into plans*

The objectives of the central city zone plan do not directly address health through urban planning. Similarly to the previously discussed GUP, no terminology is used that would expertly connect this plan with the concept explored in the literature. The plan explicitly mentions that it is necessary to define the urban space according to the ‘real interests of citizens’, capacities, scales, values, and features of the environment, but not health. One of the plan’s goals, goal 4, aims to affirm the ecological requirements and values of the existing environment, as well as to integrate the functional and design aspects of the banks of the Kolubara and Gradac rivers into the wider environment. Other goals of the plan relate to improving the overall structure of functional amenities and public spaces, defining a traffic concept, ensuring an attractive, recognizable, and contextually relevant design, and the multifunctional use of space with various leisure activities. There is an increase in interest in adequately dealing with riverbanks, as an ‘integrative spatial, content, environmental and functional factor in the formation of the Central River Basin’; and through ‘qualitative planning guidance of pronounced trends in urban life that show a tendency to accept the river after decades of indifference’ (PGR Valjevo, 2014). This can be interpreted as an insufficient use of the potential for recreation and physical health, though this is open to interpretation. Certain factors are recognized as endangering urban space, but not primarily as health challenges, rather as functional and aesthetic weaknesses of the space. Air pollution, noise, or other direct health risks are not specified, nor are there guidelines for improvement, although in other documents of Valjevo, this is precisely defined as the main problem of the city and the greatest risk to the health of the population. Due to the fragmented integration of health in this plan, it is evident that health can be recognized only at the first and perhaps second levels established by Barton and Grant. b) Thematic evaluation: Evaluating the plan’s potential through

the Healthy Urban Planning Checklist. The following table (Table 2) provides an overview of plans content inside the Healthy Urban Planning checklist. Analyzing the plan through the Healthy Urban Planning Checklist reveals additional measures the plan proposes. Looking at theme ’2. Active travel’, it is clear that there are some direct indications of promoting walking and cycling, by proposing spaces for car parking, green areas, and bicycle lanes.

| Healthy Urban planning checklist | | General regulation plan „Center’ Valjevo, 2014. |
|---|---|---|
| | Issue | Yes / No / Not relevant Comment |
| Active Travel | a.Promoting walking and cycling | The plan proposes to make spaces for car parking, green areas, and bicycle lanes along the streets of adequate width. The plan also mentions the concept of ’park and bicycle’, but only briefly. There is no further development of the cycling network. |
| | b. Safety | The plan proposes some traffic management for the safety of pedestrians, urging to ’Enable the introduction, tagging and marking of slow driving zones’, but also only briefly. |
| | c. Connectivity | While there is no direct approach to connectivity, the plan does indirectly mention the importance of functional connections between public spaces and the two sides of the river. |
| | d. Minimizing car use | There is no improvement regarding car use; the plan only proposes some regulations for existing parking and plans for making new parking areas. There is no ’car sharing. |
| Healthy Environment | a. Construction | There is no mention of construction management. |
| | b. Air Quality | The plan does recognize the problem of air pollution to some extent, but provides no further explanation, except for some indirect measures of planning underground parking areas and hot water infrastructure management. |
| | c. Noise | There is also no noise reduction management, apart from the indirect planning of compatible functions in residential areas, for instance, which somewhat manages the use of space. |
| | d. Open space | The plan does manage open green areas directly, by regulating biodiversity, and calling for further enhancement of the quality of greenery in public open spaces and private plots. |
| | e. Play space | Play space is mentioned briefly when writing about educational and kindergarten areas and parks. |
| | f. Biodiversity | Nature conservation is not very present in the plan. The plan does mention managing ’groundwater lands and watercourses, through the provision of organized collection of solid waste and wastewater collection with adequate channeling and implementation in the city sewer system’. |
| | g. Local food growing | There are no guides for urban food cultivation or gardens. |
| | h. Flood risk | The plan directly discusses flood protection measures, but without a focus on sustainable principles. |
| | i. Overheating | Internal and external overheating is not mentioned, apart from indirect development of green spaces which would reduce the UHI effects. |

Table 2 - Healthy Urban Planning Checklist on General Regulation Plan “Center” Valjevo, 2014. (Source: Author)

Unfortunately, it remains unclear whether the city's cycling network will undergo further development. Regarding safety, the plan introduces slow-driving zones, but this is more of a guiding idea than a ready-for-implementation plan. There is some mention of connectivity in the plan, but the idea behind it is more functional than intended to support human interaction and well-being. The plan also lacks thought in minimising car use. Theme '3. Healthy environment' brought to light more on the issues of urban health. There is no mention of construction management in the plan, and there is also seen in a lack of recognition noise as an issue (both in construction and traffic). Air quality is considered important; however, no direct measures are provided to address this issue. Management of green areas is directly included in the plan, with regulations to protect biodiversity and guide enhancements to the quality of open spaces and private plots' greenery. The play spaces are mentioned only briefly, which does not translate as a major interest in the plan. Local food production is also not present, and the plan could provide more guidance on both flood risk management and overheating.

### 3.4. Discussion

The concept of health in urban planning is indirectly present in the General Urban Plan of Valjevo. The plan acknowledges several factors that threaten health. Firstly, air pollution is measured primarily from traffic and industry, and guidelines are given for relocating industry and, therefore, reducing pollution. Noise is also recognised as a problem, with proposed acoustic zoning that prescribes permitted noise levels for different zones (e.g., residential, educational). These measures can be interpreted as part of a wider concept of healthy cities, but they are not integrated into a holistic approach to health. Health appears in the plan only through the general goal of 'improving the quality of life'. Improvement solutions are more technical and infrastructural. In conclusion, integration of health and planning remains primarily at the basic level with no clear indications for holistic health measures.

PGR 'Center' Valjevo should rely on GUP's strategic measures. It does not contain explicit health goals. It also only partially recognizes problems that may have an impact on health, such as the need for coastal development, increased traffic safety, and availability of green areas. Still, these problems are not covered by the broader topic of health, and are more problematic from the perspective of functional or ecological goals. There is a lack of consideration for aspects such as excessive heating and cooling of spaces, the implementation of precise strategies to address air pollution, and the management and maintenance of public spaces. Both plans have similar problems:

- They integrate health only at a basic level, with possible indications of a second level according to Barton and Grant (2012). The first integration level originates from adequate measures of planning public health services, and providing basic life amenities. The second integration level is evident in the presence of valuable public space development ideas, including the development of new green areas, connecting the two sides of the Kolubara River, arranging public transport, fuel, and city heating, among others. However, these ideas do not seem to be developed enough to be implemented, and at their core, they are not focused on the problem of public health or healthy cities. They directly address other urban problems, but only indirectly and occasionally promote health, which is why the second level integration is concluded to be only partial. The third health-planning integration level would require unified cooperation among all actors involved in developing the urban plan. This level is missing from Valjevo plans; health is not their core driving force that guides every other category (Table 3).

| **Level of integration** | **GUP Valjevo** | **PGR „Centar" Valjevo** | Comparison conclusions |
|---|---|---|---|
| **The first level:** health as a part of basic services and living conditions | **Present.** Recognized basic risk factors, proposed relocation of industry, acoustic zoning, etc. Emphasis on infrastructural solutions and technical measures. | **Present.** Recognized individual problems that focus on functional and environmental goals, directly and indirectly affecting health. | Both plans achieve the first level of health integration through basic services and protective measures. |
| **The second level:** health as a quality of space, active mobility, ecology, and connection | **Partially present.** The plan offers several measures. However, the measures have not been strategically developed for implementation, and are not directly framed as a part of a healthy city concept. | **Partially present.** Certain aspects are covered (flood risk regulation, minimal protection of biodiversity, and some provisions on open spaces). | Both plans have partially reached the second level of health planning integration, but lack further strategic improvement measures. |
| **The third integral level:** health as a guiding planning principle | **It's missing.** Health is not explicitly defined as a leading goal, nor is there any coordination of actors aimed at the concept of a healthy city. | **It's missing.** There is no strategic placement of health, and no upgrading of GUP guidelines into a holistic system. | No plan achieves the third health-planning integration level: **health is not seen as a direct driver of Valjvo's urban development.** |

Table 3 - Levels of health-planning integration in Valjevo, GUP and PGR

- The thematic evaluation through the Healthy Urban Checklist confirmed the conclusions from the previous part of the analysis, while revealing separate topics that have a stronger or weaker presence within the plan. The structural overview of topics enabled a more precise look on health problems, highlighting all the shortcomings of the plans. GUP has more strategically comprehensive measures towards healthy development, which is expected due to the nature of the plan. The issues of promoting walking and cycling, safety and connectivity, but also enhancing open spaces, biodiversity, and managing flood risks, were addressed in more detail. On the other hand, within the general regulation plan, most of these topics are not adequately addressed. This lower-level plan does include flood risk management and some open space and biodiversity regulation. It remains unclear and limited in other themes, not profoundly addressing them. Both plans contribute the least to the theme of minimizing car use. They are also uncertain in improving air quality, even though it is one of the main environmental problems of the city. This difference between the strategic and regulatory plan confirms the still insufficient integration of health into planning, but it also reveals the potential for urban improvements toward Healthy Urban Planning in Valjevo.

The detected problems reflect a deeper level of issues in city planning. Indicators that appear in the urban environment point to specific areas that should be investigated. In this case, the indicators pointed to the planning documentation, which is not conceived holistically, but deals with certain problems partially, through different plans. Although these plans offer some insight into health values, they are not sufficiently connected. This shows disconnection and a lower extent of understanding of these issues between different planning levels. Identified plans' problems and key thematic potentials of HUP improvement for Valjevo are spatially addressed through the CLICCHE students' projects that will be presented in the next section.





## 4. TOWARDS HEALTHY CITY THROUGH CLICCHE STUDENTS' PROJECTS

The CLICCHE project and workshops in Serbia tested topics that were detected in the previous chapter as necessary for achieving public health. The students followed the same thematic potentials in their projects (Table 4) demonstrating how the pilot projects can spatially test these potentials, which could lead to the improvement of the plan and overall HUP process. The student projects responded to these shortcomings.

| Project | Themes | Levels of implementation |
|---|---|---|
| **Better Line (Iva Bajić)** | Green infrastructure, riverside activation, health | The project answered the lack of green infrastructure in the city center, and also combated air pollution. |
| **WSUD (Filip Mijailović)** | UHI mitigation with water-sensitive urban design for health | Detected the location in the city center next to the river, with evident problems of overheating due to the inadequate functional layout, and no greenery. River proximity led the concept towards sustainable use of water – WSUD. |
| **CIKLO (Ivana Tomić)** | Active mobility and cycling | Re-designing streets to accept cycling trails within the city center; active mobility. |
| **Urban Garden (Hristina Tomašević)** | Well-being in space, UHI, air pollution mitigation | Engaged in enhancing comfort within the city center through reducing air pollution and UHI (urban heat islands). |
| **Recycling (Edita Ljalja)** | Waste management | Dealt with the topic of recycling for better waste management. |
| **Urban Mini Forests (Jelena Ilić)** | Green infrastructure | Focused on adding mini-rest intervention points throughout the city, also for reducing heat islands and increasing environmental health potential. |
| **City Botanist (Jana Mijailović)** | Fresh food and wellbeing | Had a similar principle to Urban Garden, to access fresh food and physical activity. |
| **Oxygen Factory (Nikola Marković)** | Air pollution mitigation and urban regeneration | The project involved the idea of air purification through the regeneration of the brownfield location of the former silos site in the city center. |
| **Umbrella (Milica Spajić)** | Waste water re-use | Based on the concept of designing with and for rainwater and atmospheric water in public space |
| **Healing Corners (Teodora Živković)** | Well-being | Proposed points for rest, city greening, enhancing biodiversity, and reducing UHI. |

Table 4 - Student projects and their chosen themes, (Source: Author)



The project ‘WSUD’ is a good example how student projects contribute valuable feedback for plan improvement. The project redesigned a space around a gas station in the city center, connected to the historical area and the Kolubara riverside. The decision to choose the topic of WSUD (Water-sensitive urban design) for tackling neighborhood problems came from the previously detected spatial and environmental issues.

- The project focused on minimizing the effects of excessive use of concrete and asphalt, poor air quality, strong traffic intensity, lack of vegetation, and dominance of surface parking spaces. The immediate vicinity of the Kolubara River and the historical city center led to many opportunities

for health-planning connections. It developed four functional zones with different levels of 'healthy city' and 'WSUD' concept integration. It recognized that the quality of the natural environment affects people's health and well-being, making it a strong contributor to the second level of health-planning integration provided by Barton and Grant. Moreover, it was designed by having public health and well-being as the primary, fundamental goals. This shows the presence of the third level of health-planning integration, where health is fully integrated into the project.

- The project was evaluated through the Healthy Urban Planning Checklist. It designed a green zone, with bioswales, water detention pools, play spaces, and recreation spaces; a blue zone surrounding the Kolubara River for active use, movement and health; connecting different recreational areas and developing new ones; and an orange and red zone dedicated to social and recreational activities, with water features in design. Promoting walking and cycling was achieved through the implementation of cycling lanes in the park along the Kolubara River. The proposal included cutting down driving lanes and proposed integral streets for traffic calming. It minimized car use by recommending new underground parking areas instead of large surface parking. This measure helped minimize air pollution caused by traffic. Non-permeable ground materials were replaced by large green recreational areas. These areas also enhanced children's play by creating safe, natural spaces and promoting biodiversity. One of the essential strengths of this proposal is found in the design for minimizing flood risks. The use of water as a design element, including water detention basins, reservoirs, and shallow pools, contributed to diminishing overheating.

Therefore, the project relied on the principles of healthy cities to propose multi-layer interventions that connect environmental, social, and health components of the space. Such experiments can be used as an analytical tool for detecting weakness in urban tissue. Figure 3 illustrates these strengths of the project. The WSUD project confirmed that the application of different levels of integration of health and planning, as well as the improvement of special thematic aspects, can significantly contribute to the overall health of the city of Valjevo.

The greatest potentials are reflected in the topics of spatial integration and connectivity, active use, green areas, and reducing air pollution. The project confirmed the problems detected during the analysis of Valjevo's plan, showing the importance of incorporating these issues into future plans.

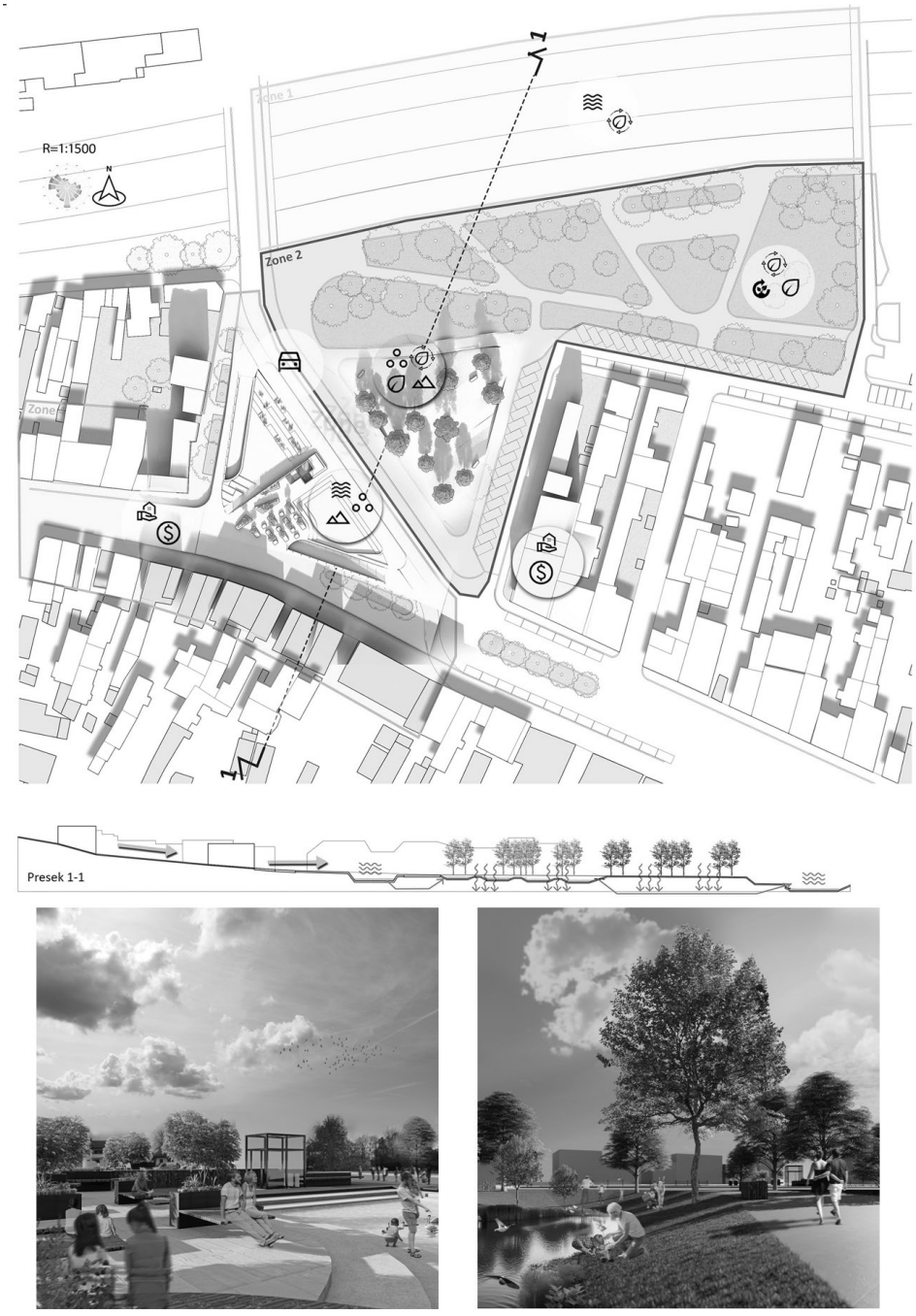


Fig. 3 - WSUD project (author: Filip Mijailovic for CLICCHE workshop in Belgrade)

## 5. CONCLUSION

To contribute to healthy urban planning, this paper developed an initial methodological framework for assessing the potential of urban plans to support the Healthy Cities concept and applied it to the case of Valjevo city in Serbia, as a part of CliCCHE project.

The analysis results indicate the benefits of the two-stage evaluation of the potential of the plans. The first part of the analysis, following the three-step evaluation model of Barton and Grant, enables an initial recognition of the plan's values, goals, and structure. In the case of Valjevo, the level of health integration is found at the first level (public services), and only partially at the second level (significance of recreational areas, connectivity, coastal development, etc.). The third level, which fully integrates the concept of health with planning and design, is not yet evident here, revealing the absence of a holistic healt strategy. The second part of the analysis revealed the key potentials for integrating this third level of health into planning. The Healthy Urban Planning Checklist exposed both limitations and opportunities for integrating the Healthy City concept into the planning documents related to specific thematic areas. Existing plans do contain some fragmented health guidelines, but they do not place health as a key goal. Instead, they remain focused on goals that may contribute to health indirectly, through functional and aesthetic improvements. At the same time, thematic areas with the most pronounced shortcomings also represent the greatest potential for improvement.

These results formed the basis for testing the potential to integrate health issues into urban planning and design through student projects developed following the CliCCHE methodology. The themes that were reexamined corresponded to key problems identified in the analytical phase. Students' projects provided a great opportunity to incorporate feedback into the plans, confirming that educational projects are valuable tools for developing healthy urban planning.

Assessing local laws and strategies of urban planning and health is of crucial importance for a better understanding of deeper issues visible in planning documents. This means that the lack of integration of health is not a matter of only urban planners and their knowledge, but also government structures, laws, and strategies. On one hand, urban plans (as planning products) are framed by laws that define their technical and legal contents and highlight topics that are explicitly intended to be covered by the plan. On the other hand, from an institutional point of view, in Serbia, health is the responsibility of the health sector, while planning belongs to the urban and spatial planning sector,

and there is still no intersectoral coordination at the state level. Therefore, to develop healthy urban planning, it is of great importance to promote health strategies on a broader scale, stressing the importance of these issues and generating more potential for systematic integration of planning and health. This can be promoted through the cooperation of international and local stakeholders, local institutions, and governments, who could significantly influence the development of policies in the direction of "health-driven" strategic development of cities.

The same methodological framework for assessing the limits and potentials of urban plans can be applied anywhere in Serbia and in other countries, while taking into account the local specificities. The paper calls for further examination of the evaluation of the potential of plans, to increase knowledge in this area, and gather new, important insights for creating local plans that will guide the future development of healthy cities.

## REFERENCE LIST


Adolfsson, P., Lindblad, J., & Peacock, S. (2021). Translations of sustainability in urban planning documents—A longitudinal study of comprehensive plans in three European cities. Cities, 119, 103360. https://doi.org/10.1016/j.cities.2021.103360

Barton, H. (2017). City of well-being: A radical guide to planning. Routledge.

Barton, H. and Tsourou, C. (2000). Healthy urban planning: a WHO guide to planning for people (London: Spon Press).

Barton, H., Grant, M., Guise, R., (2021). Shaping Neighbourhoods: For Local Health and Global Sustainability, 3rd ed. Routledge, p. 16.

Barton, H., Grant, M., Mitcham, C., & Tsourou, C., (2009) Healthy urban planning in European cities, Health Promotion International, Vol. 24 No. S1, doi:10.1093/heapro/dap059, pp. 94-95.

Barton, H., & Grant, M. (2012). Urban planning for Healthy Cities: A review of the progress of the European Healthy Cities Programme. Journal of Urban Health, 90(Suppl 1), 129-141. https://doi.org/10.1007/s11524-011-9649-3

Capolongo, S., Rebecchi, A., Dettori, M., Appolloni, L., Azara, A., Buffoli, M., Capasso, L., Casuccio, A., Oliveri Conti, G., D'Amico, A., Ferrante, M., Moscato, U., Oberti, I., Paglione, L., Restivo, V., & D'Alessandro, D. (2018). Healthy design and urban planning strategies, actions, and policy to achieve salutogenic cities. *International Journal of Environmental Research and Public Health, 15*(12), 2698. https://doi.org/10.3390/ijerph15122698

Corburn, J. (2013). *Healthy city planning: From neighbourhood to national health equity*. Routledge. https://doi.org/10.4324/9780203772249

Čolić, R. (2015). Integrated urban development strategy as an instrument for supporting urban governance. Serbian Architectural Journal, 7(1), 1-14.

Đukanović, Z., Živković, J., Đokić, V., Jovanović, P., Mladenović, T., Slavić, S., D'Onofrio, R., Ottone, M. F., Cocci Grifoni, R., Trusiani, E., Brownlee, T., Camaioni, C., Carlucci, S., Kyprianou, I., La Grutta, S., Malizia, V., Cachado, R., & Di Giovanni, C. (2023). CliCCHE Participatory Urban Design. University of Belgrade - Faculty of Architecture. ISBN: 978-86-7924-348-5, https://hdl.handle.net/21.15107/rcub_raf_1932

Elliot, T., Torres-Matallana, J. A., & Teebken, J. (2025). Urbanization under extreme climate events leads to synchronized decreases in flood protection and increases in vulnerability. Cities, 160, 105827. https://doi.org/10.1016/j.cities.2025.105827

Goldstein, G. (2000). Healthy Cities: Overview of a WHO International Program. Reviews on Environmental Health, 15(1-2), 207-212. WHO, Department of Health Promotion, Geneva, Switzerland.

Zavod za urbanizam Valjevo. (n.d.). *Profil grada Valjeva*. Grad Valjevo. https://www.valjevo.rs/Dokumenta/GradValjevo/Brosure/cd/Profil%20Grada%20Valjeva.pdf

Hague, C. (2015) 'Rapid urbanization, health and well-being', in H. Barton, S. Thompson, S. Burgess, and M. Grant (eds) The Routledge handbook of planning for health and well-being (London: Routledge)

Healthy City Generator tool, https://healthy-cities.com/

Healthy Urban Development Unit. (2014). Healthy Urban Planning Checklist. London: Greater London Authority. https://unhabitat-urbanhealth.org/download/healthy-urban-planning-checklist/

NSW Health. (n.d.). Healthy built environment checklist: A guide for considering health in development policies, plans and proposals. https://www.health.nsw.gov.au/urbanhealth/Pages/healthy-built-enviro-check.aspx

JP Zavod za urbanizam Valjevo. (2013). Generalni urbanistički plan Valjeva do 2021. godine (Službeni glasnik grada Valjeva, broj 13/2013). Valjevo: JP Zavod za urbanizam Valjevo.

JP Zavod za urbanizam Valjevo. (2014). Plan generalne regulacije centar Valjeva (Službeni glasnik grada Valjeva, broj 25/2014). Valjevo: JP Zavod za urbanizam Valjevo.

Krishnan, S., Aydin, N. Y., & Comes, T. (2023). RISE-UP: Resilience in urban planning for climate uncertainty - Empirical insights and theoretical reflections from case studies in Amsterdam and Mumbai. Cities, 141, 104464. https://doi.org/10.1016/j.cities.2023.104464

Pasquali, G. (2024). How to translate urban planning documents. Eurotrad. https://www.eurotrad.com/en/magazine/how-to-translate-urban-planning-documents/

United Nations Human Settlements Programme (UN-Habitat). (2011). Cities and climate change: Policy directions. Global report on human settlements 2011 (Abridged ed.). Earthscan. https://unhabitat.org/global-report-on-human-settlements-2011-cities-and-climate-change

Susskind, L. (2010). Policy & practice: Responding to the risks posed by climate change: *Cities have no choice but to adapt*. *Town Planning Review, 81*(3), Article 5. https://doi.org/10.3828/tpr.2010.5

University of the West of England (UWE) Bristol. (n.d.). WHO Healthy Cities and the origins of the Centre. WHO Collaborating Centre for Healthy Urban Environments. Retrieved August 8, 2025, from https://www.uwe.ac.uk/research/centres-and-groups/who/about-the-centre/who-healthy-cities-and-the-origins-of-the-centre

Wang, L., Jiang, X., & Li, X. (2021). Healthy city and its planning. In C. Ren & G. McGregor (Eds.), *Urban climate science for planning healthy cities* (Biometeorology, Vol. 5). Springer. https://doi.org/10.1007/978-3-030-87598-5_2

## REFERENCE LIST

World Health Organization (WHO). (1999). Healthy Urban Planning: Report of the International Consultation, Milan, Italy, 1998. Copenhagen: WHO Regional Office for Europe.

World Health Organization (WHO), Regional Office for Europe. (1997). WHO Healthy Cities Project Phase III (1998–2002): The Requirements and the Designation Process for the WHO Project Cities. Copenhagen: WHO Regional Office for Europe.

World Health Organization (WHO). (n.d.). Phases of the Network. WHO Regional Office for Europe. Retrieved August 8, 2025, from https://www.who.int/europe/phases-of-the-network

CliCCHE Climate Change, Cities, Communities and Equity in Health, https://cliccheCliCCHE.org/e2-sos-air/, https://cliccheCliCCHE.org/ https://cliccheCliCCHE.org/