Assessing the Sustainability Principles of Prishtina, Kosovo

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Abstract. Prishtina is the capital city and at the same time the fastest-growing city of Kosovo, which is an eastern European country that is both a developing country and a post-conflict country dealing with poverty and underdevelopment. Kosovo separated from Yugoslavia in 1999, and since then it has experienced various development stages, transformations, and radical changes regarding urban planning, society, and the political system. Urban planning in combination with local politics that had no visionary urban strategies resulted in the failure of Prishtina’s planning to direct massive growth towards sustainable urban development. To confirm this hypothesis, Prishtina is studied using a set of fifteen principles of green urbanism, which serves as a tool to assess Prishtina’s sustainability principles. The results show that postwar urban development patterns have been unsustainable thus far. Prishtina lacks the majority of sustainable city principles, but there have also been positive aspects of city development. The question remains whether Kosovo as a developing country should follow the same unsustainable steps as developed countries to catch up with them, or whether it could use other means such as universities, which can act as think tanks for transforming cities. The findings of this study can be used as a reference for existing development patterns and can provide guidance for future sustainable urban planning and developments in Prishtina.

1. Introduction
Kosovo is a small country in eastern Europe with a population of 1.9 million, 72% of whom are under thirty-five years old. It is a developing country, with a GDP of $16.9 billion, with minor industrial and economic activity, where people generally have low incomes, with a GNI of $3,990 per capita. Unemployment remains over 30%. According to the data from the World Bank, the poverty rate in Kosovo is 29.7%, and 10% of the population lives in extreme poverty. Extreme poverty is defined as living on less than $2.50 a day (World Bank, 2014). The country has limited to diversity, populated by Albanians (92%), Serbs (5.3%), and others (2.7%). In addition, the religion is mostly Muslim (95.6%), followed by Catholicism (2.2%) and Orthodoxy (1.5%).

In comparison to other countries in Europe, Kosovo still has relatively low emissions per capita. This is mainly because of the lack of energy-intensive industries, intensive agriculture, and waste
management. All of these factors are expected to change in the future, possibly leading to increasing emissions (UNDP, 2009).

Prishtina is the capital city, with an area of 572 km². It is located in northeast Kosovo, and its origin dates back to 98–117 BC (UDP, 2013). It is an example of an eastern city that developed in the Balkan Peninsula over a long time, with remarkable steady growth during the twentieth century (Table 1). However, the beginning of the twenty-first century ushered in a new development era for Prishtina. It has faced massive population migration, urban destruction, and urban sprawl since the last ethnic war in 1999, when Kosovo separated from Yugoslavia. Its population almost doubled, and the city government failed to orient growth toward sustainable urban development. Similar to other congested cities of the twenty-first century, Prishtina now faces the challenge of pollution, cultural heritage degradation, financial and social differences, and environmental degradation. More importantly, it still lacks a strategic and visionary plan for improving the current urban conditions. Due to its developing patterns, Prishtina currently does not offer wellbeing, and it lacks sufficient public transportation, public spaces, pedestrian-friendly sidewalks, affordable housing and social inclusion, water supply and treatment, and energy and heat supply.

Despite this large-scale “postwar urban disorder,” Prishtina has significant features that require better integration and presentation in this new urban age of the city. These include the historic site of Ulpiana (98–117 BC), theaters, museums, the national library, the philharmonic center, the cultural and sports center, one of the largest outdoor swimming pools in the Balkans, a major national park, and a dynamic social life and nightlife with local restaurants and cafes. Prishtina is the center of cultural, economic, and political developments in Kosovo. It is the site of the country’s first public university, an international airport, and the national government building and parliament (UDP, 2013).

1.1 Sustainability in Kosovo and Prishtina
The literature review shows that sustainability is an issue for the post-conflict developing country of Kosovo, and in particular for Prishtina. Numerous analyses revealed deficiencies in governance and due process related to procedural justice, and the distribution of social, economic, and environmental costs appeared largely imbalanced. Priority was given to providing broad access to energy (98% is based on fossil fuels) in the short term while sacrificing long-term environmental and social sustainability (Lappe-Osthege, 2017). Kosovo has the fifth-largest lignite reserves in the world, which have been mined since 1922 (KPMG, 2016). The Kosovo A Power Station is the worst individual source of pollution in Europe (KOSIDs, 2014). With regard to social development, research shows that Kosovo has the worst health outcomes in the Balkans; it ranks far below neighboring countries on life expectancy, maternal death rates, infant and child mortality, immunization rates, and tuberculosis incidence. However, a low-carbon path exists for Kosovo that integrates aggressive energy efficiency deployment, transmission and distribution grid upgrades, use of both large- and small-scale hydropower, solar, biomass, and extensive use of wind power while reducing the human and ecological impact of generating electricity. In addition to delivering 34% of the energy demand through renewable resources, this path could also contribute to economic development because it provides over 60% more jobs than the usual path (Kammen, 2012).

Furthermore, the massive postwar population migration to Prishtina, along with the failure to implement urban policies and urban plans that interfered with politics and corruption, contributed to Pristine’s urban chaos. Massive urban sprawl has resulted in new developments lacking basic infrastructure for social wellbeing (Gallopeni, 2012). Rapid urbanization has also made water supply and solid waste management serious problems. Efficiency in the waste management and recycling businesses is vital in order to harmonize environmental protection with economic growth (Krasniqi, 2013). The country still lacks an organized waste management system; waste is simply transported to dumps without any sorting, treatment, or processing. Many rural areas lack waste disposal systems altogether, and illegally accumulated waste is an ever-present problem (GIZ, 2016).
In addition, Kosovo’s architectural heritage, which is considered the bedrock for the sustainable development and continuity of civilization, has been found to be in a precarious and very vulnerable situation due to normal ageing and decay, aggravated by environmental pollution and structural failures caused by significant neglect of protection and preservation (Nixha, 2012).

Prishtina and the other municipalities of Kosovo face challenges daily with regard to providing essential services for their residents. They are required to fight poverty, strengthen the local economy, and promote democracy, and at the same time improve infrastructure and the public provision of water, electricity, health services, environmental protection, and transport. However, the political, legal, and institutional framework is not geared to ensuring effective and efficient service provision from the technical and social infrastructure for the population (GIZ, 2016).

Below, we examine whether Prishtina’s plans to direct its massive growth really failed and if the city consequently remains far from the concept of the contemporary city. We are interested in what conclusions can be drawn if green city principles are selected as a concept for sustainable urbanization. Along with the world’s growing population, this future trend is continuously being studied for solutions to establish cities with an emphasis on long-term sustainability as a high priority.

2. Methodology
Lehman’s fifteen principles of green urbanism (2010) are used as a matrix to assess the current status of Prishtina with regard to sustainability. Lehman describes green urbanism as an interdisciplinary process in which architects, engineers, urban planners, ecologists, physicists, psychologists, economists, and other specialists collaborate to come up with comprehensive solutions. The fifteen principles defined by Lehmann are:

1) Climate and Context: A city that follows the rules of green urbanism responds to climate and context, orientation, compactness, and biodiversity. The city takes actions and measures to minimize its environmental footprint and the city districts’ heat gain or losses.

2) Renewable Energy for Zero CO2 Emissions: A city is considered a self-sufficient on-site energy producer, moving away from fossil fuels such as coal and oil to solar photovoltaic, solar thermal, wind, biomass, geothermal, and mini-hydro energy.

3) Zero Waste City: A city has a circular, closed-loop ecosystem and defined consumption behavior, and waste is also turned into a resource through composting waste into energy. In the daily life of the city, one finds slogans such as “reduce, recycle, reuse.”

4) Water: A city with a good relation to water is one with closed urban water management and high water quality, with efficient water use, developed systems for rainwater collection and water recycling, and an algae and bio-filtration system for graywater.

5) Landscapes, Gardens, and Biodiversity: A city that integrates landscapes, urban gardens, and green roofs seeks to maximize biodiversity, urban agriculture, habitats, ecology, and wildlife rehabilitation, and to maintain a green belt around the city.

6) Sustainable Transport and Good Public Space: Such a city pays attention to eco-mobility and smart infrastructure, to integrating on non-motorized transport and a pedestrian-friendly environment with safe bicycle routes, and to interconnections for public and private transport.

7) Local and Sustainable Materials with Less Embodied Energy: Construction in the city uses regional and local materials with a short supply chain and prefabricated modular systems that are more affordable and can be reused.

8) Density and Retrofitting of Existing Districts: This relates to a city with retrofitted districts, mixed-use urban infill, city densification/intensification strategies for existing neighborhoods, an inward growth orientation and compactness, revitalization of underutilized land for the community, and reduction of the impact on agricultural land.

9) Green Buildings and Districts Using Passive Design Principles: A city that applies green building design strategies, solar access for all new buildings, flexibility, and low energy.
10) Livability, Healthy Communities, and Mixed Use: A city with concern for affordable housing, mixed-use programs, a healthy community, social sustainability, and social inclusion to avoid gentrification.

11) Local Food and Short Supply Chains: Such a city makes possible local food supply with high food security and urban agriculture, and at the same time avoids petrol-based transportation.

12) Cultural Heritage, Identity, and Sense of Place: This definition embraces a city of public health and cultural identity, its resilient communities, public space networks, protection of the city’s built heritage, and maintenance of the city’s distinct cultural identity.

13) Urban Governance, Leadership, and Best Practice: This is a city that applies best practices for urban governance and uses sustainable procurement methods, together with political support for change, in which the city is considered as a collective responsibility.

14) Strategies for Cities in Developing Countries: There is a need for particular sustainability strategies for cities in developing countries to harmonize the impacts of rapid urbanization and globalization. In addition, local people have to be trained to empower communities, and new jobs have to be created in line with diversifying job structures.

15) Education, Research, and Knowledge: Education and training for everyone is organized in sustainable urban development, and at the same time the city is a hub of institutions such as galleries, libraries, and museums, where knowledge can be shared.

3. Results

1) Context and Climate: Prishtina is located in northeastern Kosovo, with much of its territory located in a plain. However, it is partly hilly, such as in the Sunny Hill and Arberia neighborhoods, which are less pedestrian- and cyclist-friendly. The climate is continental, with cold winters and hot summers. The city’s orientation is north–south, which is not the ideal orientation for maximum southern exposure because one side of each apartment block faces due north (the coldest and darkest orientation in the northern hemisphere).

Prishtina has grown tremendously in the past twenty years, merging with other towns in the region such as Fushë Kosova (Kosovo Polje) and Graçanica (Gračanica). The population more than doubled after the latest war; from 150,000 in 1991 to 338,000 in 1999 (MDP). Urban sprawl has destroyed agricultural land as opposed to taking advantage of underdeveloped sites in the city and encouraging inward city growth and compactness. Wealthier citizens have chosen to live on the outskirts of city such as the neighborhoods of Matiçan, Sofali, Kolovice, Hajvali, Çagllavicë, Zllatar, Shkabaj, Bërnicë e Epërme, Bërnicë e Poshtme, Bardhosh, and Llukar, where they enjoy privacy, have larger homes (some in gated communities), have private schools for their children, and are spared having to use public transportation. The carbon footprint of wealthier inhabitants, households, and neighborhoods might be higher than for the rest of the city’s residents. As a consequence of an increased footprint, the city’s heat gain has increased and city service capacities have weakened. The new developments are patchy, scattered, and strung out, with a lack of biodiversity (Figure 1).

2) Renewable Energy for Zero CO2 Emissions: Prishtina is a heavy fossil-fuel consumer as opposed to being a self-sufficient on-site energy producer city. A total of 98% of the power generated in Kosovo is generated by two lignite coal-fired power plants (TPP), Kosovo A & B (Figure 2). These plants are owned and operated by the Energy Corporation of Kosovo (KEK). Kosovo’s vertically integrated power utility is responsible for coal mining and electricity generation, distribution, and supply. Although abundant, the quality of the lignite is fairly poor and its use in generating electricity releases an average of 5.8 million tons of CO2 into the atmosphere annually. With the planned construction of a new power plant, it is possible that Kosovo could be responsible for annual CO2 emissions measuring as high as 22.5 million tons (UNDP, 2009). However, studies show that a low-carbon path does exist for Kosovo that integrates aggressive energy-efficiency deployment, transmission and distribution grid upgrades, both large- and small-scale hydropower, solar, biomass, and extensive wind energy while reducing the
human and ecological impact of generating electricity (Table 2). This path will be able to deliver 34% of the electricity demand through renewable resources. In addition, it will also provide over 60% more jobs than a business-as-usual path and it will do so at an estimated cost savings of 5 to 50% relative to a base-case scenario that includes a new coal-fired power plant (Kammen, Mozafari, & Prull, 2012). The fact that the new power plant is to start being built soon shows that renewable energy is not a priority in the government’s funding subsidization.

3) Zero Waste City: Consumerism is increasing and landfills are expanding because there are no reuse, reduce, and recycle priorities. Pristina, which is known for unsustainable procurement, has hired a private regional company for waste management. All of the waste collected goes to municipal landfills because there is no separated waste collection. The yearly waste quantity collected amounts to a total of 87,266.60 tons/year. Environmental problems are also presented by non-sanitary landfills and landfills containing heavy metals that occupy an area of 2.38 ha. However, an interesting fact worth mentioning is that, because of the lack of an organized recycling system at the municipal level, an illegitimate system is currently operating. It is mostly poor individuals that expose themselves to health risks by sorting trash (Figure 3) and collecting recyclable materials such as plastic and metal to sell.

4) Water: Pristina is one of Kosovo’s municipalities that still faces water shortages. The current water resources do not meet the needs of the expanded population of Pristina. The water supply comes from the two main lakes: Batllava (65%) and Badovci 35%. Because the water supply is not sufficient, there is a third water treatment plant under construction. The lack of water is accompanied by water pollution caused by untreated sewage and industrial wastewater. City wastewater is discharged directly into the environment, eventually contaminating surface water or groundwater. Pesticides and other products used in agriculture are another cause of water pollution. Wastewater is discharged directly from households into the environment or into the Prishtevka River, which has now been completely transformed into a wastewater collector (Figure 4). Rainwater as a potential source of drinking water has not been taken advantage of.

5) Landscape, Gardens, and Biodiversity: Post-conflict illegal city developments were planned and built with only one intention, that being personal and financial benefits. New city developments were implemented prior to urban planning in some areas, and, in cases where urban plans existed, unethical developers managed to disregard those plans. They maximized the building footprint and ignored green spaces, urban gardens, or biodiversity.

However, there are some environmental features that have survived from the brutal and rigid urbanization, Germia Regional Park being one of them. Germia is rich in flora and fauna. It is also one of the main rich landscape public assets. There are couple of other smaller parks, such as City Park (Figure 5), Tauk Bahçe Park, and Arberia Park. Lake Badovc is also part of environmental heritage containing natural value and landscape biodiversity.

6) Sustainable Transport and Good Public Space: Because urbanization has sporadically sprawled in low-density developments, public transport integration throughout all new parts of the city has been an issue. Accessible sidewalks for pedestrians and bike paths remain an issue (Figure 6). Cars remain one of the main means of transport (Figure 7). There are two types of transport in Pristina: road and rail transport. Road transport plays a key role for passengers and freight.

Although Pristina has thirty-two public transport routes, public transportation remains an urban sustainability issue. Pristina’s main bus station is located in the southwest part of the city, about three kilometers from the city center, and serves as a connection point for national and international bus lines. The train station is located one kilometer from the city center. The main weakness of the transportation system is the connection between local bus lines, the main bus station, and the train station. Pristina also has an airport that is located twenty kilometers from the city center.
There are good public spaces within the city, the main ones being: Mother Theresa Boulevard in the city center, Prishtina University Campus, the Youth and Sports Palace, and the parks mentioned above: Germia, City Park, Tauk Bahçe, and Arberia. There are public spaces and buildings that are neglected, such the old town center of Prishtina, which contains the city’s cultural and architectural heritage.

7) Local and Sustainable Materials with Less Embodied Energy: The construction industry is in a better position than other industries with regard to environmental issues. The main building materials—brick, concrete, insulation, and some plasters and paints—are locally produced. Kosovo can support more than 60% of local demand. However, the recyclability of materials is not considered. Public and private development projects in Prishtina are awarded to the lowest bidder; the recycled content of the material and reusability usually is not a selection criterion.

8) Density and Retrofitting of Existing Districts: Postwar local policy had no visionary urban development strategies, leading to the failure of planning in Prishtina to direct its massive growth toward retrofitted districts, inward city growth, and urban infilling. Instead, it encouraged uncontrolled developments that have seriously impacted agricultural, land, cultural heritage, and urban public spaces. Housing development is the main contributor to urban sprawl, which also comprises over 25% of total urban land use. Based on the statistics of the Prishtina Urban Development Plan (UDP, 2013), 90% of existing housing is single-family housing, whereas more compact apartment building housing comprises a little over 10% of total housing.

9) Green Buildings and Districts Using Passive Design Principles: Green building is not a priority in Prishtina. This is an issue that is slowly gaining prominence, but unfortunately it is not on architects’ agendas yet. Solar access requires up-front investment that in some cases cannot be afforded by individual developers and in other cases is not considered a priority. In fact, luxury is more important than sustainability and flexibility. The Swiss Diamond Hotel is one example of an out-of-context development on the main city boulevard (Figure 7). Unfortunately, the majority of public building developments have not established efficiency priorities either. Typically, the bidders for design and construction are not selected based on passive design strategies.

10) Livability, Healthy Communities, and Mixed-Use: For the past fifteen years of sprawl and the fast-paced building era, there were no strategies taking into consideration affordability and mixed-use development for community wellbeing. The application of the program is patchy and chaotic (Figure 8). No regulations or strategies were followed in order to achieve well-balanced mixed-use development. There are neighborhoods that have too much of one particular type of service but lack other services. Striking examples are new sprawling homogenous neighborhoods that consist of 95% housing. The new sprawling area on the southwest side of Prishtina (5 km from the city center) currently has over nine hundred single-family units and more are being developed; there are a few small limited services, a limited number of private preschools that are not based on population needs, and very limited public transportation. At the same time, it lacks important elements such as a primary school, family medical center, parks, and other facilities.

11) Local Food and Short Supply Chains: Importing the majority of food products harms the economy, the environment, and community wellbeing. Because of price competitiveness in the region, local products fail to be considered as a primary source (Figure 8); petroleum-based transportation of food continues to dominate. The majority of local processors are still relatively small and only able to provide a minor part of the demand for processed foods. As a consequence, most of the local demand is met through imports. Imports of dairy products, vegetables, and fruit account for more than 70% of locally consumed products.
12) Cultural Heritage, Identity, and Sense of Place: Prishtina is an urban settlement that developed from existing settlements over a long period under the influence of various cultures, but with the final stamp of the oriental, Ottoman period (Kojić, 1976). After separation from the Ottoman Empire, Balkan cities kept their inherited oriental structure: the central çarshia or bazaar with manufacture, trade, and the most important religious and public buildings, surrounded by neighborhoods. Much later, after the Second World War and the recovery and reconstruction from wartime damage, the first master plan was produced in the 1950s. Two trends in urban changes took place simultaneously: reconstruction and transformation within existing urban tissue, and the city spreading into and occupying free spaces with newly designed modern settlements. The transformation of central parts of the city destroyed the oriental structures of the çarshia. The new city center was based on a design by Nikola Dobrović from 1954 (Stojkov, 1996).

“Destroy the Old, Build the New” was the motto of Yugoslav policy. In the name of building the new, the existing spirit of place and heart of the city were destroyed (Figure 10). Covering the two local rivers, the Preshetkva and Vellusha, which were the main place-making features of the city (UDP, 2013), was a disturbing plan. Prishtina, like other typical Balkan cities with an oriental origin, structure, and outlook, was almost totally transformed in the second half of the twentieth century. Its rich cultural heritage, identity, and sense of place progressively became blurred as a result of corrupt public investments along with uncontrolled private investment. Resiliency in the community and public space network is low; it has been exposed to vulnerable rigid and destructive urban development over the past fifteen years.

The Kosovo Cultural Heritage Database of the Ministry of Culture, Youth, and Sports offers a good overview of listed sites that have been partly investigated. Prishtina’s historical core has a number of interesting buildings and historical monuments (of a sacred, secular, and functional nature) with a mixture of oriental Ottoman influence, especially in their shape, components, and decorative features—and, on the other hand, their stylistic characteristics, which are a variety of the domestic local vernacular architecture. In contrast to this richness in heritage, it is necessary to highlight a lack of awareness of cultural heritage protection and environmental protection (SPK, 2010), combined with a lack of visibility of the past inside the town.

13) Urban Governance, Leadership, and Best Practice: Cities are a collective responsibility, in which the urban government along with civic society should be involved in decision-making. Prishtina’s local government has not included public participation, and continues to govern with no rule of law, no transparency, no responsiveness, no accountability, and no social inclusiveness. The lack of strategic urban governance and sustainable procurement methods, in combination with corruption, has resulted in Prishtina’s current urban chaos (Figure 9). The city has been degraded, and it still lacks strategic development plans for stimulating good practices.

14) Strategies for Cities in Developing Countries: Even though many cities are called “instruments of development,” inequality within most cities worldwide is growing and urban areas are becoming the predominant locations for a lack of social wellbeing. This is also the case for Prishtina. Unemployment and underemployment rates remain very high; as a result, people have to survive in various ways, including informal economic activities. Sustainable development is one of the most recent promising movements for all developing cities, including Prishtina, with the intent of training local people to empower their communities, providing new innovative jobs and diversifying new job structures, and harmonizing the impacts of rapid urbanization and globalization.

15) Education, Research, and Knowledge: Prishtina has a great number of public and private institutions that have withstood the various periods that this country has experienced, fulfilling the academic aspirations of many generations. Prishtina is known for its many educational institutions, such as the
University of Pristina, the National Library of Kosovo, the Academy of Sciences and Arts of Kosovo, and the Arts Gallery. The concentration of higher education institutions in the city, such as public and private universities, the university clinical center, research and development institutes, and agencies offer the potential to serve as establishments for activities in the knowledge economy.

Figure 2. Plan of the new city center in Stanežiče.

4. Discussion
The results of assessing the sustainability principles of Prishtina show that it lacks the majority of sustainable city principles.

On the positive side of urban developments, local and regional building materials are used that have a short supply chain. The population, which has doubled in size, is supplied with drinking water from two nearby lakes, even though water shortages still occur. There are green areas inside the city that offer biodiversity for wellbeing and farmers’ markets that provide locally grown food. The concentration of the most educational and other institutions in Prishtina is also a potential for future sustainable development.

The results also show that Prishtina mainly consists of two types of urban developments: the first one is new sprawling homogenous housing developments, and the second one is old urban neighborhoods that have been degraded from postwar, non-urbanized retrofitted developments, which were built with no design strategies regarding the community, cultural heritage, or the environment. The city is heavily dependent (98%) on coal-fired power plants for electricity and heavily dependent on cars for transport. A lack of waste recycling and lack of water treatment have further contributed to the city’s pollution. Overall, the postwar, non-transparent urban governance with corrupt procurement methods failed to preserve the cultural heritage and sense of place that Prishtina once had.

Promoting sustainability and access to electricity pose various questions in the post-conflict context. Issues such as corruption and post-conflict tensions have intensified the socio-ecological impact of energy policies. Further analyses reveal a more general ethical conundrum of economic development: Should developing countries be entitled to a phase of “dirty,” coal-powered development to catch up with developed countries? Even though international organizations such as the World Bank and the EU, and the governments of their individual member states, promote aspects of energy justice, concerns for intergenerational justice and climate change take a back seat in the face of immediate state-building priorities (Lappe-Osthege, 2017).

5. Conclusion
At the same time as the “sustainable city” has been a significant topic of research in past decades, other notions of the city that make sense of a multitude of concepts promoting sustainable urbanization have also emerged. The balance between the society, economy, and environment remains one of the greatest challenges of developing cities, including Prishtina. This study has shown that Prishtina fails to meet most of the principles of green urbanism; recent city developments have disregarded the environment and cultural heritage, and have failed socially as a result of urban sprawl and pollution, and the city still faces unemployment of over 40%. Further investigation needs to be carried out on retrofitting new strategic developments that promote sustainability while integrating existing city values such as biodiversity, cultural heritage, and concentration of public and private universities and other institutions. Universities can act as think tanks for the transformation of their cities (Lehmann, 2010). The public and private universities of Prishtina can contribute to the city by developing new models of sustainable economic growth, improving social equality and wellbeing through regeneration and cultural development, and offering new approaches to alternative energies.
References

[1] ZAPS. A public, open, conceptual (for the entire area), and project (for the first phase) architectural and urban design competition for New Stanežiče in Ljubljana. https://www.zaps.si/index.php?m_id=natecaji_izvedeni&nat_id=87

[2] ZAPS. Final jury report. https://www.zaps.si/index.php?m_id=natecaji_izvedeni&nat_id=87

[3] Sustainable Urban Strategy of the City of Ljubljana https://www.ljubljana.si/sl/moja-ljubljana/urbanizem/trajnostna-urbana-strategija-mol/

[4] M. Venturi, L. Ažman Momirski, “Competition concept for New Stanežiče” (in Slovenian).