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Multi-Level Perspective on Sustainability Transition towards Nature-Based Solutions and Co-Creation in Urban Planning of Belgrade, Serbia

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Abstract: In recent years, nature-based solutions have been increasingly promoted as a climate change adaptation instrument, strongly advocated to be co-created. Achieving clear, coherent, and ambitious urban greening strategies, embedded in urban planning and developed in a co-creative, participatory and inclusive manner, is highly challenging within the EU enlargement context. In this article, such challenges are studied through two recent urban development initiatives in Belgrade, the Capital of Serbia: the first initiative focuses on planning the new Linear Park, within the framework of the CLEVER Cities Horizon 2020 project; the second initiative envisages the transformation of the privatised Avala Film Complex in the Košutnjak Urban Forest, primarily led by private interests but supported by the local authorities. The multiple-case study research method is applied, with an exploratory purpose and as a basis for potential future research on evaluation of co-creation processes for NBS implementation. The theoretical basis of this article is founded in the research on sustainability transitions, focusing on multi-level perspective (MLP) framework. The urban planning system in Belgrade and Serbia is observed as a socio-technical regime of the MLP. In such framework, we recognize co-creative planning of the Linear Park as a niche innovation. We interpret opposition towards planning of the Avala Film Complex as escalation, or an extreme element of the socio-technical landscape, comprised of civic unrests and political tensions on one side, combined with the climate crisis and excessive pollution on the other side. Moreover, the article examines informal urban planning instruments that can be implemented by the practitioners of niche innovations, that could support urban planners and NBS advocates in the Serbian and EU enlargement contexts to face the challenges of motivating all stakeholders to proactively, constructively and appropriately engage in co-creation.

Keywords: co-creation; nature-based solutions; urban planning; multi-level perspective; sustainability transition



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1. Introduction

Several environmental sustainability concepts have evolved through academic research and policy practice over the past two decades [1], ranging from ecosystem services, to over green infrastructure [2,3], to nature-based solutions (NBS) [4]. They nurture an interdisciplinary approach to urban ecosystems [1], emphasizing multi-level governance and strategic urban actions [5]. In recent years, the NBS have been increasingly promoted as a climate change adaptation instrument by International Union for Conservation of Nature (IUCN) [6–8] and the European Commission (EC) [9,10].

The EC defines NBS as dynamic and comprehensive “solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience; such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes,

through locally adapted, resource-efficient and systemic interventions". It further emphasizes that "nature-based solutions must benefit biodiversity and support the delivery of a range of ecosystem services" [10] (p. 3).

Following the EC's framework of Research and Innovation policy on "Re-Naturing Cities and Green Infrastructure" [9], since 2015 NBS have been strongly embedded in the Horizon 2020 Funding Programme [11] and advocated to be co-created in practice [10,11], implying citizen participation in all NBS development stages: in their planning, design, implementation, and monitoring and evaluation.

Although the notion of co-creation "arose from the business world" [12] (p. 205), in the academic literature it gained ground as a common framework where multiple stakeholders co-design research agendas, co-produce knowledge and co-disseminate it, in various practical dimensions: scientific, international and sectoral [13]. Reflection among all stakeholders is needed [13], but collaboration between researchers and policy officers is critical, both for "policy-relevance of research and its policy uptake", as well as for "new insights for research blind spots" [14] (p. 90).

According to IUCN's NBS Global Standards, one of the eight fundamental criteria of NBS are to be "based on inclusive, transparent and empowering governance processes", being further elaborated as that basic compliance of NBS with prevailing legal and regulatory provisions "need to be complemented with ancillary mechanisms that actively engage and empower local communities and other affected stakeholders" [8] (p. 14). This criterion or principle of NBS is commonly referred to as co-creation of NBS, and has been increasingly perceived as "a fundamental approach to address the impacts of global environmental changes and create new opportunities for all people" [12] (p. 205).

Since 2020, NBS have been promoted as the main instruments of the envisaged Urban Greening Plans—the new policy document recommended by the EC to all the cities bigger than 20,000 inhabitants, starting from the year 2021 [15]. With such policy and financial frameworks, the "promotion of healthy ecosystems, green infrastructure and nature-based solutions should be systematically integrated into urban planning, including in public spaces, infrastructure and the design of buildings and their surroundings" [15] (p. 13) within the cities of the European Union (EU) member states.

However, achieving clear, coherent and ambitious urban greening strategies, embedded in urban planning and developed in a co-creative, participatory and inclusive manner, is highly challenging within the EU enlargement context, particularly in the Candidate Countries and Potential Candidates of the Western Balkans.

Most of the countries/entities of the EU enlargement area belong to the post-socialist context of the ex-Yugoslavia: Serbia and Kosovo (for the European Union, this designation used is without prejudice to positions on status, and is in line with UN Security Council resolution 1244/99 and the International Court of Justice Opinion on the Kosovo declaration of independence), North Macedonia, Montenegro, and Bosnia and Herzegovina—namely, all except Albania and Turkey [16].

Urban planning legal frameworks and practices of ex-Yugoslav countries are strongly influenced by the Yugoslav socialist heritage and self-managed socialism as a unique ideological standpoint. From this perspective, participation was supposed to become part of day-to-day activities of citizens, which would lead to "authentic, free and creative self-fulfillment of the citizens and their community" [17] (p. 23).

However, recent historical research on socialist practice shows that participation in Yugoslav urban planning was rather declarative and poorly conducted, through limited techniques. Expert institutions substituted the power of the central state instead of delegating it to the citizens for self-management [18].

Post-socialist socio-economic transition imposed new challenges [19], with inadequate solutions for new plurality of interests within the market economy. The urban planning approach and methodological processes were practiced as technocratic and exclusively expert-based in most cases [20].

To strengthen and ensure citizen participation in urban planning, the legislative changes in Serbia in 2014 [21], introduced Early Public Consultation (EPC) as the first of the two milestones in the formal urban planning procedure where the government communicates the urban plan with the broader public. As a relatively new planning instrument in society with a long tradition of centralized planning, EPC did not have a significant role—until two years ago.

After realizing that a multitude of interest in post-socialist urban development significantly threatens natural resources, in particular the green infrastructure, leading to missed opportunities for NBS, the wider public favored raising pressure towards the local authorities and urban planning institutions [22].

In this new, often conflicting urban planning setting, the local authorities declaratively promote urban greening [23,24], but there is a significant discrepancy between policy and practice. Moreover, co-creation is rarely perceived as an added value, due to a still predominant rational top-down planning approach, the lack of facilitation expertise and the rise of social and political tensions. However, local administrations have started realizing the indispensability of communication with the wider public in recent months.

The challenge of inconsistency and duality of approaches towards nature-based solutions and co-creation in the EU enlargement context will be illustrated in this article with two recent urban development initiatives in Belgrade, the Capital of Serbia, more precisely with specific official planning phases of both of the initiatives: the Early Public Consultation procedures.

The first initiative focuses on the planning the new Linear Park, led by the City of Belgrade as a Follower City of the CLEVER Cities project (a European-Commission-funded project from the Horizon 2020 Innovation Action Programme under Grant Agreement No. 776604. See <https://clevercities.eu/> (accessed on 20 May 2021)), and its supporting local partner Center for Experiments in Urban Studies (CEUS), represented by the authors of this paper. The second initiative envisages transformation of the privatized Avala Film Complex in the Košutnjak Urban Forest, primarily led by the private interest.

The theoretical basis of this article is founded in the research on sustainability transitions, as an overarching field of approaches and perspectives regarding large-scale, long-term and complex societal transformations toward sustainability [25–29]. Sustainability transitions represent “a threat to existing dynamically stable configurations facing persistent sustainability challenges, and they present opportunities for more radical, systemic, and accelerated change” [29] (p. 600).

There are various frameworks for analyzing and interpreting sustainability transitions [30,31], but this article will focus on multi-level perspective framework according to Geels [25,26], which recognizes three main analytical levels: (1) socio-technical regime, as a stable system of established practices and associated rules; (2) niches, as “protected spaces” of experimentation and emerging innovations which “provide the seeds for systemic change” (p. 27); and (3) the socio-technical landscape, as the wider, slowly-changing external context that creates pressure on the regime.

The main research question of this article explores in which manner various (and sometimes contradictory) urban planning cases can contribute to effective sustainability transition regarding the urban planning system towards NBS co-creation, and what can be learned from those cases if interpreted using the multi-level perspective framework.

Furthermore, we will examine which informal urban planning instruments and principles can be implemented by the practitioners of the niche innovations, in order to strengthen their impact on the current socio-technical regime and its’ subsequent destabilization towards a sustainability transition.

2. Materials and Methods

This article represents an inquiry of mainstreaming NBS and co-creation in urban planning practice. The research focuses on analyzing how differences in planning initiatives’ participation solicit various reactions and may be the cornerstones of long-term

socio-technical transition. The multiple-case study research method is applied with an exploratory purpose to enable in-depth experiences, as contemporary phenomena within their “real-life contexts” [32] but with contradictory narratives and implications, where contextual conditions are highly pertinent to phenomena of the study. This may offer insights that might not be achieved with other approaches [33] as a basis for developing the “more structured” methodology that will be necessary for additional research strategies expected in the future. Since case-study allows “to explain the causal links in real-life interventions that are too complex for the survey or experimental strategies” [32] (p. 15), it will also serve as a basis for potential research on evaluation of co-creation for NBS.

The case study method was performed from a third-person perspective or observer position, even though the authors were directly involved in one of the examined planning initiatives, namely, they planned, designed and implemented all the co-creation actions related to the future Linear Park. Since these authors had very little control over the project initiative initiation and implementation process, it is considered that this will not influence the case study objectivity. On the contrary, their first- and second-person perspective insights will support the in-depth analysis.

This research strongly correlates with Action Research, since it associates and “combines theory and practice (and researchers and practitioners) through change and reflection in an immediate problematic situation” [34] (p. 94). Iterative processes include problem diagnosis, action intervention and reflective learning, performed jointly by researchers and practitioners. They even include close-up and detailed observations via direct involvement of researchers in the execution of the co-creation practice in real situations, namely, the participatory planning processes. Furthermore, this research has strong features of community-based participatory action research (PAR) as a distinct qualitative methodology, since it relies on democratic and liberating processes in which participants construct meaning [35].

The materials used in this research are official public documents and publications, critical research publications, public social media announcements and published surveys and interviews.

In the following subchapters, two major urban re-development initiatives in Belgrade will be presented in an integrated way, providing vital information on the formal and informal participation and planning processes. The Linear Park case-study with adopted CLEVER Cities co-creation methodology [36] will be described and explained in detail.

2.1. Overview of the Dual Urban Planning Practices Regarding Co-Creation for NBS in Belgrade in the Year 2020

Two major urban transformation initiatives raised the interest of both experts and the broader public in the City of Belgrade in the year 2020: the new Linear Park in the area of the former railway corridor from the Beton Hala until the Pančevo Bridge (4.5 km long) was perceived as a prominent practice example, while transformation of the privatized Avala Film Complex in the Košutnjak Urban Forest was perceived as problematic and ineffective practice.

There are significant similarities between those two planning initiatives: both are related to the green infrastructure of the City of Belgrade, as well as to investments and real estate development plans of the SEBRE company (Beograd, Serbia) from the Czech Republic. In both cases, the planning task is assigned to the Urban Planning Institute of Belgrade, the most experienced and the most resourceful public planning agency in Serbia. However, the planning initiatives’ communication; their sensitivity for public participation, engagement and consultation; and the content and the ambition of the new proposals significantly differ. This research focuses on analyzing how these differences solicit various reactions and may be the cornerstones of long-term socio-technical transition towards co-creation and mainstreaming of NBS in urban planning in the local context.

Both cases will be analyzed primarily via EPC procedure as the first official, formal planning milestone when the government communicates the urban plan’s initial ideas under development with the broader public. However, by law, EPC does not impose

any interactive communication: materials are exposed for public insight but without any presentations, discussions or workshops, although more significant and timely interaction with the public was recognized as a necessity among professionals [37] and was the initial goal of proposing and advocating for an additional instrument/step in the planning procedure. Moreover, inputs from the public, obtained in the EPC, are non-binding and do not require official feedback [21].

From 2018, the general public became more aware of urban planning enactment procedures. It started to react to announcements, media texts, official elaborations and related documents, and a significant number of community groups emerged in reaction to the government's urban plans intentions.

In the year 2020, just after the first peek of the COVID-19 pandemic, two interesting EPC occurred that are the subject of this research.

2.2. Linear Park

The railway corridor between the Beton Hala and the Pančevo Bridge was perceived as a zone for re-development from transit into a green space within the Plan of General Regulation of Belgrade [38]. In this context, it was proposed by Belgrade's City Authorities' Secretariat for Environmental Protection, as a testbed for introducing the NBS in urban planning practice within the CLEVER Cities project, initiated in June 2018 and funded from the European Union's Horizon 2020 innovation action program. In September 2018, the Assembly of the City of Belgrade adopted a Decision on Development of the Plan of Detailed Regulation (PDR) for Linear Park, Belgrade [39]. The main goal of this urban plan is transformation of app. 46.7 ha of the former railway corridor land into a healthy, inspiring and attractive space: a demonstration polygon for art and technology, using NBS and co-creation in a broad participatory process (Figure 1).



Figure 1. Elaborate for the Plan of Detailed Regulation for the Linear Park: planned land-use and contents [40].

Financing of the planning process is allocated from the local budget and the CLEVER Cities project, which is the first such case in the City of Belgrade. Additionally, financing PDR's implementation is expected from local and national budgets and private funds (of many real estate developments in the surrounding area but with unclear mechanisms), other R&D projects (e.g., EuPOLIS), resources from the Instrument of Pre-Accession (IPA funds) and loans of international financial institutions (e.g., European Bank for Recon-

struction and Deveopment) [41]. The total investment value is roughly estimated at 50 million EUR [42].

In September 2019, the vacant city-owned land of the Marina Dorćol (4 ha of prime construction land, with the capacity of 76,000 m² over-ground new construction within the realm of the Linear Park plan) was sold to the company MD Investment, in property of the SEBRE company, as the only bidder of the public tendering process [43].

2.2.1. CLEVER Cities Co-Creation Methodology, Applied in Planning of the Linear Park

The conceptual setting of stakeholder engagement and co-creation critical issues is derived from the CLEVER Cities Co-Creation Methodology, developed by Politecnico di Milano and elaborated in detail within the CLEVER Cities guidance on co-creating nature-based solutions Part I [44] and Part II [45].

This particular methodology provides “a complete co-creation pathway that encourages decision-makers to embed citizen engagement methodologies as an approach to co-design and co-implement NBS” [46]. Two main mechanisms for implementing NBS in urban fabrics proposed by this methodology are: (1) urban innovation partnership (UIP), as a “city-wide or district-focused informal alliance of local and city authorities, community (groups), businesses, academics to promote the NBS for regeneration or urban transformation, facilitate and drive the cocreation process” [44] (p. 8), and (2) CLEVER Action Labs (CALs). According to this methodology, co-creation process is divided in five phases: urban innovation partnership (UIP) establishment, co-design, co-implementation, co-monitoring and co-development [12,44–46].

As this methodology was developed for the Front-Runner Cities (Front-Runner Cities of the CLEVER Cities project are Hamburg, Milan and London) of the CLEVER Cities project, which have been testing and demonstrating NBS in all the aforementioned phases over the five years, CLEVER Cities local partners from Belgrade had to adopt this methodology to the Follower City context, namely, to learn from project demonstrations, implement adequate solutions and integrate them in a specific urban plan (Follower Cities of the CLEVER Cities project are Belgrade, Larissa, Madrid, Malme, Sfantu George and Quito).

Therefore, co-creation process elaborated in this article focus on the first phase of the CLEVER Cities co-creation pathway: urban innovation partnership (UIP) establishment, comprised of four specific steps/tools: (1) identification of CLEVER Cities project within the city local context; (2) mapping and engaging of stakeholders; (3) launch of the urban innovation partnership; and (4) design of the platform according to the local context [44]. The last step was optional, but in Belgrade it proved to be the crucial tool for establishing transparent and regular communication among the UIP members and interested citizens, as well as for building trust.

Since Belgrade does not demonstrate NBS implementation, the second, co-design phase was adopted to “co-planning”, with appropriate adjustments of several specific steps: launching of the CAL at local level was performed as a more expert process, resulting in the establishment and registration of BELLAB (BELgrade urban livig LAB, for further information visit: bellab.rs (accessed on 10 May 2021)) as the first urban living lab in the Western Balkans within the European Network of Living Labs (ENoLL). Co-design of the NBS has been performed two-fold: (1) as education of wide stakeholders about NBS via adjusted NBS Catalogue, selection of optimal NBS via polls and discussions, NBS community mapping technique—both physically during on-site workshops (Figure 2) and virtually on the miro board, as well as through NBS contest for conceptual design of the Linear park; and (2) as co-creation of urban parameters for the Plan of Detailed Regulation of the Linear Park, via online expert discussions and online public debate, that will be proposed in the following official Public Consultation process and, if accepted, will allow NBS design in the urban plan implementation phase.

Local Belgrade CLEVER Cities team of policy-makers, researchers and practitioners has been using the CLEVER Cities specific tools, templates and reports [44], which has been perceived as significant for the legitimacy of the process and wider acceptance and

comprehension of the NBS planning. Within CLEVER Cities co-creation pathway, two main approaches to stakeholder engagement are recognized: non-participatory—one-sided methods, where knowledge is either imparted or extracted; and participatory—two-sided methods, which imply collaboration with others to generate change and new knowledge, where stakeholders lead the work and potentially take it forward (Table 1) [44].

Table 1. The citizen engagement approaches applied in the case of Linear park planning, according to the CLEVER Cities methodology [46].

Levels of Engagement	Nature of Approach	Description
Inform	non-participatory	The flow of information from the Local Belgrade CLEVER Cities team via bellab internet platform
Consult	non-participatory	Gaining the stakeholder's information and opinion through questionnaires, interviews and academic research
Involve	participatory	Involvement of stakeholders in discussions about planning issues via focus groups, academic education, online expert discussions and online public debate
Collaborate	participatory	Full involvement of stakeholders in decision making via NBS conceptual design contest and co-creation of urban parameters
Empower	participatory	Stakeholders full involvement via supported official EPC propositions

In Belgrade context, involvement of multitude of stakeholders has been achieved as the pioneering success of the participatory planning approach.

During the summer and early autumn of 2019, several rounds of consultations between the Belgrade City Authority Office of the Chief Urban Planner and the Secretariat for Environmental Protection, and CEUS, as the local support partner to the City of Belgrade within the CLEVER Cities project, were organized. It was agreed that, in this case of the urban planning process that aims towards at least two innovative practices—mainstreaming of NBS and introducing the concept of co-creation—the public communication process should be tailored in accordance. This task beyond usual formal participation routines was entrusted to CEUS.

During Autumn 2019, CEUS with local partners conducted identification of CLEVER Cities project within the city local context, as well as Mapping and Engaging of Stakeholders. Within the field of community-based PAR [36], CEUS selected the urban living lab approach for further processes, in line with its distinct characteristics, as well as the CLEVER Cities Co-creation Methodology framework.

Urban living lab (ULL) is recognized as an emerging form of collective urban governance [47] but also as an approach or set of methods for reinforcing change in a co-creative way [48]. It is used for addressing complex urban development challenges, by collaborative innovation through involvement of diverse stakeholders [49]: citizens and community groups (enabled users), civil society, public administration, research and businesses. All the stakeholders actively contribute to co-creation in a real-life setting with territorial focus, in several phases: (1) research and joint exploration of challenges and needs from different perspectives, (2) development and experimentation in the real-life setting by prototyping, (3) testing and rebuilding the prototype, (4) evaluation and implementation and (5) commercialization [50–52].

In Europe, ULLs are increasingly seen as an explicit form of intervention delivering sustainability goals for cities [53] and “a tool or instrument to change mindsets, processes and material solutions” [48] (p. 18). They are used to bridge the gap between research and practice while achieving greater citizen participation and social cohesion.



Figure 2. Results of the participatory mapping during the UIP launch: (a) community-mapping of possible NBS; (b) defining visions, SWOT and co-benefits of NBS [54] (Figure is produced by the Author).

2.2.2. Co-Creation in Practice of Planning the Linear Park

In November 2019, official launch of Belgrade’s urban innovation partnership (UIP) was organized [54], and it was comprised of several introductory presentations on NBS and co-creation, and a discussion and initial mapping of challenges, opportunities and visions (Figure 2).

UIP was formalized with establishment of a task force by the Mayor’s Decision [55]. It gathered representatives from 41 institutions (more information can be seen on bellab.rs, accessed on 16 March 2021), divided into seven distinct sections, which include the Core Project Team, educational and cultural institutions, sport and recreational institutions, public organizations and utility companies, private sector developers, academia, expert associations and SME’s and (finally) national-level institutions (the last two among the institutions previously listed) [55].

Two focus groups followed UIP’s establishment in December 2019 and January 2020, organized and facilitated by CEUS, when five new institutions joined the partnership and significantly contributed to its work. Particularly strong interest and proactive inputs and ideas were received from secondary schools and public cultural and educational institutions, namely, future beneficiaries of the Linear Park.

CEUS also developed a unique online platform to support its local ULL, named Belgrade urban living LAB (BELLAB) [56]. It is a comprehensive repository of all the actions taken, with very detailed minutes, questionnaire and polls results, individual inputs, illustrations, etc. It also serves as a medium for announcing future events, exchanging relevant news and establishing contacts with new UIP members and interested citizens.

Through the BELLAB platform and the UIP network, and in coordination with the City of Belgrade, in December 2019 CEUS launched an online questionnaire for citizens, on desired programs, content and activities, to be planned in the Linear Park [57]. The questionnaire was promoted in organized public events, via social media and TV reportage, and it was filled in by 570 citizens. Its results (Figure 3) revealed citizens’ interest in using open public spaces: skate-parks, amphitheatres, multifunctional plateaus, community gardens, artistic pavilions, cultural-historical paths, green creative corridors, eco-educo centers, etc. The results also confirmed high interest in urban agriculture: 57.6% of examinees confirmed that they are interested in practicing urban agriculture, but almost 40% of them (22.4% of total responders) were concerned that urban agriculture would be too complicated. Answers to the “open question” about the park content revealed that responders highly appreciate urban biodiversity and simple green spaces and that they prefer landscape design over urban design. They even proposed “nature as the main creator” and renaturing of this urban corridor by ecological succession [57].

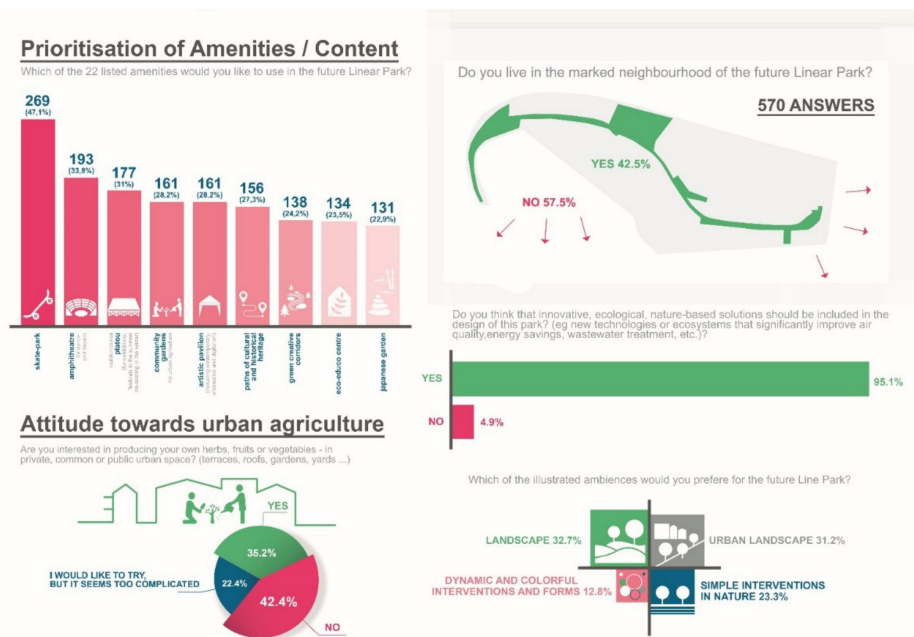


Figure 3. Results of the Linear Park Questionnaire [57] (Figure is produced by the Author).

In parallel, a call for young transdisciplinary teams was drafted by CEUS and finalized in collaboration with the Office of the Chief Urban Planner, Association of Belgrade Architects and EuPOLIS consortium. The call was announced in December 2019 [58]. A total of 145 young people in 28 teams answered this call, and criteria for selection of ten winning teams were: (1) proposed conceptual approach; (2) application of NBS; and (3) previous candidates' experiences, according to CVs and portfolios. At the end of February 2020, the ten teams were chosen by the Professional Committee comprised of 10 members (including the authors of this article) to develop conceptual designs for 10 sections of the Linear Park. They gathered 49 young authors (architects, landscape architects, civil engineers, electrotechnical engineers and chemical engineers) with 15 collaborators (additional transport engineers, mechanical engineers, engineers of urban planning and regional development, biologists, etc.). The programming basis of their designs was the results of the aforementioned questionnaire [57].

In February 2020, the first broader public event was organized, comprised of a panel of presentations of the CLEVER Cities partners, a discussion with citizens, a workshop for community mapping and an exhibition of NBS examples prepared by Master students of the University of Belgrade—Faculty of Architecture (UBFA) [59]. Over 130 people attended this event, and questions and comments from participants were pro-active, focused and constructive, which evidenced that the local community is dynamic and highly interested and motivated to (self) organize and invest their time, expertise and other resources for the future of this important public space and a new green oasis of Belgrade. Catalogue of NBS for Urban Regeneration [60], and the Co-creation Guidance [44,45] were translated into Serbian language and adapted to the local context, in collaboration with the students of the UBFA. Based on those materials, citizens could select the most desired NBS for the Linear Park and place them on the map of the area, as well as any other input from their own, local perspective (Figure 4). For public spaces interventions, citizens expressed interest, in particular, for NBS such as Infiltration Areas and Porous Paving, Community Gardens, Urban Bee-keeping, Facilities for Birds and Fauna, Butterfly Park, Urban Fruit Trees, Sensory Gardens, Urban Flower Fields, Usage of Treated Surface Water, The Living Garden Concept, Islands of Coolness, Green Noise Barriers, Eco-Urban Furniture, Shade provided by vegetation, etc. For new structures and complexes planning and design, such as Marina Dorćol, citizens believe that plans and technical documentation should integrate

the following Building-Scale Interventions: Green Walls, Green Roofs, Urban Rooftop Farming, Rainwater Collection, etc. [59].



Figure 4. Results of the community mapping during the public workshop [59] (Figure is produced by the Author).

In April 2020, it was announced in the media that SEBRE Marina Dorćol company would donate resources for young architectural teams to develop conceptual designs for the Liner Park, from the beginning of June, by the end of August 2020 [61]. All those processes occurred before any formal citizens engagement procedure, namely before the EPC.

The EPC for the Liner Park was announced on the first day of the Planning Committee's work following the COVID 19 lock-down and conducted in the period 13–27, May, 2020. Due to prohibition of public gatherings in May, CEUS organized an online consultation process for the members of the UIP and the broader citizenry using the ZOOM application, with the possibility of sending comments and questions in advance. Since the first COVID 19 pandemic wave had a significant impact on people and shifted their focus and interest, and due to still insufficient general skills for public discussions in an on-line realm at that moment, a total of 25 participants attended this meeting. However, those who did attend the meeting very clearly expressed their doubts, wishes and suggestions. A poll for prioritising NBS was organized as well, and Community Gardens were voted as the most desired NBS. On 27 May, CEUS submitted suggestions regarding the Draft Plan development in 27 points to the Secretariat for Urban Planning and Construction, based on the results of all the consultative processes conducted before and during the EPC process [62]. No significant objections were received by the CEUS team nor communicated in the media, including social media.

However, there are still significant challenges in planning and implementation of the Liner Park that can be expected: construction of the cultural, educational, commercial and sports facilities (37,250 m²) within the green areas [40], relocation of the sub-standard settlements along the railroad [63], etc. However, the CLEVER Cities team believes in the initial sense of ownership created and good synergies among institutions, and will advocate for a transparent, collaborative approach in the subsequent steps of this urban plan development to implement NBS and green infrastructure.

2.3. Avala Film Complex (Košutnjak Urban Forest)

The Avala Film Complex privatization process occurred in April 2015 and caused dissatisfaction and distrust among citizens [64]. The Avala Studio's d.o.o. (70% owned by the SEBRE company), Avala Film Complex's new owner [65], obtained the rights over valuable cultural heritage (producer's right over 600 movies) and the *right of land use* over 37 ha of urban land. According to Serbian Law on Planning and Construction [21] and Law

on Conversion of Right of Use into the Right of Ownership Over the Construction Land with a Fee [66], in cases of privatization, the *right of land use* can be converted into the *right of ownership* without any cost.

In December 2017, following the Avala Studio's d.o.o. initiative, the Assembly of the City of Belgrade adopted a Decision on developing the Plan of Detailed Regulation (PDR) for Avala Film Complex [67] for an app. 86.8 ha of land. From the moment of enactment of the Decision on the plan development, until the formal EPC announcement, no communication was initiated with the expert or broader public regarding this initiative (Table 2).

Table 2. The EPC citizen engagement in the case of the Avala Film Complex (Košutnjak Urban Forest).

Levels of Engagement	Nature of Approach	Description
Inform	non-participatory	Media announcements on urban planning initiation and EPC
Consult	non-participatory	No activities
Involve	participatory	No activities
Collaborate	participatory	No activities
Empower	participatory	No activities Spontaneous civil engagement supported by NGOs and academia

EPC for the Avala Film Complex was announced on 29 June 2020 and lasted until 13 July. The EPC Elaborate [68] revealed that surprising land-use changes had been proposed. Along with the construction of the app. 80,000 m² of public facilities and complexes, the construction of 422,000 m² of residential space, 147,000 m² of commercial space and 42,000 m² of sports facilities were planned (Figure 5). According to the EPC Elaborate, such real estate development would destroy over 16 ha of the Košutnjak urban forest [68].

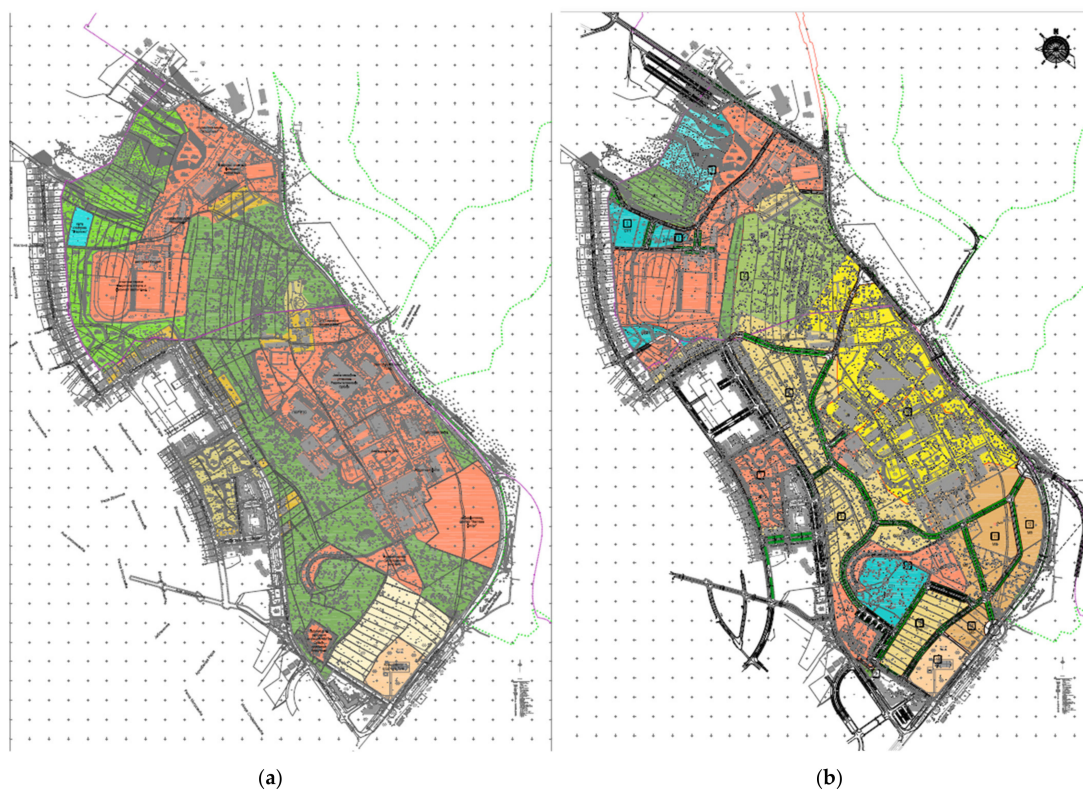


Figure 5. PDR for Avala Film Complex: (a) left—existing land-use, and (b) right—planned land-use [68].

As soon as this information was made public, a strong civil engagement swiftly got organized against the planning initiative. An online petition against forest destruction got almost 15,000 signatures in just one day and over 30,000 signatures until the deadline for submission of complaints on EPC Elaborate [69]. Signatures are still being collected, and currently there are over 76,000 electronic signatures [70]. Furthermore, over 7500 elaborated hard copy, signed official complaints were submitted by citizens [71], collected within a week. Numerous professional associations, ecology movements, students' unions, and four representatives of the academia (three Deans of the University of Belgrade: Faculties of Forestry, Biology and Sport, and Physical Education, and Director of the Institute for Biological Research) publicly criticized the project [72].

Following the EPC process, the Chief Urban Planner, as the president of the Planning Committee, announced in early September that the city had decided to completely stop development of the PDR for the Košutnjak area, in line with the Planning Committee's Conclusion [73]. Although many media and civic groups celebrated this information as the citizens' victory, it soon became apparent that the planning process is just delayed but not terminated. The urban parameters and capacities will be reconsidered within the same development concept [74]. This was confirmed with the Secretariat for Urban Planning and Construction's official answer regarding free access to public interest information, clarifying that due to numerous complaints, it was not possible to presume when the Planning Committee will adopt the Report on EPS and conclude that the EPC process is finalised [75]. Urban Planning Institute's Working Plan for 2021 includes the continuation of the PDR for Avala Film Complex.

The citizen group "Pozdrav sa Košutnjaka" published their manifesto, requiring a change of the plan's title, protecting the forest, developing the new elaborate, and initiating procedures for the protection of the area as natural and cultural heritage [75]. This group also conducted analyses of the Avala Film Complex's property rights, concluding that only over 11 cadastre plots, namely, 2.7 ha (out of 87 ha within the scope of the plan), Avala Studios d.o.o. have ownership rights. However, the company does have the privilege of use over a much larger area (app. 40 ha), and they can efficiently conduct conversion of rights in the National Cadastre. Moreover, the Group analyzed land use and land cultures and noted that some of the plots (covering over 30 ha) are marked as prime forest land regarding the "culture". However, they are also marked as "urban construction land" regarding land use [76]. Thus, there is a lot of research and interpretation, as well as a lot of misinterpretation and misleading information. That is why expert facilitation and professionally-led co-creation is crucial.

The other citizen group, "Bitka za Košutnjak", submitted the initiative on 31 July 2020, to the Assembly of the City of Belgrade to terminate this plan in the legal procedure. Following several media texts in which the Serbian President criticized the current Elaborate for Košutnjak Urban Forest, the group "Bitka za Košutnjak" sent him an official invitation to sign the Petition against this plan: first as the citizen, and a month later as the President of the Republic of Serbia and all its citizens [77]. As expected, no answer was obtained. Finally, this group collected additional 2420 signatures, for initiating the procedure of obligatory public voting of all councillors at the next session of the Assembly, with media coverage, so that everybody could see who in the City Assembly had defended the public interest [71].

3. Results

This article explores how various urban planning cases can be understood and analyzed as different forces with potential to induce the long-term systemic change, and thus analyzed and interpreted as different analytical levels of the multi-level perspective framework (MLP). The urban planning formal process, although common for both cases, is observed as a socio-technical regime of the MLP. In such framework, we recognize co-creative planning of the Linear Park as a niche innovation, namely, the "protected space" provided by the CLEVER Cities project. We interpret opposition towards planning of the Avala Film Complex as escalation, or extreme element of the socio-technical landscape,

comprised of civic unrests and political tensions on one side, combined with climate crisis and excessive pollution on the other side. Those interpretations will be further elaborated in the following sub-chapters.

3.1. Linear Park as the Niche Innovation: Follow-Up and Expected Results

CLEVER Cities project provided a niche and allowed introduction of novelties in the formal planning procedure for the Linear Park. Citizen engagement from the very initial moment of the plan development, active public participation, careful *expectations* management, articulation of *visions* [26] (p. 28) and gradual building of trust make this planning practice the first example of co-creation in Belgrade and have the potential to become a role model for future co-creative NBS and greening strategies.

Following the formal EPC for the PDR of the Linear Park, CEUS team kept regular communication with the expert and the wider public and kept building social *networks* [26] (p. 28) by organizing several online events: Online Discussion with presentation of the Zone 4, during the EU Green Week in October 2020 (85 participants); Educational Session of Presentations and Discussions between Designing Teams and Students in November 2020 (60 participants); Expert Discussion on Urban Parameters for NBS in November 2020 (35 participants); and Discussion on Instruments for Co-creation of NBS in Serbia and Ecological Index, during The Nature Of Cities global online festival in February 2021 (65 participants). All those interactions allowed for “*learning and articulation processes on various dimensions*” [26] (p. 28). CEUS also established a quarterly Newsletter, which has 600 subscribers, and prepared a miro board for online community mapping [78].

Public Consultation for this urban plan is expected in May and June 2021, and in order to achieve a higher sense of belonging, ownership of spaces, and citizen-centered solutions, as well as the legitimacy of the procedures from the European perspective, the following subsequent activities are planned: Open Public Discussion about the Draft Urban Plan, with review of Conceptual Designs and final NBS selection, intensive communication among stakeholders, and Peer Review of the Public Consultation/Draft Urban Plan among the CLEVER Follower Cities.

In order to keep the citizens engaged and keep the momentum going, it is planned to strengthen collaboration with local schools and cultural and educational institutions around the Linear Park, organize local volunteering actions (e.g., demonstration urban farming) and promote NBS via youth contests and challenge prizes.

The only (but significant) risk factor for this specific urban plan at the moment is the strong distrust of citizens towards the investor of the Marina Dorćol and Linear Park conceptual designs—the SEBRE company, created by the unclear intentions regarding the Avala Film Complex. On the other hand, this crisis is also an opportunity for both the government and the investor to realize how different approaches towards the citizens create radically different results and may be highly beneficial and informative for future planning practice.

Authors of this article believe that Linear Park planning example has a strong potential to “provide the seeds for systemic change” [26] (p. 27); thus, systematization of the utilised tools and principles will be conducted, for possible future use in similar situations in the Western Balkans and the EU enlargement context.

Informal Instruments for Co-Creation of NBS in Niche Innovations

It is critical to reflect on communication strategy and informal urban planning instruments applied in this case, that can be implemented by the practitioners of the niche innovations, while avoiding conflicts, and even benefiting from the existing civic pressure and political tensions, as the socio-technical landscape which contributes to sustainability transition of the urban planning system.

In co-creative planning of the Linear Park, several tools and instruments have been introduced (Figure 6):

- A wide urban innovation partnership was established;
- An online platform for information exchange was created;
- A questionnaire regarding the content was conducted;
- Thematic focus groups were organized;
- Public presentations and a workshop were held;
- Community mapping was introduced—both on site and online;
- Open discussion during EPC was held;
- Joint cumulative remarks in the official planning procedure were prepared;
- Several complementary online discussions were organized;
- Catalogue of NBS examples was prepared;
- Design competition for multidisciplinary teams was organized;
- Conceptual design was co-created in collaboration with 10 teams.

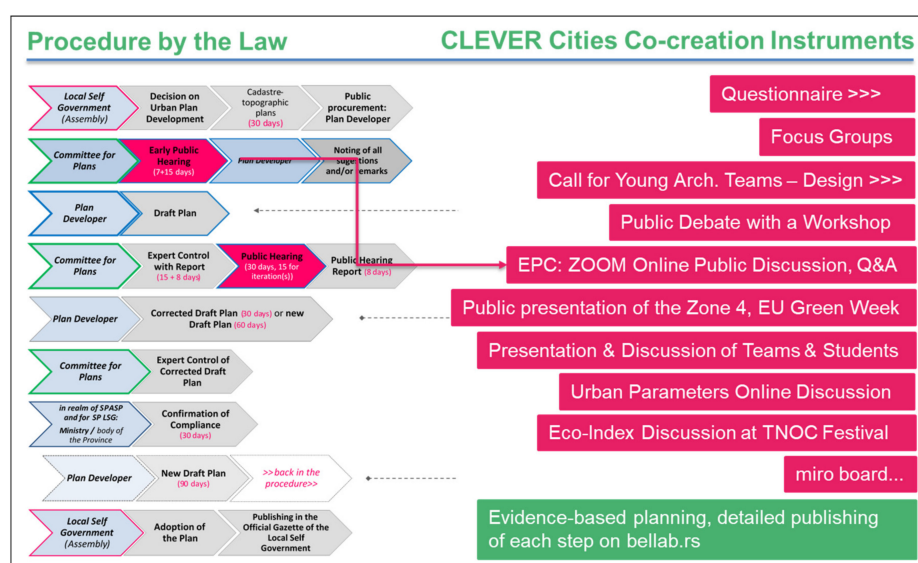


Figure 6. Illustration of the stakeholder participation and citizen engagement procedures defined by the Law (interpreted by the Author), and complementary, informal co-creation instruments tested within the Niche of the CLEVER Cities project and planning of the Linear Park (Figure is produced by the Author).

These instruments allowed empowered stakeholders to take an active role in urban planning, e.g., by (1) preparation of cumulative, joint remarks in the official planning procedure; (2) nature-based solutions introduction to the wider citizenry by the Catalogue of good NBS practices, prepared within the academic collaboration; and (3) urban design capacity building of the young practitioners in the winning teams, etc. More critical assessment of the effects of these instruments will be conducted in the subsequent research, following this urban plan adoption and clear evaluation of co-creation for integrating NBS in urban planning. Although these instruments cannot be claimed as relevant for all the innovation niches, as conceived in general MLP middle-range theory, it is believed that these or similar tools can be highly beneficial in urban planning practice, if further exploited in the Serbian and the EU enlargement context.

3.2. Avala Film Complex as an Extreme Element of the Socio-Technical Landscape: Follow-Up and Expected Results

The goal of the Avala Film Complex re-development, at least declaratively, was and is the enhancement of the Serbian film industry [68]. However, according to the PDR Elaborate and planning proposition, it is evident that the new owner is a real estate developer, with the intention to build a new city quarter, mainly residential and commercial, instead of protecting the current “forest within public facilities” [68]. Concerning these ambitions,

significant public opinion emerged, assuming that Belgrade's green infrastructure network is seriously threatened and NBS mainstreaming is highly undermined.

It is highly unexpected that the expert and wider public will accept the existing urban development concept for the Avala Film Complex. Civic groups announced mass protests as soon as the COVID-19 pandemics allows it. Citizens claim their readiness to defend the forest with their own bodies if such radical measures become necessary.

While many authors in early September described protection of the Košutnjak Urban Forest as the "outline of new local politics, which achieved an important victory" [65] and "success of public participation" [79], it seems to be a complete failure regarding urban planning processes, co-creation and NBS mainstreaming.

Nevertheless, authors of this article believe that civic pressure created around Avala Film Complex represents the escalation of dissatisfaction with the current urban planning system and argue that it can be interpreted as an extreme element of the socio-technical landscape, which will be highly significant for the establishment of substantially better planning praxis. "Stopping of the process for [. . .] plan is maybe the critical moment in which participatory urban planning may become a regular model, which will be used from the early stage until its full implementation [. . .] with reducing the chances of "duplicating the work" for the Urban Planning Institute of Belgrade if Draft Plans can be developed without negative feedback from citizens" [79].

Although Avala Film Complex obviously does not represent the participatory urban planning, nor paves the road for such pro-active practice, its re-active strength, expressed by defending the public interest in the street and in a rebellious manner, reflects societal values and significantly influences regime dynamics. It is highly valuable "in interaction with processes at different levels" [26] (p. 29), namely, with dynamics of the Linear Park niche innovation.

4. Discussion

Performed multiple-case study results indicate the possibility of sustainability transition in Belgrade context by destabilization of the socio-technical regime regarding the urban planning system, by "active participation, struggle and negotiation" [80].

Since the socio-technical regime represents the "deep structure" [81], comprised of "cognitive routines and shared beliefs, capabilities and competences, lifestyles and user practices, favourable institutional arrangements and regulations, and legally binding contracts [. . .] characterized by lock-in" [26], it is necessary that niche innovation, such as Linear Park example, "build up internal momentum" that "changes at the landscape level create pressure on the regime", such as Avala Film Complex opposition, so that regime's destabilization "creates window of opportunity for niche-innovations" [26] (p. 29).

This multiple-case study illustrates how niche innovation of co-creation in planning of the Linear Park, and socio-technical landscape of the civil pressure escalated around planning of the Avala Film Complex, are "processes in multiple dimensions and at different levels which link up with, and reinforce, each other ("circular causality")" [26] (p. 29) (Figure 7).

In Belgrade, there are indications that the two case-studies described in this article already have significant although indirect impact on systemic change of the planning practice, interpreted as the socio-technical regime in this research.

In particular, development pathway of the General Urban Plan (GUP) for Belgrade 2041 can be encouraging, for several reasons: (1) at the online discussion during The Nature Of Cities festival, organized by CEUS, representatives of the Urban Planning Institute for the first time communicated their strategic framework regarding the GUP with the public, and for the first time they interacted with criticism of well-established urban planning activists (Collective "Ministry of Space"); (2) subsequently, the second author of this article joined the GUP expert team and supported preparation of the citizen engagement strategy; (3) initial questionnaire for preparation of the GUP EPC Elaborate was published in March 2021, promising a more inclusive and participatory procedure than the usual practice.

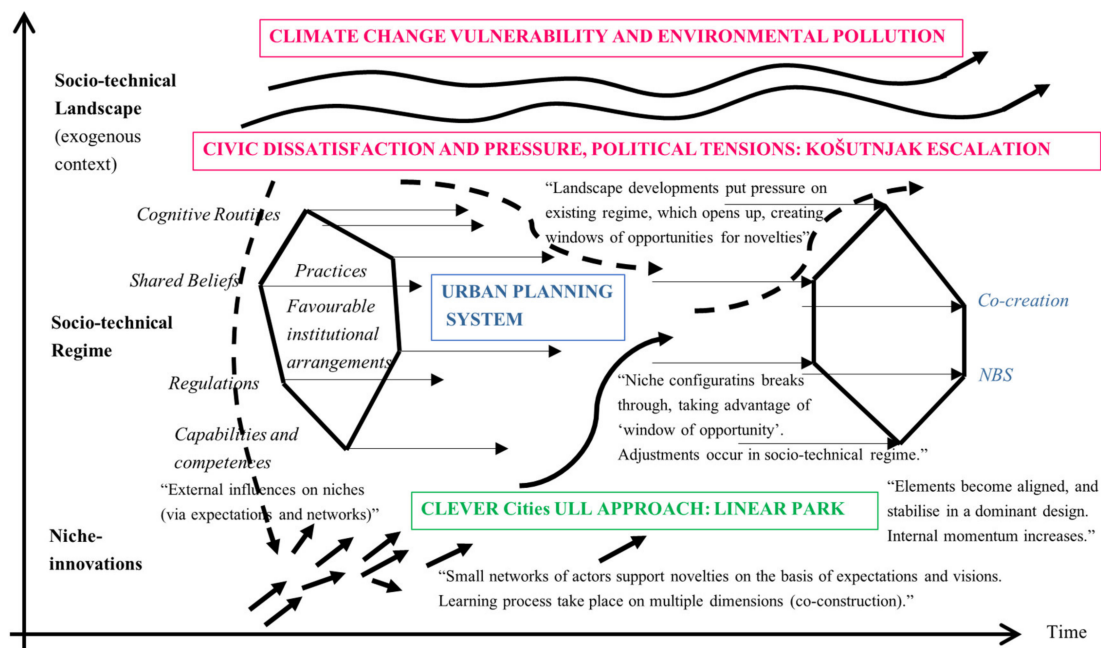


Figure 7. Interpretation according to Geels [26]: the multi-level perspective on sustainability transition regarding urban planning in Belgrade (Figure is produced by the Author).

The MLP framework on sustainability transition has been commonly used for interpreting long-term changes in the energy sector [80], GMO and food production [27], organic food and eco-housing [82], etc. This research, however, focuses on urban planning system as a complex formal procedure and uses its own elements, namely, particular planning cases, as illustrations for different analytical levels of the framework. Although bearing the risk of ambiguity, this approach is considered innovative and appropriate to the socio-political and geographical context of the study. Moreover, the focus of co-creation, as a social innovation rather than a technological one, brings added value to this research.

5. Conclusions

The MLP framework for sustainability transition regarding urban planning system can be further analyzed, with unfolded interactions sub-divided into several phases. However, the initial conclusion is that urban sustainability transition in this context is possible and should be expected.

By comparison of the two case studies of citizens' engagement regarding urban planning of green infrastructure in Belgrade (Table 3), it is evident that the reactions of citizens against the unwanted proposal at the moment are much easier, prompter and more numerous than proactive citizens' engagement. This is understandable, considering the long tradition of centralized planning in a post-socialist context and lack of planning dialogue experience in the past. This is also the major challenge for urban planners and NBS advocates in the Serbian and the EU enlargement context. This article highlighted the importance of tailored and contextually sensitive early communication of the planning initiatives as the cornerstone of successful and sustainable urban development. When planning significant urban transformations related to urban greening resources or potentials, it is critical to perform high sensitivity for the site, and socio-economic and environmental specificities and values. Initiation of the co-creation process before the formal urban planning procedure (EPC) is essential, as well as the utilization of complementary, informal co-creation tools to enable trustworthy and constructive communication.

Table 3. Summary of the MLP framework interpretation, describing the case-studies at various analytical levels and in relation to NBS and co-creation. (Table is produced by the Author).

MLP Framework	Interpretation of the Three Analytical Levels and Their Reinforcements	NBS Considerations?	Co-Creation Processes?
Opposition to planning of the Avala Film Complex redevelopment as an extreme element of the Socio-Technical Landscape	<ul style="list-style-type: none"> - Accumulated dissatisfaction with non-transparent procedures and introverted urban planning; - Civic pressure, and political tensions - Concerns regarding climate vulnerability and air pollution - Extreme manifestation with mass mobilization against the concrete redevelopment initiative 	<ul style="list-style-type: none"> - Reduction of 16 ha of urban forest in the land use overview - None NBS considerations - Evidence on the lack of systemic approach to NBS 	<ul style="list-style-type: none"> - No communication prior to EPC - No co-creation - Misleading communication after the EPC
Urban planning system in Belgrade, Serbia, as a Socio-Technical Regime	<ul style="list-style-type: none"> - Post-socialist transition introduced multiple interest in urban development, but there are no adequate tools for addressing this variety of interests - Strong political influence; - Modest financial instruments 	<ul style="list-style-type: none"> - Declarative care for green infrastructure, rather than practical - Ecological index or green urban parameters not yet in usage 	<ul style="list-style-type: none"> - Post-socialist heritage influence perception of participation - Lack of professional capacities for facilitation discourage co-creation
Linear Park ULL as a Niche Innovation	<ul style="list-style-type: none"> - Developed in the protected space of the CLEVER Cities Horizon 2020 project - Careful <i>expectations</i> management was conducted, as well as articulation of <i>visions</i> - Via UIP, social <i>networks</i> were built up and <i>learning and articulation processes</i> were facilitated on various dimensions - This ULL has the potential to “provide the seeds for systemic change” [27] 	<ul style="list-style-type: none"> - NBS have been mainstreamed in urban planning, via advocating green urban parameters - NBS Catalogue has been prepared and communicated to expert and wider public - NBS have been elaborated and promoted via community mapping, polls and collaborative prioritization - Co-design and prototyping of NBS via design competition 	<ul style="list-style-type: none"> - Cross-sectoral collaboration - Citizen engagement and community empowerment - Introduction of new, informal planning instruments - Building of trust via regular and transparent communication

From the experience of the Linear Park planning, several important principles of **co-creation** in the EU enlargement context have been recognized:

- I. **Formalization** of stakeholders' engagement is important, in the form of a task force, such as urban innovation partnership;
- II. **Building of trust** is critical, and can be obtained by external facilitation (by engaging representatives of professional association or academia, rather than the local self-government); regular communication and transparent information about processes are highly appreciated (e.g., via an online platform—web interface, Newsletter, etc.);
- III. **Direct communication** is indispensable, in various forms: interviews, focus groups, workshops, presentations, discussions, etc.
- IV. **Co-design and prototyping** give stakeholders and citizens a strong sense of ownership; examples include a design competition for young transdisciplinary teams and conceptual designs of multiple teams;
- V. **Empowerment of stakeholders** during the process is crucial for long-term constructive changes.

This research also paves the road for future evaluation of the impacts of co-creation in the subsequent phases of the two urban transformations, as well as further exploration of the ULL approach and its impact on urban sustainability transition in the EU enlargement context.

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