BOOK OF PROCEEDINGS

2nd INTERNATIONAL CONFERENCE ON HOUSING, PLANNING, AND RESILIENT DEVELOPMENT OF THE TERRITORY

TOWARDS EURO-MEDITERRANEAN PERSPECTIVES

OCTOBER 16th-17th, 2025

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2nd International Conference on Housing, Planning, and Resilient Development of the Territory

Towards Euro-Mediterranean Perspectives

Conference Theme and Rationale

This conference returned for the second time within the Albanian and Mediterranean academic context, aiming to build a tradition of collaboration centered on scientific research and academia. Following the success of the first edition held on October 13th-14th, 2023, where proceedings were published in the Book of Proceedings, Albanica journal, and various international academic platforms, POLIS University and the Academy of Sciences of Albania relaunched this important event. The 2025 edition focused on housing, urban planning, and resilient territorial development, offering a platform for researchers, policymakers, and experts from the region and beyond.

Albania and the Western Balkans have faced major transformations in urbanization, spatial planning, and environmental management. Demographic changes, economic pressures, and environmental challenges created a need for new strategies in architecture, planning, and governance. This conference brought together diverse voices to explore these themes and promote resilient and sustainable development.

Key topics included architecture and the city, with emphasis on urban form, housing typologies, and the role of cultural heritage in modern urban design; urban mobility, addressing traffic challenges, public transport, and the use of technologies like GIS and AI in planning; and new housing models, focusing on affordability, energy efficiency, and innovative materials.

Discussions also covered demography and economy, exploring territorial governance, smart cities, social enterprises, and digital technologies such as AI, VR, and the Metaverse in urban management. Finally, the urban and natural environment was addressed through topics like pollution, adaptive planning, and nature-based solutions for climate resilience.

Through this conference, POLIS University and the Academy of Sciences of Albania aimed to foster a broad interdisciplinary debate on these pressing issues, combining academic and practical perspectives to offer concrete recommendations for future urban and territorial development policies and projects.

Organizers' Announcement

The International Scientific Conference on Housing, Urban Planning, and Resilient Territorial Development: Toward Euro-Mediterranean Approaches was held on October 16th-17th, 2025, in Tirana, Albania. Organized by POLIS University in collaboration with the Academy of Sciences of Albania and supported by national and international partners, including the University of Ferrara and Co-PLAN, Institute for Habitat Development, the event brought together researchers, academics, policymakers, and professionals to address key challenges in urban development, with a focus on resilience and sustainability in the Euro-Mediterranean region. The first day of the conference took place at the Academy of Sciences, while the second day was hosted at POLIS University.

The conference explored five main themes:

I. Architecture and the City, which investigated the typological and morphological dimensions of urban form, the evolution of collective and individual housing types, the relationship between architectural design and urban identity, and the role of historical and cultural heritage in shaping contemporary cities;
II. Urban Mobility and Resilient Cities, which addressed traffic congestion, infrastructure challenges, and public transportation, while also promoting the redesign of public spaces – such as streets, squares, and pedestrian zones – to improve accessibility and mobility; it also explored the integration of digital technologies like GIS, AI, and simulation tools to enhance planning, automation, and infrastructure management;
III. New Housing Models, which examined innovative approaches to affordable and social housing in response to demographic shifts and technological change, along with energy efficiency strategies, passive energy systems, and the application of new sustainable materials and construction technologies;
IV. Demography and Economy, which focused on macro-regional and national dynamics impacting territorial development, including urban governance, disaster risk reduction, and the rise of smart and inclusive cities; it also explored how emerging technologies – such as AI, VR, and the Metaverse – along with social enterprises and circular economy practices, could foster more equitable and adaptive urban systems; and
V. Urban and Natural Environment, which analyzed environmental degradation in urban settings, including air, water, and soil pollution, and promoted nature-based solutions, ecosystem-based planning, and adaptive strategies to enhance environmental sustainability and climate resilience.

The conference was conducted in English and Albanian (with self-translated texts where applicable) and was free of charge, with all registration fees fully covered by POLIS University in support of open academic exchange. Key deadlines included abstract submission by June 15th, acceptance notification by June 30th, first draft of papers by September 15th, and final submissions by October 31st.

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Layout & Design:

Sindi Doce

Armela Reka

POLIS University Contact:

Rr. Bylis 12, Autostrada Tiranë-Durrës, Km 5, Kashar

Kodi Postar 1051, Kutia Postare 2995

Tiranë, Albania

Tel: +355.(0)4.2407420 / +355.(0)4.2407421

Fax: +355. (0)4.2407422

Mob: +355 (0) 69 40 88 111

Email: contact@universitetipolis.edu.al

Website: www.universitetipolis.edu.al

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Urban regeneration and conservation / Cultural and historical heritage / Regenerative approaches to design and adaptive reuse of spaces.

Morphogenetic Axes as Generators and Anchors of Urban Form

The Ancient Aulona

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Assoc. Prof. Dr. Sotir DHAMO
ORCID 0000-0002-5005-108X
Department of Architecture and Engineering, POLIS University, Albania,
sotir_dhamo@universitetipolis.edu.al

Abstract

Where and how do cities begin? How do the initial traces that mark the beginning of the city arise? Why do they emerge in a certain place and become fixed there? As Poete argues (in Rossi, pp. 51, 59), once the city emerges in a certain place, it is the road that keeps it fixed to the axes of development. These traces that the city "wraps" within itself are the beginnings of the urban fabric. Although the origin of cities is never limited to a single reason, this article examines the role of the road as a significant generative factor for the emergence of cities, as it exposes a specific territory to historical events, and anchors the city to its place of origin. Roads and other related artefacts are similar to a kind of nucleus around which the developments and variations of urban form gather and mesh.

The article explores and analyzes these aspects in the case of ancient Aulona. Thus, the initial strategic crossroads, the fortress and the old pier of Aulona, their connecting axis, and its later extension, are considered the primordial artifacts that underlie the generation of today's Vlora. Historians and archaeologists present evidence that supports a more holistic perspective on morphogenetic aspects, tracing back to a historical period (in space-time) that explains the emergence of Aulona from the interaction between earlier regional centers (Amantia-Kanina, Bylis-Triport, Orik); when Aulona became a significant crossroads after the Roman conquest; or when the old pier and fortress of Aulona became disconnected from the coastline due to geomorphological changes. These events reflect primordial, self-generative interactions – important imprints embedded in today's city, still rooted in the same historical crossroads despite the many historical and natural events it has undergone.

Keywords

Aulona, generative factor, historical events, morphogenetics

1. Introduction and literature review – Foundational roads in urban morphology

Urban morphology can be understood as a form of enduring infrastructure that shapes the way cities concentrate populations and buildings (Dovey and Pafka 2020, pp. 93-108). Once established, often persists for centuries. Yet the question remains: how does this focal point of concentration – what Mumford (1961, p. 3) called 'the point of maximum concentration for the power and culture of a community' – come into being? Understanding the processes of generation constitutes a primary objective within the fields of urban planning and design research. Frequently, the origins from which urban developments emerge remain embedded in artifacts – whether physically perceptible or otherwise – as if they were channels of communication within the societal-temporal-spatial continuum (Zohar and Marshal 1994, pp. 58-59; Arida 2002, p. 150, 157), linking past, present, and future dynamics. Through an examination of the pivotal historical events of the territory in which a city is established, alongside the artifacts that embody these events, this article posits that the “persistence” (Rossi 1984, p. 51, 55) and “constancy” of distinct elements of the urban plan - such as its formative axes - serve as the structural framework for the generation of form, thereby influencing the regulatory mechanisms governing subsequent transformations. This argument is exemplified by the case of Vlorë, where the original city-forming axis not only encapsulates key historical events but also underpins the city’s morphological structure, anchoring it in the very same place where it was created.

The street occupies a central role in Poete’s urban analysis, wherein the city may originate in a specific location, but it is the street that sustains its vitality over time. According to Poete, cities become “fixed” along their developmental axes, internalizing and preserving the traces of these formative paths within their morphological structure. The principal elements that ensure such continuity are the physical remnants (“permanences”) of the past – monuments, streets, and the city plan itself or its traces. These traces persist in diverse forms through to the present day – often altered or distorted – yet they remain spatially anchored and are rarely displaced (in Rossi 1984, p. 51, 59). Thus, while eras and civilizations evolve, we can observe the persistence of certain elements that ensure the unity and continuity of the city’s plan and urban form, regardless of growth. For Lavedan (in Rossi 1984, p. 51, 55), “persistence” generates the city plan and is the basis of the organization of urban form. These permanent "structural elements” that maintain continuity over time are either intrinsic to the city’s origins or intimately linked to them; they represent, in Rossi’s terms, “a past that we are still experiencing” that can be considered as “propelling” elements endowed with vitality, or “pathological” when they exhaust themselves and only the permanence of their form remains (Rossi 1984, p. 59).

While historians and archaeologists have extensively illuminated the facts and artifacts pertaining to the origins of various urban settlements, the contributions of architects and urban planners have often remained confined to technical domains, frequently neglecting the historical and morphogenetic dimensions that could critically inform context-sensitive projections best fitted to the society-time-space continuum. In Albania, the city has traditionally been analyzed according to functional classifications – an approach that, in the

international arena, reached its peak during the modernist period, aimed at planning cities objectively through the quantitative standardization of functions and needs. In Albania, this approach was further entrenched during the dictatorship, wherein architecture and urbanism were reduced to strictly technical, exact, and controllable disciplines. In contrast, this article addresses the city through its morphogenetic dimensions: how form conveys the origin of interactions with historical processes and is, in turn, transformed by them. Awareness of these concepts invites not only a re-reading of the urban palimpsest – as an integral component of cultural heritage – but also advocates for its active integration into strategies of contemporary urban development and design. These considerations are further grounded through the case study of ancient Aulon, which exemplifies processes of genesis, spatial formation, and gradual growth.

2. The event-street interactions that generated and anchored Aulona

Understanding why and how Vlora developed precisely in its current geographical and morphological configuration necessitates a broader spatial-temporal perspective. The street, or route, as the foundation of this reasoning, allows us to argue that the origins of Vlora as a city extend far beyond its present territory and reach further back in history than the contemporary urban fabric suggests. On this logical basis, we revisit the city's historical "genetics," rooted in the processes that unfolded along primary natural communication corridors – such as the ancient Vjosa (Aos) River and its tributary, the Shushica. These corridors formed the geographical matrix (Figure 1, Figure 2) within which early settlements – such as Amantia, Bylis, Triport, Orikos, and Kanina – emerged and evolved, long before the establishment of Aulona. Even today, these routes remain central to the broader regional connectivity with the Bay of Vlora, which has long held a strategic role as a gateway to the Adriatic Sea – naturally protected by the Sazan-Karaburun-Triport system and conveniently connected to the interior regions of Albania and the Balkans (Baçe 1975, p. 5).

Figure 1. *Geographical matrix.* Source: Google Earth view and author's photos.

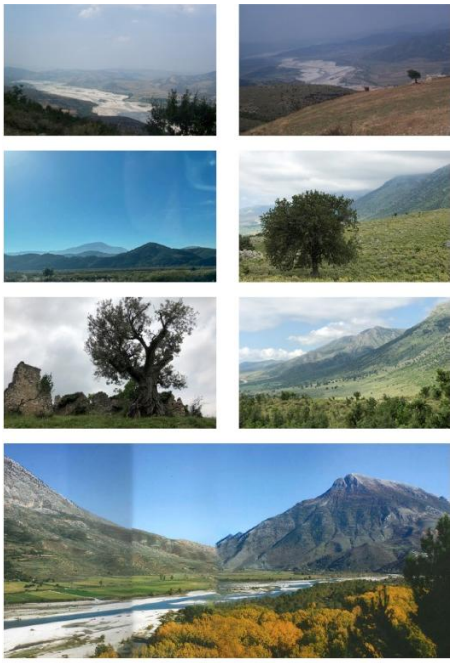

Figure 2. *Natural communication corridors.* Source: Author's photos; below from Ceka (2012).

Ptolemy refers to Aulona in the 2nd century AD as a "city and harbor" (*Ptolem. 3, 12*); however, archaeologists argue that ancient Aulona was the result of complex, interactive relationships among pre-existing regional settlements – those previously mentioned – which long predated its emergence. In fact, the development of cities in Southern Illyria was preceded by a rich proto-urban context, characterized by a network of fortified settlements dating from the 7th to the 5th centuries BC (Ceka 2020, pp. 240-241). According to Komata (1991, p. 7), along the Shushica River and partially along the Aos, a system of such fortified settlements was established to control key routes traversing the mountainous straits. These settlements emerged in unique sites – places seemingly "predestined by history" (Rossi 1984, p. 106) – embodying in their *genius loci* (Schulz 1992) the distinctive and advantageous qualities of the natural environment.

The emergence and development of Aulona is closely linked to the two main centers of production and exchange in the hinterland of the Bay of Vlora – Amantia and Bylis – which functioned as dominant cultural and religious poles within their respective *koinones* (political communities) (Ceka 2020, p. 238). Their economic growth, along with the need for protection and access to the sea, contributed to the strengthening of two coastal settlements: Triport and Kanina, which became the respective maritime outlets for Bylis and Amantia (Baçe 1975, p. 15). Both Triport and Kanina were located at the starting points of routes that connected the coast to the hinterland (Korkuti et al. 2008, pp. 213-215) as early as the proto-urban period (Figure 3). These two city pairs – Bylis-Triport and Amantia-Kanina – are directly associated with the rise of Aulona, which absorbed populations from both Triport and Kanina.

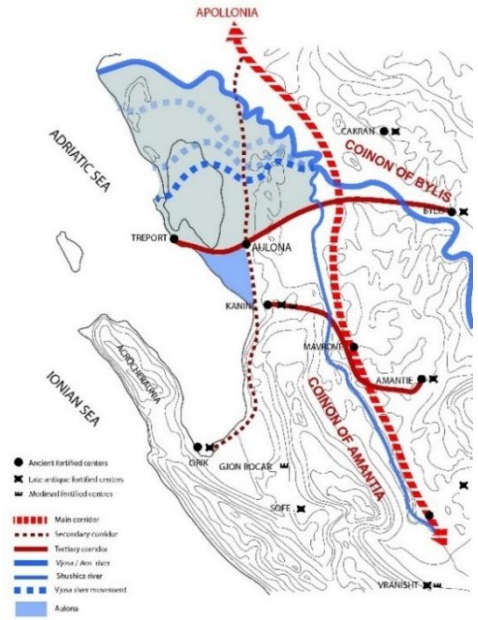

Figure 3. *City pairs Bylis-Triport, Amantia-Kanina.*
Source: Author's redesign after Baçe (1975).

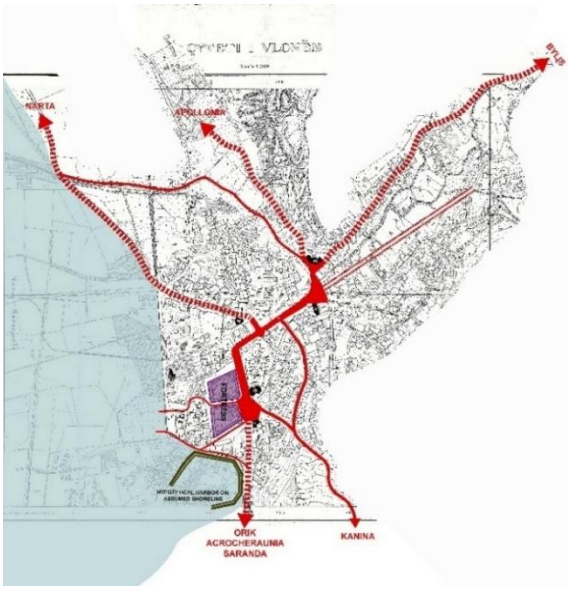

Figure 4. *Aulona: at the intersection of major routes and its Harbor near the current Flag Square.*

Although archaeological evidence indicates that Aulona functioned as the port of Amantia from the 5th to the 1st century BC (Ceka 2024, pp. 176-177), competition from Kanina, Orikos, and Triport relegated it to a secondary position. This situation began to change with the establishment of Roman rule in the 1st century AD and the subsequent period of relative peace in southern Illyria (Ceka 2024, p. 182). These new conditions prompted the population to abandon fortified settlements and relocate to the plains near the main roads (Anamali 2002, p. 163, Vol. I; Ceka 2024, p. 182), which passed closer to ancient Aulona. Thus, the location of the natural port of Triport – situated at the northern end of the Bay of Vlora and distant from the main road connecting Apollonia with Amantia or the Akrokeraunian mountains, approximately 8 km from present-day Vlora (Korkuti et al. 2008, pp. 212-213; Ceka 2024, p. 182) – together with the naturally fortified position of Kanina, which, although crucial for controlling the connections between the Bay of Vlora and the hinterland (Baçe 1975, p. 15; Komata 1991, p. 115), posed significant challenges for communication, would ultimately become advantages that strengthened Aulona's position.

Thus, the reorganization of regional terrestrial routes in the 2nd century AD (Ceka 2024, p. 178) favored Aulona's position at the intersection of major routes (Komata 1991, p. 115). The city developed around its harbor and became a key station along the road connecting Dyrrachium with Apollonia, the Akrokeraunian mountains, Bouthrotos, and Nikopolis; it also became the first stop for travelers arriving from Brindisi (Ceka 2024, p. 178). This gave Aulona a significant advantage over Triport, Kanina, and Orikos, which remained isolated from regional flows. At the time, Aulona – as a commercial center together with its harbor – was located in a bay situated very close to what is now Flag Square, where the sea once penetrated deep inland.

While this may seem unimaginable today, it is a fact confirmed by archaeological excavations (Figure 4).

The road that brought wealth to Aulona also exposed it to the incursions of the Gothic barbarian tribes. To defend against these attacks, a quadrangular fortress was constructed in the 4th century AD above a much older settlement, near the pier located about one hundred meters away (Ceka 2024, p. 178). The city itself was also enclosed by defensive walls. Even during the period of barbarian invasions, when focus shifted once again to mountain fortifications, Vlora as a settlement continued to exist in its original location – owing to its strategic and economic importance.

The threat of barbarian attacks fostered a symbiotic relationship between Kanina and Aulona, whereby Kanina functioned primarily as a military stronghold, while Aulona emerged as an economic and commercial hub (Karaiskaj 2012, p. 55). Within this binomial, Aulona would gain prominence whenever the strategic military significance of Kanina diminished – an alternating dynamic that persisted throughout the Middle Ages. The Aulona-Kanina urban dyad thus formed the frontline of an interconnected defensive network encompassing several hinterland centers around the Gulf of Vlorë, including Amantia, Çerja, Sofa, Treblova, and Kropishti (Komata 1991, p. 116).

During this period, settlement activity gradually shifted toward the coastal area of the Vlora Bay, with Aulona developing into a fortified city. By 458 AD, it had become an episcopal center under Bishop Nazar and also served as a road station. Fortified and strategically active, it received papal envoys in 519, and its defenses were restored by Emperor Justinian in the 6th century (Ceka 2005, pp. 284-285; Ceka 2024, p. 178). By this time, Aulona was recognized as one of the eight principal cities of New Epirus, whose administrative center was Dyrrachium (Ceka 2005, p. 158). From the late 6th to the early 7th century, however, the region faced successive invasions, including the devastating Slavic incursion of 547-548, which severely affected Aulona and Orik (Ceka 2005, p. 285). In response to the violence, part of Aulona's population sought refuge on Sazan Island, where archaeological evidence confirms settlement traces from this period.

In the first half of the 9th century, Byzantine authority was reestablished across the southern Balkans, and the road connecting Dyrrachium or Aulona to Thessalonica and Constantinople was reopened. However, the revival of civic life from the 9th century onward represents continuity only in terms of the geographic position of ancient Aulona; even the 9th-century fortifications were reconstructions over ancient ruins. Once again, it was the roads that kept the site anchored in place. In terms of function, in the early Middle Ages, cities – formerly centers of artisanal production and goods exchange – were transformed into ecclesiastical and military-administrative centers (Ceka 2005, pp. 339, 341). Thus, a new Aulona emerged upon the ruins of the ancient one, and the name Aulona reappears in Byzantine documents in 1082 (Ceka 2024, p. 179).

In the 13th century, several military centers – including Vlora – expanded beyond their fortification walls, gradually transforming into centers of artisanal production and acquiring a more urban character. Between the 13th and 14th centuries, Vlora, particularly favored by its

strategic position along the East-West trade routes, became an important hub for the trade of spices and aromatic goods (Xhufi 2002, pp. 259-262, 267-269, Vol. I).

In 1205, according to Ceka, alongside Aulona, Sfinarica (modern-day Zvërnec) also appears, which would gain prominence over the following two centuries in trade with Venice and Ragusa. This shift was primarily the result of geomorphological changes, notably the diversion of the Aos River's mouth directly into the Bay of Vlora, accompanied by significant alterations to the coastline. During the destructive floods, alluvial deposits filled Aulona's harbor and trapped ships in thick layers of mud – skeletons of which have been found in the area spanning from what is now Flag Square to the *Skelë* neighborhood. This helps explain what may seem puzzling today: the historical presence of the sea near the current city center, and, in connection with this, the positioning of the fortress directly above the old harbor. As a result, the port was relocated to the new mouth of the Aos, at Sfinarica. However, during the floods of the 14th century, the Aos shifted again toward its current course, leaving behind the Narta Lagoon as evidence of its former path (Ceka 2024, p. 179). Meanwhile, as the city's population was increasing, Vlora was severely affected by successive natural disasters – floods, fires, earthquakes – and the plague of 1481, which forced inhabitants to evacuate to surrounding villages (Xhufi 2002, pp. 260-262, Vol. I).

In 1417, Kanina, Vlora, and Berat fell under Ottoman rule. Kanina, serving as the administrative-military center, was prioritized over Vlora (Komata 1991, p. 118; Karaiskaj 2012, p. 55), until the Ottomans constructed the coastal fortress (located where the stadium now stands) in 1531 – considered the most significant architectural undertaking of that period. The study by A. Baçe (1973, pp. 188-189) reconstructs the image of the fortress as an octagonal structure with 90-meter sides, 15 meters in height, and a surface area of 3.5 hectares, which the Ottomans strategically built along the east-west communication route during preparations for the campaign to conquer Apulia. Traces of this fortress are clearly visible even on maps from the early 20th century.

By the 16th century, Vlora had a considerable Jewish population, and in 1510, Rabin David Messer Leon settled in the city. Additionally, the Ragusans had established their own colony and quarter for commercial purposes. As a result, Vlora hosted churches, tekkes, mosques, and a synagogue (Nurja 2012, pp. 19-20; Xhufi 2002, p. 263, Vol. I).

During the Ottoman period, between the 16th century and the beginning of the 20th, bazaars played a significant role. The development of Vlora was likewise closely tied to its bazaar, which was located outside the historical fortifications. It was distinguished by the urban-architectural coherence of rows of shops and artisan workshops, placed side by side along cobbled streets (Riza 1978, pp. 117-118). In the second half of the 19th century, between 1842 and 1892, with the expansion of the capitalist economy, ships of the Austrian company *Lloyd* and the Italian company *Puglia* docked in Vlora up to three times a week. In Vlora were based the agencies of merchants from Berat; the bitumen extraction industry of Selenica (since 1875), along with a saltworks, a pottery workshop, and several oil factories. Nevertheless, until the end of Ottoman rule, Vlora lacked a fully developed industrial base (Frashëri 2002, pp. 44-56, Vol. II).

In 1854, according to the Austrian consul von Hahn, Vlora counted around "400 houses scattered… among bushes and trees, above which stand out… the slender spires of seven minarets." He notes the oriental-style mansions of the Vlora family, in contrast to the bleak appearance within the city. According to him, Vlora was the main port of the Berat region, and at times even of Korça, for goods arriving from Corfu (1854, pp. 89-91). At the beginning of the 20th century, Austria-Hungary and Italy intensified their efforts to extend their influence in Albania through the control of foreign trade – redirected from the Austrian port of Trieste toward Albanian ones, including that of Vlora (Prifti 2002, pp. 298-302, Vol. II).

3. Conclusions – Rediscovering the city through streets and events

Following these historical facts, we understand that Vlora, as Calvino (1997, p. 11) says about cities, does not reveal but rather contains its past; in this case, we tried to rediscover the city and its origins through the events that positioned it at the intersection of historical itineraries and through the imprint of actions connected to them. These events are preceded by a period rich in fortified proto-urban settlements; they are linked to the development of hinterland centers and their interactions with coastal ones, which generated the energy for the emergence of Aulona; the Roman Empire's conquest and its impact on the strengthening or decline of certain settlements; barbarian invasions and the reinforcement of fortifications; the destruction caused by the Slavic migrations; the Ottoman conquest and the exploitation of Vlora's position along the east-west route for preparing the campaign to invade Puglia; its development as a commercial center at the crossroads of a larger region; and natural events such as changes to the coastline associated with the shifting course of the Aos River.

It is noteworthy that although the port has "moved" approximately two kilometers further south, the original crossroads that transformed Aulona into a strategic hub – as well as the axis that connected these crossroads to the fortress and the harbor of Ancient Aulona (2nd, 4th, and possibly 6th centuries) – have remained in the same location (Figure 4, Figure 5). Remarkably, this area still constitutes the central core of the contemporary city, as evidenced by the discovery of ancient walls in the central park. The city has remained fixed in the very location where it was first conceived and grew, particularly during the Roman period, when the population relocated from Triport and other more isolated settlements toward Aulona. This shift occurred as Aulona became a station at the intersection of key itineraries: those arriving via Otranto intersected with inland routes from Dyrrachium-Apollonia-Akrokeraune-Butrint-Nicopolis; with routes connecting to the valleys of the Vjosa (Aos) and Drino rivers (notably Tepelena and Gjirokastra); to Bylis, Glavenica (modern-day Ballsh and Berat); and to the Shkumbin Valley. It is precisely this same crossroads – located near the present-day municipality – that continues to define Vlora's strategic position: the convergence point of maritime routes with the north-south inland corridor (the Shkodër-Durrës-Fier route heading toward the southern coast); the east-west inland routes (linking Tepelena, Gjirokastra, Berat, and the interior of the Balkans); and a more local yet historically significant route from Narta.

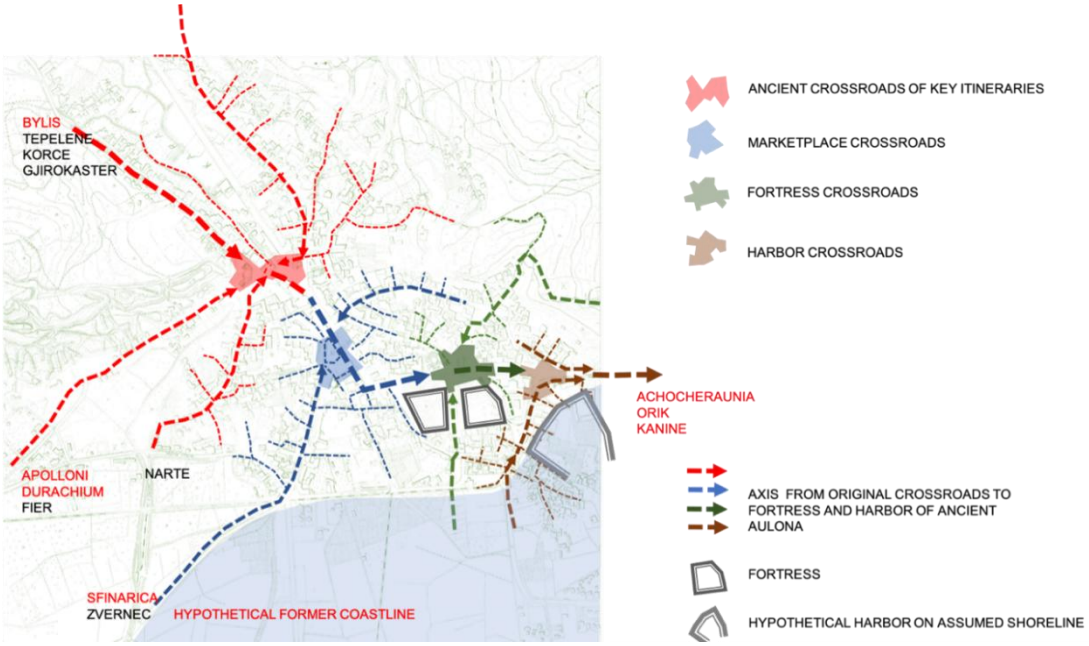

Figure 5. *The original crossroads and the axis to the ancient fortress and harbor at the same location.*

The marketplace crossroads is a derivative of the same network of roads, shifted along the axis that once connected the original intersection with the former coastline: the fortress (today replaced by public gardens) and the old harbor of Aulon (located near the Muradie Mosque – (Ceka 2024, p. 176). This space also marks the inflection point for the reorientation of the extended axis toward the new coastline, which had been displaced due to geomorphological changes caused by the flooding of the Vjosa River and its "pendular" behavior (Kabo and Krutaj, 1998). Today, this point corresponds to the junction between Ismail Qemali Boulevard (formerly 28 Nëntori) and Ate Kristo Negovani Street. The latter likely traced the shoreline where the former harbor was located, while Liria Street probably marked the boundary of the fortress overlooking the harbor. The continuation of the axis would have led toward the new harbor, the 16th-century fortress, and the road leading to the Acroceraunian Mountains (Figure 6).

This broken-angled axis, which connected the first strategic crossroads with the shifted coastline along the shortest route, would carry and anchor the spatial framework for Vlora's development over the centuries to come, as if it were the thread weaving together its space-time. Anchored to the place of its origin, Vlora synthesizes an organic process of adaptation – both to historical events, such as continual warfare, and to the dynamics of natural phenomena, including the complex relationship with the Aos River, which influenced urban developments in the region of the Bay of Vlora. As Kostov (2003 p. 26) states, the urban process is the history of development within 'frameworks' that have pre-existed or ground plan. In our case, it is the broken-angled axis that emerged as a connecting line between points of historical and natural events – whether physically present or not – beginning with the original crossroads that brought Vlora into the center of events, the old fortress and quay, and the reorientation toward the new fortress and quay following geomorphological changes.

From this morphogenetic trunk began the weaving of organic fabrics, which later served as the foundation for 'regularizing' the city through the abstract geometric logic of planning – though this deserves separate treatment. It is worth emphasizing that an awareness of this time-space holistic interaction, which contains the logic of the city's self-creation, helps us better understand the tendencies of future transformations that respect the essence of the city's very existence.

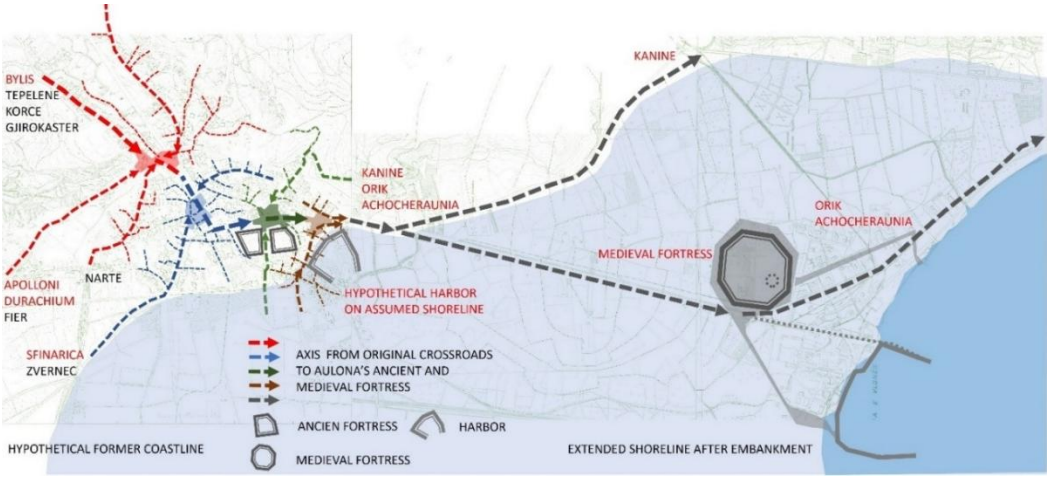

Figure 6. *Morphogenetic axes: connectivity and adaptation from the strategic crossroad to the shifted coastline.*

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The Structure of Tirana from 1614 to 1943

Continuities, Discontinuities and Relation with Western Cities

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Dr. Genti AVDIJA
ORCID 0009-0002-6727-7277
Department of Architecture and Engineering, Polis University, Albania,
genti_avdija@universitetipolis.edu.al

Abstract

This work explores the structural changes of the city of Tirana from its beginnings around the XVII century to the end of World War II, putting them in relation with the development and paradigms of the development and planning of the western civilisation urbanisation. In the development of Tirana in this period we have individuated three different phases of development of the city. In the first phase the development is characterised by the ottoman influences. In the second, that coincides with the creation of the state and the becoming of Tirana the capital of Albania, we can denote a certain tendency to westernisation. And lastly, the consolidation of the urban structure during WWII, under the Italian influence. The development of Tirana is not a linear development, but is characterised by fractures as a result of a complex interaction of cultural, political and geographic factors. These fractures contain elements that disappear, and elements that persist that characterise the structure of the city today. The development itself oscillates between spontaneity and plan, morphology and typology, urban and territorial. It is important to note that certain urban elements introduced during this period still persist in the structure of the city to this day, and therefore characterise the city. Precisely these elements should constitute a starting point for the future development of the city. The research output is a perspective on the development of Tirana until 1945 that extrapolates the urban elements of development and relates them with western cities. The relation of planning and urbanism in Tirana with the western civilisation is very peculiar, because of the early ottoman influence and the late application of western urban design principles. Lastly, the Italian plan (1939-1943) constitutes the first complex structuring of the city, and the last substantial structural modification of today.

Keywords

Urban structure, medieval city, modern urbanism, resilience

1. Introduction

Tirana in the last thirty years has experienced first an extension of the boundaries, and then a radical transformation of many if not all the tissues of the city. The actual condition is one of a city in continuous and rapid transformation which brings a sense of alienation. The transformations in course are fragmented and gone through many phases during the last thirty years. Though there is a regulatory urban and territorial plan since 2016 it doesn't seem like the interventions are organic and cohesive. This plan is in line with the development of western cities in which Tirana aspires to be part of. Nonetheless Tirana has a peculiar development that renders it unique in the city development modalities. When everything is being considered anew maybe is time to reflect on the past. Tirana has a long history of proposals and planning interventions, different in character and scale, that have shaped the city through the years. Some of these interventions disappear some persist, and some return. Though the tissues of the city are being modified the most reliable resilient part of this chaotic city remains its structure. This is a critical investigation on the structural modifications of the city from its birth to the end of World War II. Hopefully this will be a starting point for a mirror reflection for the city in the future. Looking at the development of the city until 1945 we can recognize three different phases of transformation that coincide with huge political and social changes. These changes produce distinct views on the development of the city.

1.1. Tirana from foundation to independence (1614-1912)

From the fourteenth century until 1912 when independence was declared, Albania, like all the Balkans, was part of the Ottoman Empire. During this period Tirana was a small settlement, and the period of creation is uncertain. In the surrounding area there have been several archaeological finds. An example is the discovery of the mosaic of an early Christian church dated to the third century BC near the current center of Tirana (Korkuti, 2003). The date commonly accepted as the date of the city's founding is engraved on the Bargjini mausoleum, 1023 of the haxhiri [Muslim/Turkish] calendar which corresponds mainly to 1614. The city is constituted with the construction of a mosque, a hamam, an oven and an inn by Sulejman Pashe Bargjini (Frasheri 2004, p. 67), which subsequently led to the creation of the bazaar. Tirana was born as a crossroads of interregional merchant routes that had been consolidated since the sixteenth century. From Durres and Vlora, which were the two port cities, they led inland. From Dibra, Shkodra, Lezha in the north, they passed through the southern regions but also to reach Istanbul, Thessaloniki or Macedonia (Frasheri 2004, p. 71). The roads look more like paths. Where there are crossings or bridges, knots begin to develop appropriate for commerce and to offer services to travelers which is the way cities like Florence, Paris, Prague, etc. were born (Miho 1988, p. 86). In the first surveys of Tirana dating back to 1917 and 1918, carried out by Austrian technicians, these interregional routes are clearly visible.

1.2. The new capital city (1920-1933)

At the end of the First Balkan War in 1912, which sanctioned the definitive fall of the Ottoman Empire, Albanian territories were disputed by Serbian and Montenegrin forces in the north, Greeks in the south and Italians on the coast. With the support of the Austro-Hungarian Empire, Albania he succeeds in proclaiming the independence recognized even by European nations. Despite this, the political situation remained unstable in the following years with three main factions vying for power: the party of the Young Turks; the pro-Italian movement; the pro-independence patriots. Albania, despite not taking sides during the First World War, becomes a disputed territory where this war is fought. During the war, Albanian territories were controlled by Austro-Hungary in the north, Italy in the coastal region from Durres to Vlora, and France in the region of Korçë in the south of the country. Austro-Hungarian forces withdrew from Albania in 1918 following the defeat in the war and at the end of the First World War and Albanian cities will be under the control of the Italian and French allied forces. In 1920 the Congress of Lushnje was held where a group of patriots from all parts of Albania formed a government that proclaimed Tirana temporarily the capital of Albania and during 1920 managed to have the most important cities handed over (Frasheri, 2003).

There was a definitive detachment from the period of Ottoman influence with obvious repercussions from an urban point of view where Tirana suddenly found itself in the condition of having to host the entire state apparatus, and all efforts were concentrated there, with the intention of enabling the new capital with the appropriate institutions and planning future developments. During the following decade, a number of planning proposals were developed.

1.3. Tirana during the fascist occupation (1939-1943)

In 1939, in line with the expansionist policies of the time, Italy invaded Albania. King Zog I, had had economic relations and cultural exchanges with Italy since his coming to power (Lang 2024). Economic dependence, unconsolidated power within Zog's own Albania and inferiority of means meant that Zog did not oppose excessive resistance and went into exile. Vittorio Emanuele III of Savoy in this period was appointed King of Italy, Albania and Emperor of Ethiopia. Under the Italian administration, huge investments were made, especially in Tirana, with the intention of being accepted by the locals and starting a process of colonization. A few months after the invasion, a new master plan for Tirana was thought of and the task was entrusted to the Florentine architect Gherardo Bosio. (Corsani 2017; Di Nardo 2018). The plan was completed in 1943. In 1941, due to Bosio's death, Ivo Lambertini and Ferdinando Poggi took his place.

2. Methodology

The work is based on the historical analysis of the development of Tirana until the end of WWII. Taken in consideration the plans and drawings of the era, and also the primary and secondary relevant sources that explain the historical and urban changes of Tirana during that

period, the study, through an interpretative and critical investigation determines the fractures of the development and identifies the urban elements, methods and tools used in the different eras of the city's development. The main focus is directed to the structural dimension of said urban proposals and how it relates with the political changes of the time. Through this analysis the study proposes a comparison with the development of western cities in the different phases of evolution in order to discover the relations between them. This will be expressed through a series of dualities that consider the type, the form, and the scale in a development that moves between spontaneity and plan, morphology and typology, urban and territorial.

The study will develop in a mirror structure where to the three different periods characterized by political changes correspond peculiar urban and developmental characteristics. According to the three periods individuated we can discern the particular modes and elements of development in each of the phases.

3. Results and discussion

We can start to note that in the first phase of development that extends from the creation of the city to the becoming of a capital city, structurally there is the emergence of medieval cities characteristics. Subsequently, in the period of independence and monarchy, there is a prevalence of mid 1800s urban elements. Finally, during the fascist occupation there is an application of contemporary (for the period) modes of intervention.

3.1. Medieval Tirana

In the historical analysis of the settlement, Miho (1988, pp. 50-53) and Frasheri (2004), identify several nuclei in the formation of the historic center of Tirana until the beginning of the twentieth century. The first one of foundation by Sulejman Pashe Bargjini; a second nucleus created at the beginning of the eighteenth century with the construction of the mosque of Fira; a third that is created at the same time as the construction of the mosque of Zajmi in 1775; a fourth nucleus with the mosque of Haxhi Et'hem in the center which is located on today's Central Square of Tirana, and so on (Figure 1). During this period, the city expands in a centrifugal manner starting from these nuclei until they meet and clash. (Lambertini, Poggi, 1943).

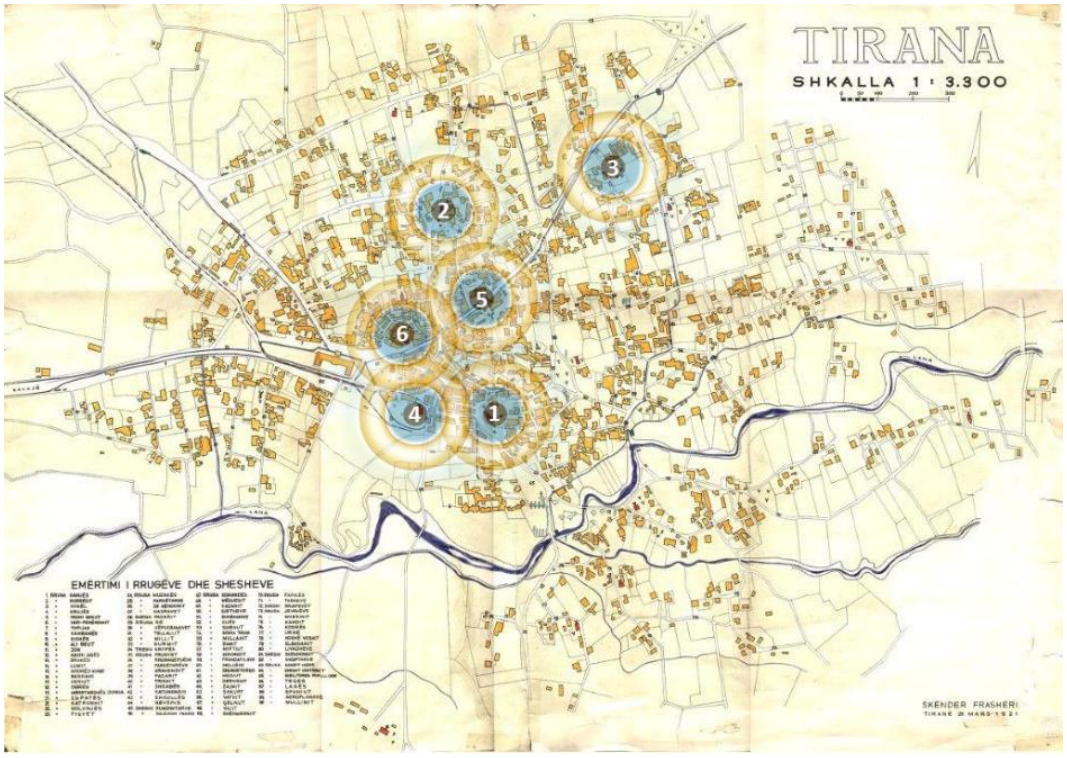

Figure 1. *The first six nuclei of the expansion of Tirana on the 1921 map: 1) old mosque; 2) Fira; 3) Zajmi; 4) Ethemi; 5) Stermasi; 6) Karpaci.*
Source: Author's elaboration on AQTN map.

Throughout the medieval period Tirana developed morphologically through spontaneous non-geometric fabrics. The dwellings consist of single-family houses for extended families that never overlook the street but are mediated by perimetral walls that create courtyards. Streets and lanes form randomly as the cores expand. Here the first differences between the medieval European city and Tirana with their oriental influences begin. The European model of urban development with 4 or 5-storey buildings in a period where there is no shortage of land is the result of the "materialization of social solidarity of belonging to the civitas in the compactness of the urbs" (Romano, 1992, p. 45). The concept of density, therefore, that we find in the birth of the city as we know it today according to Romano, we do not find it in Tirana in the Middle Ages.

Another characteristic that we find in the western medieval city is the division of the infinite countryside outside the walls from the collective life inside them. In eastern medieval cities, such was Tirana at the time, there were no walls, and a consequence no clear differentiation between urbs, suburbium e ager. Moreover, in eastern cities there is neither a public space representative of society as it can be in the medieval European city, much less a central organization that takes into account developments on a larger scale than the individual one. Thanks also to the prevalence of individual character, the density is lower than in medieval European towns.

Another aspect of differentiation between eastern and western medieval developments are the city functions and structure, related also to the top-down interventions on the city. As Enyedi points out, "The urban innovation of the multifunctional medieval city with regular street planning did not penetrate the Balkan Peninsula, as the region was incorporated into the Ottoman Empire for 500 years." (Enyedi, p. 106).

3.2. Elements of 1800s urbanism

In 1923, the first Master Plan was drawn up by Austrian engineers and architects with the participation of the Albanian counterparts (Aliaj et al., 2003; Dhamo et al., 2016). The radial layout of the main streets on which the city was formed is preserved, providing for their enlargements, and the orthogonal layout is introduced for the first time by superimposing it on the pre-existing structure. In 1925 Tirana was proclaimed the capital definitively. Ahmet Zogu became prime minister and, for the nascent capital, commissioned the Italian architect Armando Brasini to develop a project for Tirana. Brasini proposes the introduction of a monumental axis on which to arrange the functions of the capital (Figure 2).

Figure 2. *The first proposal of Brasini for the boulevard.*
Source: AQTN.

The project presented by Brasini was never implemented but the idea of the axis remained in the structure of the city and was proposed again later. The axis related only to the territorial scale [and not to a city that was missing at the time], it read the parallel of the existence of the city that was the mountain of Dajti, a kind of "axis mundi" for the Tirana plain (Dhamo et al. 2016, p. 20). It is therefore important to note that Brasini's intervention, beyond the idea of the axis itself, in a certain sense also dictates the orientation of the city. The following year a new plan was drawn up on the basis of the 1923 plan, making improvements and integrating the idea of the Brasini axis.

In 1928 Ahmet Zogu proclaimed himself King of Albania and commissioned the Austrian Kohler and the Albanian Frasheri to rework the 1926 plan by expanding the territory. To these was

added the Italian Di Fausto in 1929, when a further version of the master plan was presented (Figure 3). The structure of the plan is coordinated by engineer Eshref Frasheri. Kohler was in charge of planning the southward extension of the city beyond the Lana stream, and Di Fausto planned the buildings in the center of Tirana. Subsequently, in 1930 and 1931, two other improved and more extensive proposals were prepared based on the 1929 plan (Dhamo et al., 2016). From the 1931 plan, the six buildings that still delimit the southern part of the central square of the city, designed by Di Fausto, conceived as ministries of the reign of Zog I, were implemented, and in the northern part the town hall building that was demolished in 1982, and also to the north a piece of boulevard that passes through the medieval city on the trail of Brasini's project, which today bears the name "Bulevardi Zog I".

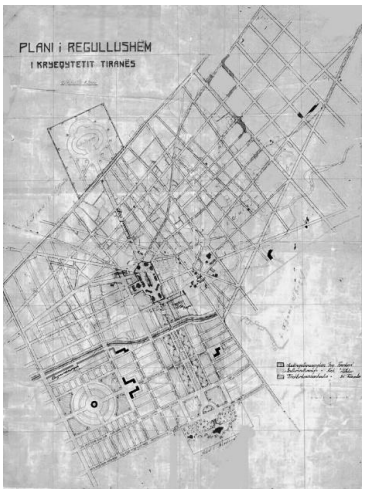

Figure 3. *Plan of Tirana 1929.* Source: AQTN.

Figure 4. *Tirana urban condition in 1937. Source: Personal archive.*

In this decade full of events from an urban point of view, we can glimpse some common elements or, if we want, tools, belonging to nineteenth-century urban planning that emerge in the urban design interventions of this period: the boulevard and the grid. The use of the idea of boulevard, widely used from Haussmann onwards, can be revealed from the first interventions of widening the main arteries of the creation of the city, and in the idea of Brasini's central axis. The grid, used in a military context since Roman times, lost relevance for many centuries during the Middle Ages and then came back into vogue in the 800s. The Manhattan plan in 1811 and Cerda's project for Barcelona in the mid-1800s are two examples. In Tirana, the grid has been proposed since the intervention of 1923 and later, as an overlay on the existing fabric and planning of territorial expansions.

As we can note from the rendition of the urban condition of Tirana in 1937 (Fig. 4), the boulevard was actually the only element implemented structurally. The organic structure of Tirana still persists and it is clear (see Fig. 3 and Fig. 4) how the implementation of the grid in the existing city and the southern extension of the city could have dramatically changed the layout of Tirana. In 1937 there is the persistence of the radial foundational routes and the organic nature of the settlements. Contemporarily, there is the addition of the central

boulevard and the definition of the central square that emerge as strong geometric signs that somehow are superimposed to the city.

3.3. The consolidation of the urban structure

Bosio's plan of 1939-1943 will be the most advanced and complete plan made for Tirana, both for the in-depth study phase preliminary to the plan (Figure 5), and for the breadth and general unitary vision (Figure 6). Great attention was paid to private property, to the development of the city without undermining the already existing economic centers and therefore the investments of citizens. The plan envisaged planning for the following sixty years, and anticipating the increase in population, the existing nucleus was not considered suitable to accommodate the population. Howard's garden city was taken as a model for the new Tirana. The authors' considerations started from the love for nature of the citizens reflected in the courtyards of all the houses of Tirana with their vegetation that gave a picturesque character to the city (Lambertini, Poggi, 1943). As a result, the plan provides for an environmental system with large parks on the edge and a system of small parks within the city.

Figure 5. *Urban plan of the core of Tirana in 1943 by Bosio, Lambertini, Poggi.*
Source: AQTN.

Figure 6. *Territorial Plan of Tirana in 1943 by Bosio, Lambertini, Poggi.*
Source: AQTN.

Structurally, the plan maintains the existing radial roads, to which enlargements had been made in previous years, connecting them with an infrastructural ring with a diameter of about 3 km. The proper urban somewhat dense development is envisioned inside said ring (Figure 6). The axis proposed by Brasini, conceived as the representative backbone of fascism, is maintained and the structure of the plan recalls the typical layout that we can find in newly founded cities of the fascist period, such as Latina for example. Bosio will personally take care of designing in meticulous detail the buildings overlooking the axis, many of which will be built and still represent a significant cultural legacy in Tirana. Stylistically, unlike Brasini who had a neoclassical approach to design, Bosio prefers the lictorian style, stylistically a mixture of monumentality and formal simplification and of the elements.

The plan was not implemented due to Italy's defeat in World War II after which it had to withdraw from Albania, but the concentric-radial structure with a marked central axis was the starting point of the urbanization of the communist period. During this period there are several structural elements that define the structure of Tirana and persist to the current condition (Fig. 7). The foundation of a cardo – decumanus system composed by the boulevard and the Lana torrent. The central dense core with a superimposition on the radial roads. The inner ring which together with the radial roads emphasize the radial character of the city. The territorial dimension also suggests somehow the current extension of the city.

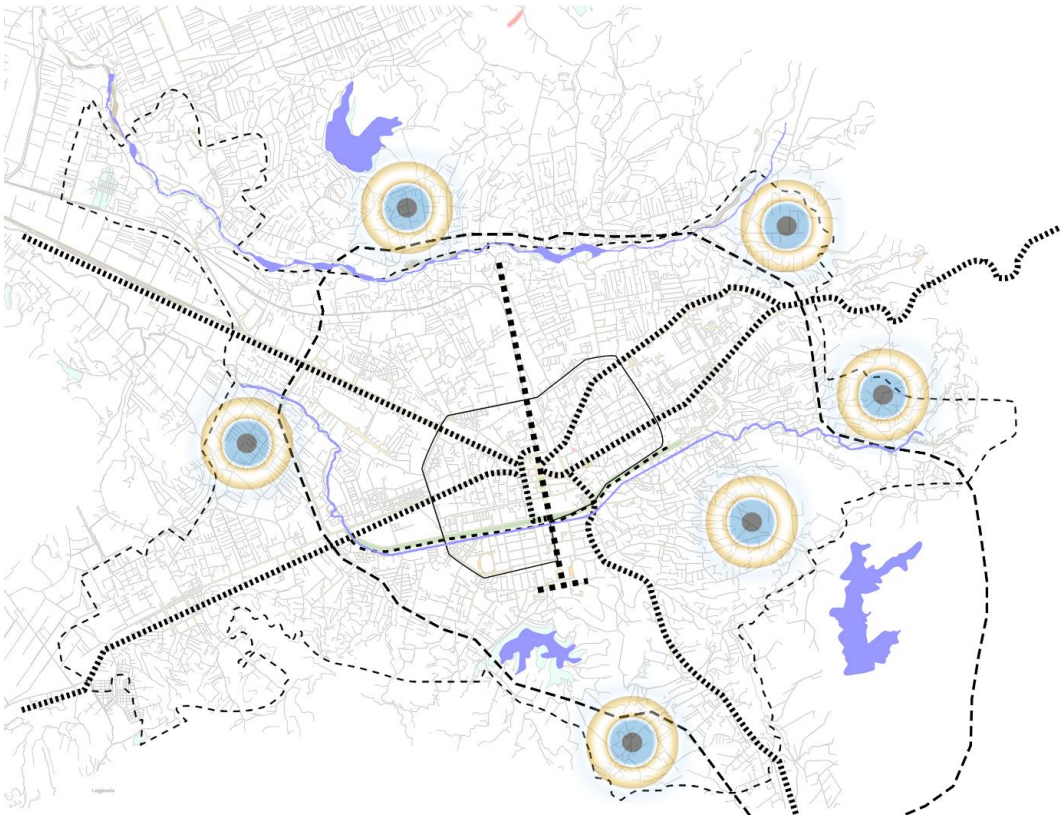

Figure 7. *The current structure of Tirana with the most relevant nuclei of expansion (from left up, Astir, Paskuqan, Fresk, Shkoze, Ali Dem, Sauk).*
Source: Author.

If we consider the current structure of Tirana there is a clear resemblance with the Bosio plan. For the above-mentioned reasons, we can say that the Bosio plan constitutes the fully formed backbone of the consolidated structural identity of Tirana. In fact, the future major structural modifications that appear are the creation of an outer ring and the extension of the boulevard on the North side, which are in continuity with Bosio's vision. An interesting element that we can notice in the current structure is the spontaneous creation of several nuclei starting from the 1990s that recall the modes of creation during the first phase of creation of the city.

4. Conclusion

There is a series of considerations that we can make regarding the structural development of Tirana during this period. The first one is that the structure of Tirana is the only resilient part in the development of the city. The urban tissues, the functions, the typologies are constantly changing but the structure remains. Said structure was consolidated during the Second World War with the Bosio's Plan. This could be a starting point for the so longed identitarian future transformation of Tirana. The structure of today's Tirana has been formed through a series of continuities and discontinuities.

The first discontinuity is expressed through the three phases that we analyzed in which there are two fractures. The first, and more evident one, happens in the passage from the organic structure developed during the ottoman period and the introduction of western, though dated elements of western urbanism such are the grid and the boulevard during the independence and monarchic period. During this phase we can note a clear passage from spontaneity to plan. The second fracture is more subtle, but non the less expresses the differentiation of approaches from different regimes. During the fascist occupation, even though there is an influence of Italian architecture and urbanism, the approaches are different. Stylistically for example there is a passage from a sort of eclectism adoperated by Armando Brasini and Florestano Di Fausto to a more sober lictorian architecture of Gherardo Bosio, reflected also morphologically in the respective projects. Structurally, the grid adoperated in the 1929 plan is a bit irregular and superimposes drastically in the northeastern part of the city. The Brasini plan, even though erases the old city, paradoxically maintains a closer relation morphologically with the existing city. The reinforcement of the cardo – decumanus system, the reinforcement of the central nucleus through the ring, emphasize the radial nature of the city. There is also a strong typological imprint in the plan, expressed through the courtyards, but this part was not implemented. It is clear how the urban development is closely related to political power and how it manifests in the urban fabric.

As for the current structure, the introduction of the territorial scale in the Brasini plan and the return of the spontaneous morphological development, represent two major discontinuities. In the first case, during the communist regime until 1992, there were attempts to expand the city to a territorial scale, but de facto this never really happened. The real expansion to the territorial scale happened during the 1990s with the spontaneous internal uncontrolled migrations of the population. This takes us to the second discontinuity. It is interesting to notice how the uncontrolled movement of the population during the 1990s produced an almost identical development as the development until 1920. The prevalence of morphology differentiates only from the even more elimination of public space in current times, where in the medieval configuration there were the nuclei composed by the mosque, the bazar, the hamam, and the inn.

As for the continuities, the radial foundational roads represent the structural backbone of Tirana. During the creation of the republic, later monarchy, there is the consolidation of a univocal central square and the implementation of the boulevard that superimpose geometrically and typologically on the existing city. To these structural elements there is the addition of the inner ring, the completion of the boulevard with the reinforcement through the addition of the decumanus consisting in the Lana torrent, and the reinforcement of the radial nature of Tirana that are envisioned in the Brasini plan. The base of the current development on which the city is still expanding and modifying, is thus formed.

Lastly, there is an important topic that needs to be addressed. The aspiration of Albania and Tirana of being part of the western civilization, has brought dramatic urban changes which we cannot address fully in this research. The rapid transformation of the city is provoking an enormous fracture with city of the past, manifested in the urban fabric. These transformations bring a sense of displacement, and raise a doubt expressed in the dualism between globalism

and regionalism. During the discussion we tackled the complexity of the structural development of the city, and would like to suggest that even though Tirana is a western city subjected to all the global factors of western development, the character of Tirana lays in the particular position between east and west, which is a richness that needs to be valorized.

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Between Ideology and Identity

A Comparative Study of Socialist Hotel Architecture in Albania and the Balkans

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Dr. Malvina ISTREFAJ (KOLIÇI)
ORCID 0000-0002-2190-3757
Department of Research and Innovation, POLIS University, Albania,
malvina_istrefaj@universitetipolis.edu.al

Abstract

This paper examines the ideological foundations and architectural development of Albania's socialist-era hotels, placing them in the Balkan context and Eastern Europe's reconstruction following World War II. It explores how communist governments used tourism infrastructure, especially hotels, as a socio-political instrument to support ideological narratives through architectural form in addition to promoting state-approved leisure. The study looks at common typologies that reflected global modernist tendencies while incorporating regional socialist values, all while drawing on comparative case studies.

The study focuses specifically on Albania's "Rational Period" and highlights important architectural traits that indicate the rigidity and control of the communist state. In terms of design, usage, and ideological function, the paper identifies both common trends and distinctive national adaptations through comparison with those in other communist regimes, such as Bulgaria's state-run Black Sea hotel zones and Yugoslavia's mixed-economy resort models.

During the Rational Socialist Era in Albania, hotel design placed a strong emphasis on geometric repetition, formal austerity, and practical clarity – elements that were strongly associated with the regime's ideology. In cities like Tirana, Gjirokastra, Elbasan and Shkodër, hotels had two purposes: they were places of political control and foreign diplomacy, as well as tangible symbols of socialist advancement. The seaside typologies along the Adriatic and Ionian beaches, on the other hand, reflected pan-European experiments in leisure architecture by emphasizing mass accommodation and spatial collectivism.

The research advances our understanding of how architecture was used to create a communal identity – one that was both unified and contested – across the socialist Balkans by interpreting the spatial and symbolic language of socialist tourism infrastructure.

In its concluding section, the paper calls for a re-evaluation of socialist hotel architecture not as obsolete or politically burdened relics, but as vital components of the region's architectural heritage.

Keywords

Socialist architecture, hotel typologies, ideology, form

1. Socialist architecture in Albania: context and ideology

1.1. Foundation of socialist architecture

The foundation of communist architecture in Albania was a strict ideological theory that viewed the built environment as a physical manifestation of socialist ideology, rather than as an independent cultural or artistic endeavor. Socialist Realism was formally characterized as an artistic technique aimed at representing reality in its "revolutionary development" in a true and historically concrete approach (Ndreçka and Nepravishta, 2014). In the context of inspiration by Soviet political models, also architecture was anticipated to embody the quintessential socialist character and to play a proactive role in the formation of a new communal identity, exerting its impact throughout culture, social and creative spheres with an impact in urban configuration. Architecturally, Socialist Realism aimed to create a unique identity by discarding pre-socialist stylistic continuities and selectively adopting neoclassical ideas as emblems of power, order, and stability. Stalinist dogma supported and encouraged this style, which was the most popular in Albania from 1948 to 1958. It shaped civilian and representative buildings by rendering them large, clear and easily legible. Mëhilli (2017) pointed out that socialism in Albania was not only a political system but also a "material reality" that was shown through buildings, infrastructure, and urban plans. This turned the whole country into a symbolic built environment where ideology could talk directly to the people. Following on, architectural output in Albania stayed firmly inside centralized government structures. This meant that private practice was not allowed and architectural processes had to follow rigorous fiscal and political planning rules. standardized cost-effective construction, and uniformity became governing principles, indicating both ideological objectives and material constraints. Similar trends could be seen in other socialist countries in Eastern Europe, but Albania was distinctive since its ideology was very rigid for a long time and it didn't have much contact with world architectural debate. This situation strengthened a limited architectural language that put ideological conservatism ahead of formal creativity.

The development phases of socialist architecture initiated its presentation through the *'Socialist Classicism'* in the first year, represented by the Stalinist Model with a representation of neoclassicism, entangled with baroque nuances and details from soviet religious architecture. Even today, the majority of these buildings preserve their position in strategic nodes of Tirana, including Kinostudio "Shqiperia e Re", "Agimi" Complex or Textile Combinat. This phase of architectural display, production was too brief to leave a lasting impact on the urban landscape of the capital, due to the changes on the international political arena between Albania and the Soviet Union. The situation had the direct impact on the rejection of the 'exaggerated' architectural Stalinist style, by imposing the opposite principles of standardized and simple constructions, considering also the emergent need for providing housing in the country. Limitations were imposed regarding the architectural design, while cost efficiency and rationalization became the main priorities. This political disruption of the

two communist states, affected simultaneously the architectural language on Albanian cities, but also oriented the central power towards the fulfilment of needs regarding infrastructure, education buildings and housing, substituting the primary objective so far which was related to public buildings construction. Being isolated and sustaining only in auto-sufficiency and dramatic propaganda, this approach oriented Socialist Albania's construction sector towards *'Rational Architecture'*, which on the last phase was on political terms, defined the nationalist way of presenting architecture through the so-called the quest for the *'National Form'.* During this period, the main focus was put in the military fortifications and addressing the *'contemporary architecture'* in the research for identity representations. Public buildings with national symbols of hard-working populations, like the National Museum with the emblematic mosaic, were displayed during this third period which lasted till the fall of the regime. As a tribute to the Albanian Socialist Realism, different public buildings took place in the main cities of Albania where symbolism and features of ideology tried to meet the national characteristics.

1.2. Tourism and architecture as ideological instruments

The discussion about tourism in Socialist Albania now opens the perspective of understanding it less of an economic sector and more of a tightly controlled ideological tool that was meant to promote the country's interaction with its global neighbours, all this while also strengthening political dominance within the country. Considering that till the early 1990s, it was famously called *"Europe's last secret"* because the dictatorship made it very hard for foreigners to visit and trade with the country (Stiller, 2019), it becomes clear that Albania was one of the most marginalized nations in Europe during the communist era. In this atmosphere, tourism was definitely not driven by the market, nor was it spontaneous. It represented a meticulously planned, ideologically restricted, and subjugated to overarching political interests.

The state-run Albturist, which was based on the Soviet Inturist system, was the initial and sole national way to organize tourism and keep in touch with foreign visitors. The Tourist's Guidebook of Albania (Albturist, 1969) shows how tourism was seen as a way to show off a carefully chosen image of the socialist state. The handbook not only gave useful information about geography, places to stay, and travel plans, but it also clearly showed the Party of Labour's successes. It framed tourism as a way to communicate politically rather than as a way to exchange culture. In this way, as Light (2000) argues, tourism architecture, especially hotels, became a way for the regime to show a "dignified" and politically correct portrayal of Albania.

When Enver Hoxha was in leadership, going to Albania was a very restricted experience. The authoritarian regime put rigorous visa rules, set itineraries, and continual control on overseas travel to stop it (Hall, 1984). Hall states that tourists were taken on meticulously selected paths that fit with the state's stories, and they didn't have interaction with the people who lived there. Even things like dress rules, personal items, and eating habits were controlled, which made tourism seem more like a planned and regimented activity than a leisure activity. Even if global tourism isn't particularly big, the pictures of buildings that welcome tourists give the

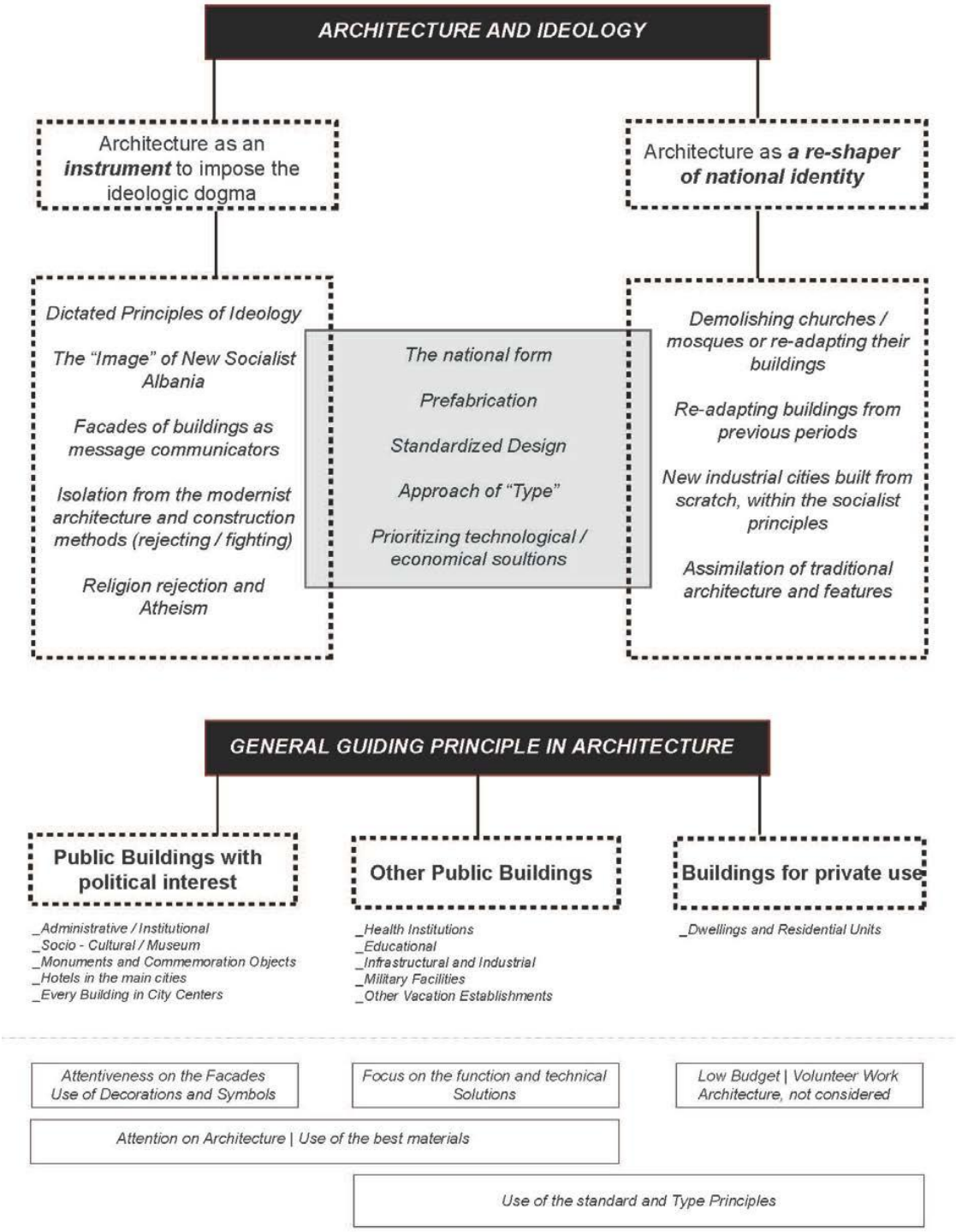

Figure 1. *Inclusive framework of architecture characteristics and relation with the socialist ideology.*

Source: (Istrefaj Koliçi), PhD Thesis (2021).

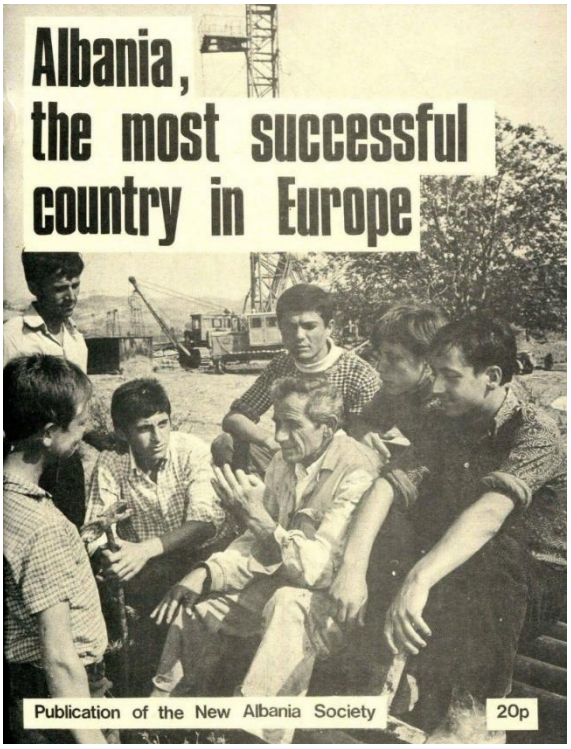

Figure 2. *The 'outside image' of socialist Albania.*
Source: https://it.pinterest.com/pin/198791771047380099/.

impression of openness and wealth, which is extremely different from what life is really like. Hotels, advertisements, and advertising pieces showed modern beach resorts and city hotels as signs of socialist success,hiding the real restrictions and problems with the infrastructure. The investments in the tourism sector had two main goals: to give people in the country safe places to have fun and to make the country look good to people from other countries. Hall (1984) pointed out that Stalinist Albania exemplifies one of the few truly "authentic" instances of tourism within socialism, with the sector predominantly subjected to ideological oversight and internal political imperatives. Architecture was a big part of this system, turning hotels into places for representation, monitoring, and symbolic mediation. Tourism facilities helped build a desirable national image by organizing their spaces, controlling access, and being in prominent locations. They also reinforced exclusion and ideological adherence. In this regard, tourism architecture in Albania illustrates how the constructed environment functioned as an active vehicle of socialist ideology, influencing both outward impressions and internal interpretations of the state.

2. The architecture of hotels in socialist Albania

2.1. Ideological role and urban landscape

In the context of "Albanian New Image", during late 1960s, communist regime in Albania started to use tourism as a way to change how the outside world saw the country. This change led to the building of new hotels in big cities, where the architecture was supposed to show a

controlled but modern version of the socialist system. This objective was strong enough, to allow a flexible "modernist line" beside the rigid characteristics imposed. It can be stated that the hotel design was the typology that manifested this new way of designing, due to its status of being the first 'door' towards the international interactions. Kolevica (2004) says that architects saw working on hotel design assignments as a rare chance to try out new ideas in a formal way, especially via the use of vertical space, which was not encouraged in socialist cities. This period, represented an unusual time when architecture became clearer, with less Soviet ornamentation and a careful acceptance of modernist ideas. But this openness didn't last long. In the mid-1970s, Albania's political shift in direction of the People's Republic of China started a new phase of ideological conservatism that hindered aesthetical and architectural creation. As a result, hotel architecture became a short but important distinction in a design context that was otherwise very limited. In this framework, city hotels achieved a big ideological significance. They were strategically placed in the cores of cities and serving as representative buildings that connected the communist state with tourists from foreign nations. Their presence in the city, along with limited access, made them even more symbolic as places for diplomacy, monitoring, and showing off ideas. Albania failed to foster mass tourism in comparison to other communist nations; rather, its hotels emerged within a restricted and tightly controlled tourism sector, reflecting the regime's conservative posture toward foreign participation.

2.2. Urban and seaside hotels

The recognition and understanding of the design of hotels in socialist Albania remains an uncharted domain, particularly because it cannot be perceived as a uniform “style,” but rather as a system of typologies influenced by political requirements, technical limitations, and governmental oversight. In this context, accommodation buildings were categorized based on purpose, user demographics, and ideological conformity. Archival recordings and mapping uncover several prevalent typologies: urban hotels (Hotel Turizmi), seaside holiday camps for workers and state employees, youth and pioneer camps, curative or mountainous hotels associated with thermal and health facilities (Fig.3.c), and government villas designated solely for political elites (Istrefaj Koliçi, M. 2021). When foreign guests were let in, Albturist made sure that they were kept under rigorous watch and had as little interaction with the native populace as possible (Hall, 1984).

Urban hotels held a notably important symbolic and territorial role. They were located in urban centers or alongside key metropolitan axes and served as emblematic structures that connected the socialist system with people from outside (Fig.3.a). On the other hand, seaside hotels were mostly for those who lived there and for groups of people to relax. The communist goal of organized relaxation meant that holiday camps and beach hotels were built to serve workers, young people, and certain socioeconomic groups. Durrës, which had about 40% of the country's holiday spots, was one of the most important coastline and lakefront destinations. Other important areas were Pogradec, Vlora, Saranda, and several healing sites like Elbasan and Peshkopia. (Istrefaj Koliçi, M.,2021). Architecturally, these buildings focused on repetition, simplicity, and cost-effectiveness, which were both political and financial limits

(Ndreçka and Nepravishta, 2014). Adriatik Hotel in Durrës, which opened in 1958 (Fig.3.b), is one of the best examples of contemporary modernist hotel design in socialist Albania. Its location on the shore, clear volumes, and use of a global modern expression show a short period of architectural flexibility before concentrated tourism management became fully established in the 1960s.

Figure 3. *From left to right: a) Hotel "Çajupi", Gjirokastra, b) Hotel "Adriatik", Durrës, c) Hotel Camp in Korça (today Hotel "Kristal").*
Source: tripadvisor.

In general, the difference between city hotels and seaside hotels shows a bigger ideological pattern: city hotels served as places for lobbying, diplomatic relations, and observation, whereas seaside hotels set up rigorous rules for group recreational activities. These categories illustrate that hotel construction in communist Albania functioned not as a reaction to demand from tourists, but as a spatial construct influenced by doctrine, politics, and centrally administered planning—an explanation that situates Albania within the context of wider socialist principles while with distinctive rigidness and estrangement.

3. Socialist hotel architecture: typologies and regional comparisons

3.1. Comparative regional perspective

Socialist hotel design throughout Eastern Europe and the Balkan regions arose from a common ideological foundation: the tourism industry was envisioned as a state-controlled mechanism facilitating participation, recreation, and international prominence. Even though they all started from the same place, different national political paths, levels of visibility, and economic policies led to different architectural results.

In the former Soviet Union, hotels and sanatoriums first used Stalinist monumentalism, but then they switched to standardized modernist solutions that used prefabricated construction and typological recurrent patterns. These models put a lot of emphasis on hierarchy, discipline, and the size of institutions. They set up a framework that satellite states eventually used, albeit not always in the same way. Bulgaria and Romania promptly adopted this model by building massive hotel developments that integrated modernism with mass hospitality. Holidays After the Fall shows how Bulgaria's Black Sea resorts use this approach through careful planning of the land, modular hotel types, and a huge but sensible modernist language that aims to accommodate socialist mass tourism while showing progress and international legitimacy (Beyer, Hagemann & Zinganel, 2013).

Yugoslavia, on the other hand, came up with a very different model. Because it had a hybrid political system and economic system and was more open to the West, its architectural tradition was more experimental. Hotels around the Adriatic coast were places of new ideas, combining structural expression, attention to the landscape, and modernist inspirations from throughout the world. Holidays After the Fall shows how Yugoslav beach resorts changed the way people thought about recreational architecture by making it a social and conceptual experiment where collectivist ideas and distinct experiences and architectural leadership could all exist at the same time (Beyer, Hagemann & Zinganel, 2013). This openness had a big impact on the assessment of these hotels after socialism. Many of them are now seen as important examples of modernist architecture.

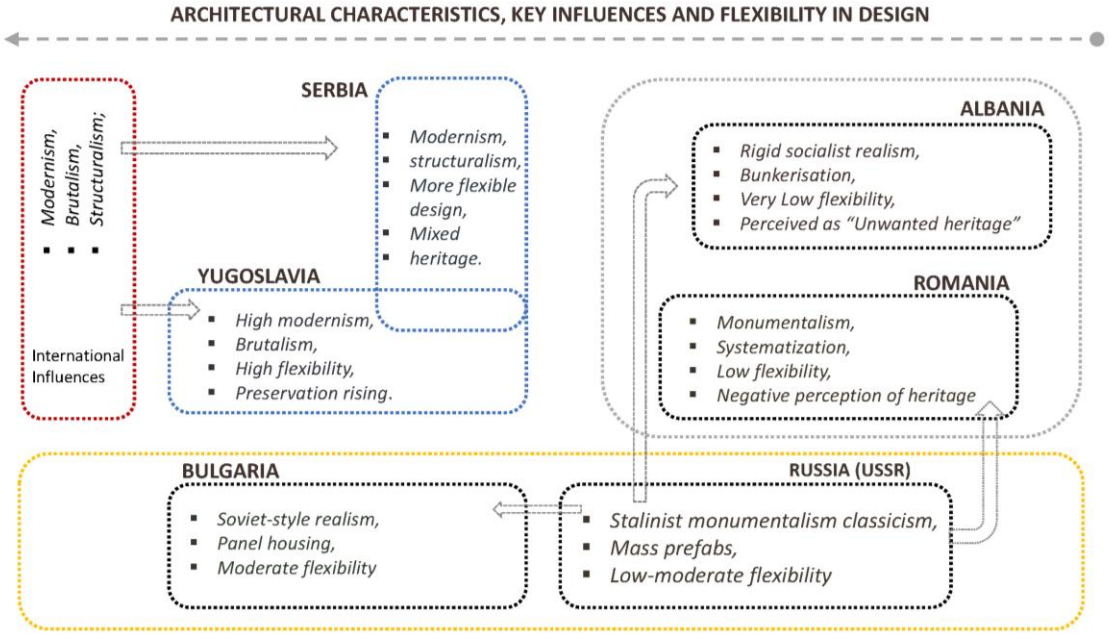

Figure 4. *Comparative framework of socialist architectural characteristics, influences, and design flexibility.*
Source: Author, https://www.dakamconferences.org/proceedings.

Hotel design in Romania, especially throughout the Ceaușescu regime, was closely linked to nationalist ideas and authoritarian changes to cities. Controlled planning led to the growth of resort communities around the Black Sea, like Mamaia and Neptun. This design focused on large-scale accommodations, repeated types, and axial spatial arrangement. Romanian establishments were a greater part of the state's grand display and grand urban design than Bulgarian holiday resorts, even if they looked identical in certain ways.

Romanian communist hotels used modern building methods and standard layouts, but its design was more about nationalistic ideology and visibility in politics than about trying new things or having fun. Macdonald (2009) contends that these institutions are currently encumbered by their connection to suppression and adverse memory, fostering an alternate or detrimental post-communist viewpoint. Romanian coastal hotels are not often praised as

a noteworthy architectural legacy, unlike the Adriatic displays covered in Holidays After the Fall, they are actually perceived instead as signs of authoritarian luxury.

Serbia sits in the middle within Yugoslav liberality and communist rigidity. The combined socialist–market structure that allowed for architectural innovation in other parts of the Adriatic also helped Serbian hotel design as part of the Yugoslav federation. In Belgrade and other local centres, urban hotels served as symbols of contemporary design by combining modernist inspirations from around the world, geometric representation, and an emblematic presence in the city. But Serbia's infrastructure for tourism was less focused on the terrain than that of the coastlines of Croatia and Montenegro. As a result, hotels in Serbia were more focused on being seen in the city and serving as a representation than on providing seaside pleasure. Stojiljković and Ignjatović (2019) emphasize that Yugoslav structuralism and modernity enabled Serbian designers to navigate doctrine using form, resulting in hotels that harmonized collectivist values with architectural creativity. In the post-communist era, these structures are progressively re-evaluated as components of Yugoslavia's progressive heritage versus being regarded as doctrinal remnants.

Albania is an exceptional and unique situation in this region. Albania's extended isolation after 1961 meant that it didn't have much contact with world architectural debate and tourist development was heavily influenced by strict ideological filters. According to the (Istrefaj Koliçi, 2025), Albanian hotel architecture was more of an ideological and symbolic tool than a way to make money or promote culture. In contrast to the Bulgarian or Yugoslav instances examined in Holidays After the Fall, Albanian coastal hotels remained small, formally restricted, and heavily regulated, hindering the development of innovative or distinctive recreational architecture. The effect of these different paths is especially clear in how people see hotel architecture after socialism. Bulgarian and Yugoslav resorts along the seaside have progressively reconfigured as significant cultural resources and integrated into cultural heritage and hospitality discourses (Beyer, Hagemann & Zinganel, 2013). In contrast, Albanian and Romanian hotels frequently endure narratives of alienation, oppression, and stagnation, leading to neglect or major changes (Macdonald, 2009; Smith, 2006).

3.2. Architectural characteristics and typologies of hotels in the region

Socialist hotel design in Eastern and southern Europe emerged through unique national typologies, influenced by differing levels of ideological regulation, economic liberalization, and connections with global tourism. A comparative analysis of notable hotels reveals that analogous socialist ideals produced varied architectural outcomes in different states (Fig.5).

Bulgaria adopted a state-planned mass resort model, as demonstrated by the International Hotel at Golden Sands. Integrated within an extensive regional concept throughout the Black Sea coastline, Bulgarian hotels constituted components of expansive resort areas defined by modular uniformity, infrastructural coherence, and shared recreational amenities. Architectural uniqueness was sacrificed to the principles of mass production and regional unity, so strengthening tourism as a state-managed socialist accomplishment.

Croatia adopted a distinctly divergent strategy, especially across the Adriatic coastline. The Haludovo Palace Hotel on Krk Island (1972) designed by the architect Boris Magaš, exemplifies an innovative resort typology facilitated by the nation's hybrid socialist–market economy and non-aligned political stance. Haludovo was conceived as a cohesive leisure complex, showcasing architectural originality, spatial transparency, and global modernism influences. In this context, community leisure was expressed through architectural innovation rather than uniformity, distinguishing resorts as exceptional within the Yugoslav sphere.

In Romania, hotel designs embraced a more grandiose and symbolic urban typology, as shown by the Hotel Intercontinental in Bucharest (1971), designed by Hariton, Nădrag, Moscu, and Belea. The edifice, a high-rise icon in the capital, epitomized modernisation and national aspiration during Ceaușescu's reign. In contrast to coastal resorts, Romanian citiy hotels prioritized height, magnitude, and exposure, so aligning tourism architecture with dictatorial performance and centralization of power.

The Soviet Union established a unique institution hotels typology, exemplified by the Yalta Intourist Hotel in Crimea. Developed within the Intourist framework, these hotels integrated lodging, leisure, and amenities into expansive, multipurpose complexes. These institutions emphasized structured leisure, communal activities, and integration with resort facilities, establishing tourism as a manifestation of the government's social and political framework.

Figure 5. *From left to right. 1st row: a) Hotel Adriatik, Durrës, b) Hotel Haludovo Palace, Krk Island Croatioa, c) Yalta Intourist Hotel in Crimea. 2nd row: d) Hotel Yugoslavia, Belgrade, e) Hotel International, Golden Sands, Bulgaria, f) Hotel Intercontinental, Bucharest.*
Sources: Wikipedia, tripadvisor.

Serbia, as part of socialist Yugoslavia, embodies the urban monumental hotel type via the Hotel Yugoslavia in Belgrade. The hotel, designed by Lavoslav Horvat is situated boldly beside the Danube. This provided the possibility for it to serve as a political, cultural, and commercial

hub, prioritizing visual significance within the urban environment over landscape-oriented recreation.

The Hotel Adriatik in Durrës, Albania, established in 1957, exemplifies one of the earliest substantial beach hotels built during the socialist regime. Originating from a meticulously regulated political and economic framework, the structure embodies a subdued modernist vernacular marked by functional clarity, moderate dimensions, and constrained architectural articulation. In contrast to other communist nations, Albania did not establish integrated resort complexes; rather, its beach hotels operated as standalone entities inside a rigorously controlled tourism framework, indicative of the regime's prudent stance on foreign interaction and mass leisure activities.

4. Conclusion

This study has analysed socialist hotel design in Eastern and southern Europe as a distinct architectural domain influenced by doctrine, economic policy, and various levels of receptivity to international tourism. The study illustrates that similar socialist principles displayed in centralized planning, collective leisure, and architectural legibility—resulted in specific national typologies rather than a uniform architectural style, through the comparative evaluation of Bulgaria, Romania, Yugoslavia, Serbia, Albania and the Soviet Union.

Hotels served as mechanisms for the construction of communal identity, influencing the collective experience by architectural arrangement, regulated recreational activities, and representational symbols. Yugoslav and Bulgarian coastal resorts conformed more closely to pan-European modernist leisure paradigms, facilitating exploration and scenery integration, whilst Albanian hotel design exhibited a distinctly restrained character. Albania's extended seclusion and stringent ideological control led to hotels functioning mostly as socio-political and representative instruments rather than as drivers of tourism or aesthetic advancement.

A distinguishing characteristic of the Albanian context was its explicit opposition to modernism, regarded as a capitalist and morally perilous force. This position enabled stringent regulation of architectural output, whilst distancing Albanian culture of design from global dialogue. Even though the Hotel architectural design was considered the most ‘open’ and with possibilities for more free creativity, it could not escape the fate of functioning both as a means of doctrinal execution and as an instrument for reshaping national identity through disintegration, exclusion, and meticulously controlled modernisation.

In the post-communist environment, these varied trajectories have produced disparate legacy consequences. Some communist hotels are gaining recognized as important modernist heritage, while others, especially in Albania and Romania, are still marginalized or overlooked. The study reinterprets communist hotel design not as an outdated political remnant, but as an essential element of the twentieth-century architecture legacy, advocating for sophisticated preserving and reuse with adaptive approaches. Future study might profit from comprehensive archival exploration, in-depth case studies, and rigorous examination of post-

socialist alterations to better incorporate this design into wider historiography and cultural discussions.

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Vertical Growth and Urban Morphology

High-Rise Towers Reshaping Tirana's City Form

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MSc. Eneida MUHAMUÇI
ORCID 0000-0003-2271-9553
Department of Planning and Environment, POLIS University, Albania,
eneida_muhamuci@universitetipolis.edu.al

Abstract

Tirana has rapidly changed in the last few decades, with a growing trend toward vertical construction. High-rise towers signify a dramatic shift in the morphological makeup of the city, particularly in central and highly sought-after urban areas.

This paper explores the spatial and structural consequences of vertical growth on the urban form of Tirana, focusing on the interaction between the development of tall buildings and key elements such as street networks, public spaces, skyline composition and overall urban continuity.

The study investigates how the concentration of towers in selected areas affects the historical urban structure, often disrupting established patterns of connectivity, pedestrian access and socio-spatial coherence. Drawing on mapping analysis, field observations and selected case studies, the paper critically examines the morphological fragmentation caused by inconsistent vertical interventions, many of which lack integration with wider planning frameworks or infrastructural capacity.

The change of the skyline as an expressive layer of urban identity is given special consideration. Tall buildings represent ambition and economic advancement, but their unregulated expansion creates visual clutter issues. The study also looks at the effects of tower-induced densification on public space, emphasizing how verticalization frequently results in less civic permeability and the privatization of ground-level spaces.

The study highlights patterns of spatial inequality and sheds light on the difficulties in balancing vertical growth with resilient, inclusive, and historically conscious urban design by placing Tirana's experience within the larger Euro-Mediterranean urban dynamic. In order to guarantee that the construction of high-rise structures enhances Tirana's changing urban form while maintaining its spatial legibility and cultural identity, the paper concludes by suggesting strategic urban design and policy tools.

Keywords

Urban morphology, high-rise development, vertical growth, Tirana, public space, skyline transformation

1. Introduction

Since 1991, Tirana has become a symbolic city reflecting Albania's political and economic change, free movement, the need for housing, and drastic changes in urban development. For 45 years, Tirana was characterized by a compact urban form, with residential blocks with low buildings that did not exceed 15 m in height. After 1991, the capital expanded rapidly, unprepared to accommodate the high number of new residents, which led to urban sprawl with entire neighborhoods of informal buildings, additions to residential buildings built during the communist regime, and new residential buildings that, although equipped with a building permit, did not comply with the construction conditions set out in the Regulatory Plans.

Even though more than 3 decades have passed since Tirana became the main destination of large investments, it still retains the symbolism of drastic urban changes (often not supported by spatial planning) now with a new typology of tall buildings. Unlike European cities where vertical growth has been accompanied by modernism, urban densification and dynamic economic development, in the case of Tirana critical questions arise regarding the preservation of cultural identity, spatial coherence and regulatory capacity.

This paper explores the influence of high-rise buildings on the urban morphology of Tirana, with particular emphasis on the relationship between this building typology and morphological components such as the road network, public space, and the skyline. Most high-rise buildings are concentrated in the areas around the city core and along the main arterial corridors of the city, fragmenting the historical urban fabric and hence impacting the pedestrian access, social inclusion, and spatial legibility.

Vertical growth is mainly guided by long term planning frameworks, while in the case of Tirana this development has come quickly, lacking sustainable integration with urban design principles. Often such approaches lead to the privatization of ground floor space, increasing spatial inequality, disrupting long-established urban patterns. Also, the change of the skyline represents a new visual identity of the city that leaves room for discussion.

Using Tirana as a case study in broader European urban dynamics, this paper attempts to assess critically the spatial implications of vertical growth and to elaborate on planning and policy instruments that will better steer the development of tall buildings while respecting the urban and social context.

2. Background & conceptual framework

2.1. Urban morphology and vertical growth

The physical form of urban space structures shaped over time by infrastructure, planned architecture and socio-economic forces makes up urban morphology. As mentioned above, Tirana's urban morphology was a low-rise, horizontally developed city, whose skyline was characterized by the simplicity of Ottoman plans, the rationalist interventions of the Italians and the planning models of the socialist era.

Vertical growth, the construction of tall buildings is a relatively recent phenomenon in Tirana. The main reasons and characteristics for vertical growth such as the need to accommodate increasing urban density, optimizing land value, creating new urban spaces, besides symbolizing economic progress, do not reflect the current context of Tirana, and Albania in general.

However, this verticality, when applied in cities with little-in-place coercive frameworks, yields dysfunctional development.

2.2. The role of skyline in the urban identity

Not just a visual output, however, the skyline defines an expressive layer of urban identity. It relates with the historical layers, planning ideologies, and collective memory. In Tirana, the skyline is undergoing a rapid, uncoordinated transformation of competing high-rise buildings for visibility rather than a coherent urban image. The absence of a regulated skyline plan threatens chaos in views and diminishes the legibility of the form of the city.

3. Methodology

This study based on qualitative spatial analysis focuses on urban morphology and field observation.

3.1. Data sources

Historical maps and satellite imagery were used to assess the change in building height, density and land use changes.

Field observations were conducted in several key areas of high-rise development, such as Skanderbeg Square, the Lana River corridor and Blloku.

Several tower projects such as Downtown One, Eyes of Tirana and Book Building were taken as case studies to demonstrate different typologies and spatial impacts.

3.2. Analytical framework

The analysis focused on the following morphological dimensions:

1. Discontinuity of the road and pedestrian network.
2. Permeability at ground level and public-private interface.
3. Skyline composition and visual coherence.

4. Case study – Vertical growth of Tirana

4.1. Historical morphological layers

To understand the city of Tirana, it is important to read the morphological layers according to socio-political periods.

Ottoman Period: In its earliest form, Tirana was a small Ottoman city with irregularly shaped street networks and houses closed towards private inner courtyards, with an organic morphology of the city with low density. Houses were clustered in various configurations around mosques, baths and bazaars that were religious and civic institutions. In general, spatial cohesion is more important than hierarchy, thus facilitating a pedestrian environment on a human scale.

Italian Occupation: Under the influence of King Zog and later of Fascist Italy, Tirana was radically restructured through a series of master plans. Rationalist principles of urban planning emerged with axial boulevards, symmetry and monumental public buildings. The Boulevard of the Martyrs of the Nation, which connected the city center with the main institutions, reoriented the formal axis of the city's development and provided an introduction to the European modernist aesthetic. This layer has formed a state-centered urban order and is a residual source for the symbolic core of Tirana.

Socialist Period: After World War II, the communist regime carried out central planning emphasizing aspects of equality and functionality above any aesthetic considerations. Subsequently, the expansion of the city developed into a uniform type of low- to medium-rise residential blocks - a pattern mainly of five- to seven-story panel buildings - connected to public facilities and green spaces. Urban expansion was horizontal, to a certain extent, and controlled through zoning regulations and state land policy. The very morphology of this era gave rise to a complete separation of functions and penalized verticality in the name of collectivist ideals.

Post-1991 Liberalization: The other side of the story is that the quick fall of communism was followed by an abrupt deregulation of land use and uncontrolled construction, informal settlements, and rampant speculation in land. Under the combined weight of neoliberal reform, planning institutions were gradually reduced to impotence, and Tirana underwent a wild urban boom. Lack of a coherent zoning policy allowed the vertical constructions to sprout with scant regard to their contextual relevance, infrastructural capacity, or heritage preservation. This period has, however, seen an altogether departure from the once-strong horizontal growth paradigm. Private interests, political partnership, and foreign investments largely fuel this transition to vertical growth.

The urban morphology of Tirana represented of all the historical processes which have been layered up. The integrity of these processes has been disturbed and redefined by modern vertical interventions that are challenging in terms of scale, linearity and public space: interventions made recently in this time of change.

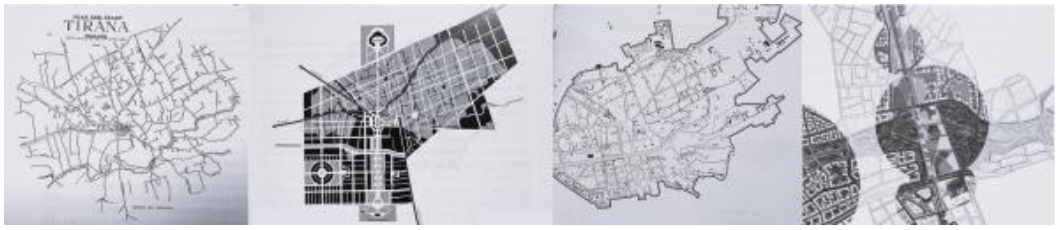

Figure 1. *Adapted from Tirana – Qyteti i Munguar.*
Source: S. Dhamo, G. Thomai, & B. Aliaj (2016), Polis-Press.

4.2. Tower development hotspots

Within the pre-existing zones of high real estate value and symbolic significance, vertical growth is increasingly operating and orienting itself. These "vertical hotspots" are redefining not just the skyline anymore but also the socio-spatial logic of the city.

Skanderbeg Square & Boulevard Dëshmorët e Kombit: The area assumedly having the city's most administrative and symbolic heart has fast become a hotbed for high-rise development. The post 2010 urban regeneration of Skanderbeg Square through its minimalist reconfiguration served as the aesthetic backdrop for luxury developments. The new towers around the square, however, are now increasingly shadowing historic sightlines and monuments. The boulevard, which once represented Italian Rationalism at its best, is now flanked with vertical glass and steel structures that are increasingly losing the characteristics of clarity and proportionality from that of the original design.

Lana River Corridor: From being a neglected edge condition, the Lana River corridor is transforming very rapidly into a commercial spine. High-rise office towers and mixed-use buildings have replaced low-rise housing and informal workshops. This linear corridor, which runs parallel to the main boulevard, is being positioned as a secondary central business district.

Blloku Area: Blloku has been rebranded into a trendy high end urban district. This is a hotbed of vertical development, particularly luxury residential and hotel towers. Here, verticality is a tool not just to maximize floor area but to convey exclusivity and prestige. But the shift from human scale blocks to high-rise buildings has sliced up the urban grain, raising serious concerns about sunlight access, walkability and displacement of communities.

In all these hotspots, high-rise constructions are happening alongside strategic land acquisition, unclear regulatory frameworks. Most of these developments are sometimes positioned on sites that registered the existence of buildings of cultural or architectural importance, thus intensifying the debate over memory, identity, and the right to the city.

4.3. Key projects

Downtown One: Standing 144 m high and completed in 2023, it is one of the tallest mixed-use buildings within Albania. It perches over the banks of the Lana River, housing commercial

areas, luxury apartments, and underground parking. It has been marketed as a symbol of progress; yet, critics have faulted it for obstructing visual access to both Dajti Mountain and historic buildings along key urban corridors. Bulky massing breaks the skyline.

Eyes of Tirana: Designed next to Skanderbeg Square, its an attempt to create an architectural landmark for the city. The tower would be clad in reflective glass and rise in sharp contrast to the neighbouring historic architecture. However, they offer little in terms of integration with the public domain. Retail at the podium level is impervious to the surrounding public and little public space exists around the complex itself. Critics argue for the elevation to take precedence over urban integrity.

The Book Building: This mixed-use tower attempts to juxtapose modern architecture against cultural references. Its north and south façades show reliefs resonant with Albanian folklore and literature, symbolically qualifying the tower as a "vertical library." Further, while more literate of symbolic narratives, its ground activation raises concerns. The public interface here is dominated by private pathways and minimal commercial frontages, thus inhibiting public life. Nevertheless, the intent is to give verticality some local meaning.

These towers are not merely architectural interventions, but also instruments within a broader political and economic signaling context. Often commissioned by politically connected developers, they serve as traditional markers for Tirana’s globalizing aspirations.

Yet cumulatively, these have birthed a fragmented urban landscape, where vertical icons vie for attention as opposed to furthering a decent public creation.

Verticalization for Tirana will end up in very serious urban development change and perspective. Instead of horizontal expansion when the state was actively steering the development, the city has now gone up as a result of market-economic, speculative rationality, very powerful, and the symbolism of height. High-rise towers, while there is a lot of promise and potential density beneficial, they mostly come unfulfilled with respect to not understanding historical continuity, urban scale, nor social equity. The current spate of verticalization puts Tirana at a clear test of whether it can manage to maintain a coherent and inclusive public realm as well as an identity.

As the city continues going up, a much more sophisticated approach to vertical urbanism needs to be urgently inculcated – one that acknowledges the very rich layered morphology of Tirana, integrates towers into the urban fabric, and weighs private gain against public good.

5. Key impacts on urban morphology

Tirana is recently vertically transforming its urban form. More than just a height change, this is a radical reorganization of its morphological fabric. High-rise development in central and symbolically representative zones has caused spatial, functional, and aesthetic disruptions. These relatively speculative interventions haven't found a proper integration into the existing urban fabric, thereby creating fragmentation at the ground level and skyline levels. Three main impacts on Tirana's urban morphology will be examined here: disruption of street networks, erosion of public space, and fragmentation of the skyline and urban identity**.**

5.1. Disruption of street networks & continuity

Vertical development in Tirana has ruptured the traditional street patterns and pedestrian continuity at once and almost instantaneously. High-rises typically require large parcels of land and expansive podiums which, upon many occasions, are not compatible with the fine-grained pedestrian-oriented urban grid the city historically has, as Nase and Ocakçi put it (2010).

Most of the time, this disturbance in the permeability of the urban fabric superblocks or stand-alone towers, which break the connections between adjacent neighborhoods and important public amenities. For instance, the Downtown One complex on Rruga e Elbasanit sits at an integral corner site near Lana River. Although advertised as a mixed-use project joining together offices, retail, and residential units, the design interrupts the east-west pedestrian flow that had once been porous and activated as a city edge.

Such blockage turns against one of the other most treasured values of Tirana as a space: informal walkability. During the post-socialist term when plans were not in place, Tirana cultivated a strong pedestrian culture mostly by improvised shortcuts, narrow alleys, and rich sidewalk life (Pojani, 2015). Such vertical constructions usually ignore this network, preferring

to set up controlled entrance points, underground movement, or poorly connected internal courtyards that are inaccessible to the public.

Furthermore, many towers are constructed disjointedly, not relating their ground-level arrangement to existing street grids, resulting in poor corner articulation, underprivileged rear façades, and random building setbacks (Ghazaleheniya and Akçay, 2022). In places like the Blloku district, where the street network is narrow and historically rich, towers encroach upon older patterns without consideration for scale, dimension or rhythm and also disorient large residents and foreigners alike (Mele et al., 2022).

5.2. Public space loss and ground-level privatization

Another adverse consequence of vertical growth in Tirana is public space erosion and privatization of ground jetties. Floor area ratios (FAR) in high-rise buildings can be considered as concentrated vertical volumes. Theoretically, the only trade-off must be ground space released for public use. Promises to create publicly accessible plazas or landscaped setbacks often accompany permits of this type, but these spaces are easily scaled down during implementation or made functionally private by elements such as barriers or fences or surveillance infrastructure (Pojani, 2015).

For example, for projects like The Book Building (Libri). While its facades have artistic reference and cultural symbolism, the ground floor has very minimal active frontage. Retail units exist on a very limited number and are not available to all income groups, while access to residential and office spaces is designed as controlled-access lobbies (Yunitsyna & Laçi, 2024). This way, it minimizes the public realm and makes the edges of these buildings inert, diminishing the vibrancy and safety that is usually provided by active street life (Ghazaleheniya & Akçay, 2022). The accumulation of all these effects is, in short, the weakening of public culture in Tirana, long rooted within whose tradition of informal gatherings, street cafés, and spontaneous interaction (Pojani, 2015).

5.3. Fragmentation of the skyline and identity tension

Once, the Tirana skyline was easily tethered to significant symbolism by structures such as the Clock Tower, Et'hem Bey Mosque, the National History Museum, and the Palace of Culture. More importantly, in terms of time space, the monuments were thoroughly controlled by their symbolic representation in the sky.These landmarks established a horizontal rhythm and provided clear orientation points (Pojani, 2015). With increased height, buildings are gradually dwarfing and blocking views of these landmarks. A case in point: the view corridor from Skanderbeg Square toward Dajti Mountain: once a celebrated urban panorama, it is now partially obstructed by high-rises, such as Downtown One and the ABA Business Center (Aliaj, 2023).

While the sky should have focal points and transitions, it rather consists of a random scattering of glass towers of different heights, materials, and orientations (Ghazaleheniya & Akçay,

2022). This decreases the sense of urban cohesion and complicates visual 'reading' of the city to its citizens.

Many towers depend for their design on those universal aesthetics, glass curtain walls, reflective facades, and sculptural forms, stripped from the local climate, history, and architectural tradition of Tirana (Prifti, 2024). It has been noted that although very few projects, such as The Book Building, try to localize cultural motifs, the rest contribute to placelessness in the city: "it's as if Tirana exists within some other global, interchangeable city" (Mele et al. 2022).

Vertical growth, in general, is absolutely not negative, but the present practice in Tirana lacks the strategic foresight, control mechanisms, and context determination to achieve a coherent and inclusive urban environment. In its rising future, Tirana must now ask itself: For whom is the vertical city-and at what cost to Tirana's urban identity and livability?

6. Policy and design implications

6.1. Urban design tools

Skyline Management Guidelines

A citywide height map should delineate the bands of heights permissible for distance from historic centers, highways, or landmarks.

Vertical Zoning/context-sensitive Height Mapping

Establish a height overlay for sites with varying bulk and height restrictions. For instance: higher towers (e.g., 30-40 stories) should be allowed only in locations such as transportation hubs and arterials, with those taller than 5-10 stories in areas like Blloku or older Ottoman areas restricted. Use GIS-based height mapping to enforce these stratified zones, with new tower projects modeled against these before permits can be issued.

Permissibility at Ground Level

Any of the newly proposed larger tower projects should offer permissible, accessible pedestrian connection through blocks by cuts-through or building open plazas, or arcades. Legally require proportion of street-facing wall surface for transparency (windows, entrances) over minimum percentage (60-70%) in certain areas. Standardize at a minimum width for sidewalks and also trees, chairs, illumination, and other pieces of urban furniture.

7. Conclusion

Tirana has been facing the transverse process of vertical development in a fragmented planning environment with weak institutional control when compared to cities with more established traditions for enforcing regulatory controls. This paper has elucidated how the mushrooming of high-rise towers in areas such as Skanderbeg Square, the Lana River Corridor,

and Blloku has disrupted the pedestrian-friendly historic urban fabric of the city, introducing spatial lapses and ultimately privatizing parts of the public domain.

In the absence of any proper height zoning, design review mechanisms, or view corridor protections, the skyline of Tirana is similarly becoming fragmented. Speculative towers ignoring the urban character have now concealed iconic cultural assets, such as the Clock Tower and Et'hem Bey Mosque. At the same time, ground levels are largely inert in many high-rise developments, diminishing public accessibility and undermining the street culture of the city.

This paper argues that high-rise development is not intrinsically objectionable, its success rests on its proper integration with the existing morphological layers of the city. Tirana must prioritize skyline management, enforce active street frontages, and embed public benefit into vertical projects.

There is no prospect for Tirana to put off height; rather, the future must be open to regulating height-intentionally, justly, with deep sensitivity to the historical fabric. Verticality must become a tool of urban cohesion, not fragmentation.

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Game of Towers

Vertical Growth - Horizontal Tensions

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MSc. Erjon ÇOBANI
ORCID 0009-0000-2518-3155
Department of Architecture and Design, POLIS University, Tirana, Albania,
erjon_cobani@universitetipolis.edu.al

Abstract

Tirana's urban landscape has undergone significant changes in recent years, transitioning from a spread-out, low-rise style to a more concentrated, high-rise approach. This change has affected not only the city's appearance but also its overall architectural look. This transformation has led to increased population density and a more modern aesthetic, but has also raised concerns about preserving the city's cultural heritage and addressing infrastructure challenges, such as traffic congestion and inadequate public spaces.

The increase in high-rise buildings reflects changes in culture, economics, and design, as housing and public spaces are rethought to accommodate rapid city growth, market demands, and global architectural styles. These buildings aim to create a modern city image but often clash with its history and traditional building styles. The completion of the 85-meter-high TID Tower in 2015 symbolizes Tirana's shift towards modernity and new heights, but has sparked debates about how to develop the city while preserving historic sites and public spaces. Some argue that the construction of towers represents progress and economic development, as they believe these modern structures attract investment, create jobs, and provide much-needed housing for a growing urban population. But, at what cost? How to define the balance between preserving and evolving to meet the demands of the future?

As towers have changed Tirana's morphology and appearance, the purpose of this paper is to examine how they have affected public spaces, created a new identity for the city, and been integrated into the existing urban fabric. It questions whether these buildings help create a unified city or break up its structure. By placing this within the larger discussion of urban renewal, the research suggests a new approach on assessing the balance between modern architectural goals and the need to protect historical heritage while maintaining consistent building styles.

Keywords

Urban morphology, vertical urbanism, heritage and continuity, fragmented fabric, high-rise architecture

1. Introduction

Over the last two decades, the city of Tirana has experienced a significant transformation in its urban structure and architectural appearance. After the 1990s, economic growth, internal migration, and liberalization of the construction market have resulted in a shift from low-rise typologies to a prominent vertical development (Lulo, 2003; Imami, 2018).

This change is not simply a physical phenomenon of development at height, but also represents a morphological evolution, which affects the way the city functions, is perceived and experienced by its inhabitants. For this reason, there is a need to analyze their impact on Tirana's urban identity, on public spaces, and above all on the cultural and architectural heritage that the city has cultivated over the years.

The main purpose of this paper is to explore and debate on the impact of tall buildings on Tirana's urban morphology, highlighting how this vertical development conflicts or harmonizes with existing building typologies in the city's horizontal urban fabric. It focuses on the tension between old and new construction, between the city's need for modern development and urban identity preservation.

In this context, the research focuses on the questions: How is the urban landscape of Tirana changing through vertical construction? Is a unified city being created or a fragmentation of an existing structure? Is this modern vertical development a need for the city, and if so, how can it be balanced with the protection of public spaces and heritage?

2. Literature review

2.1. Background

Moudon (1997) describes urban morphology as the study of the physical form of cities based on elements such as road networks, the layout of land parcels, building typologies, and public space organization. In the case of Tirana, it would be the study of the urban fabric of the city, how the city's recent developments have changed from low-rise courtyard houses to high-rise towers, by analyzing the height of the buildings, their density, the dimensions of the communication roads and the arrangement of public spaces.

This approach makes it possible to read the changes in urban stratifications and the ways of life that they represent. Meanwhile, the concept of vertical urbanization is related to development in height, as a response to the pressure of population growth, the lack of urban land and the globalization of architecture (Lehmann, 2015), the horizontal pressure that is created in the mosaic of existing buildings around remains to be judged, as it is always felt after the construction has been applied.

Researchers such as Rem Koolhaas have discussed the "Generic City" where the homogeneity of international style replaces local context (Koolhaas, 1995). This phenomenon, widespread in Europe, is also evident in Tirana, where new buildings usually adopt forms or materials borrowed from foreign models, without having a clear connection or reference to the local climate, history or typology. We can add that various studies by urban planners such as Jane

Jacobs emphasize the importance of organizing urban life at human levels, intertwined with lively streets and social interaction, principles that are often ignored in vertical construction without sustainable planning (Jacobs, 1961).

2.2. High-rise towers and vertical urbanization

The phenomenon of tall buildings in Tirana is a last decade occurrence, driven by the free market, foreign investments, and the unstable urban planning policies (Goci & Dhamo, 2021). Buildings such as TID Tower (2015), Downtown One (2024), and the Eyes of Tirana (2025) are such examples. These structures are not just tall; they symbolize the ambition of the city to reposition its identity and enter the next phase of its evolution.

However, they are often positioned without an appropriate urban context. For example, TID tower stands next to block of historic low-rise buildings from the communist era. The contrast between its vertical typology and the surrounding horizontal layout is stark, highlighting a lack of an integrated approach to planning. In the absence of thorough morphological analysis, these interventions risk cutting the city's roots to its past and creating an urban fabric that is alien to the local reality.

High-rise buildings have also a direct impact on the availability and accessibility of public spaces. For instance, in the area around the National Stadium, it can be easily observed how the new constructions have reduced green areas and transformed public access into commercially controlled spaces (Dovey, 2016). This translates into a loss of collective space and a diminished sense of belonging to the city.

3. Methodology

3.1. Morphology in transition

The shift from low-rise to high-rise buildings is not a wrong development approach in itself. In many cities, vertical urbanization has been used to address and solve problems such as overcrowding and land scarcity. However, in the absence of a strategic and comprehensive approach, as is the case of Tirana, this shift results in fragmentation of the urban structure, increased spatial inequalities and loss of historical identity (Bafna, 2003).

A sustainable development should be based upon detailed analyses of existing urban strata, density studies, and the architectural character of the surrounding areas. This paper explores a new tool for analyzing urban data related to towers and evidencing the facts. Mapping before and after the construction of towers can evidence how the mobility network, public spaces, shading or natural lighting of surrounding houses have been changed – elements that directly affect the quality of life.

3.2. Mohr's urban circles

Mohr's circle is a very well-known notion in the world of engineering, which has roots in material mechanics and is applied to other fields such as mechanical, geotechnical and structural engineering. It is a graphical method used to visualize and analyze the stress state at a single point within a body.

Mohr's circle is a circle drawn on a graph that has normal stress (σ) on the horizontal axis and shear stress (τ) on the vertical axis. An example for a plane two-dimensional stress case is shown in the figure 1. Each point of the circle defines the (σ) and (τ) components for a certain orientation of the stressed element. The figure shows the stress elements for three different points on Mohr's circle, corresponding to three different orientations.

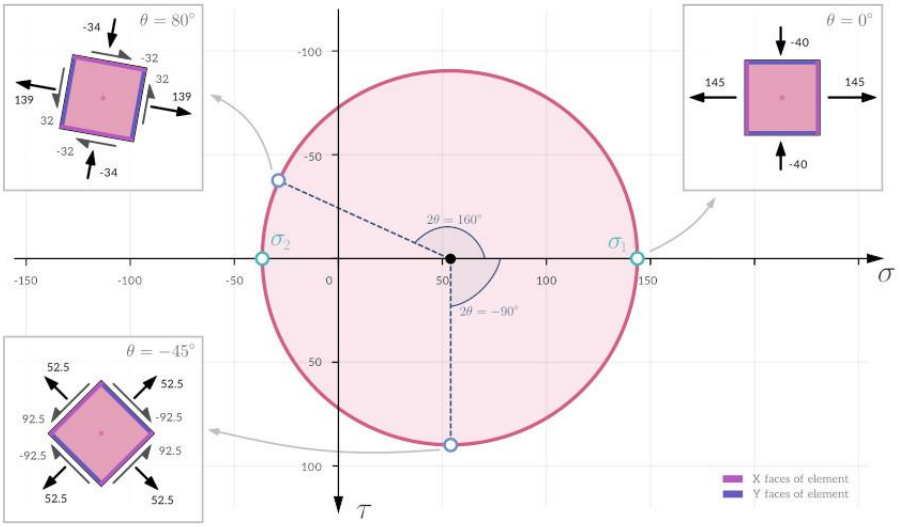

Figure 1. *An example of Mohr's circle providing the normal and shear stresses for three different orientations of the stressed element.*
Source: efficientengineer.com.

"Mohr's urban circle" is a created tool on the scope of this research, in order to show visually the urban tension through an engineering analogy, or better "an engineering reading of urban morphology". Based on Mohr's circle as explained above, in urban morphology the same logic can be applied as analytical metaphor, where:

1. Vertical stress $(\sigma_v) \rightarrow$ is linked to the pressure that the tower exerts on the territory (height intensity, no. of floors, FSI – floor space index, the ratio of the building's total floor area to the land area);
2. Horizontal stress $(\sigma_h) \rightarrow$ is linked to the influence that the tower has on the horizontal urban layout (ground density, land utilization, GSI – ground space index, measuring the ratio of the building's ground floor area to the land area);
3. Tangential stress $(\tau) \rightarrow$ is linked to the tension between towers and the urban context (e.g. when a tower is inserted into a traditional neighborhood, it creates morphological "frictional" forces).

These three parameters can help to better understand the existing situation of towers built in Tirana and to give a picture of the influence of new towers that will be built in the near future.

The first two parameters (*sigmas* - σ) are pretty straight forward and numerically understandable, whereas the third parameter (*tau* - τ) is more related to the "friction", as it represents the morphological and cultural conflict that arises from the coexistence of towers with existing typologies and historical heritage (Kostof, 1991; Djamal & Nguyen, 2024). This third parameter is not measurable in a classical engineering manner but translates into indicators such as the loss of urban coherence, fragmentation of public spaces, and negative perceptions by the community (Jacobs, 1961; Rossi & Lee, 2023).

In the urban sense: the more the tower reaches extreme altitudes without a wide base, or in context with low buildings, the more it creates morphological friction as: sudden change of the urban vertical profile, shading, blocked views and pressure on public spaces.

4. Results

In order to obtain results and use the tool proposed of "Mohr's urban circle", data has been collected for 12 selected towers, from credible resources, such as: ASIG, OpenStreetMap and Google Earth. This data, shown in table 1, contain information about the tower's coordinates, year of completion, height in meters and floors, underground number of floors, footprint, total floor area above ground, and site area. From this data are further calculated the FSI – Floor Space Index and GSI – Ground Space Index, accordingly:

$$FSI = \frac{Total\ Floor\ Area\ Above.Gr\_m^2}{Site\ Area\_m^2} \quad \text{and} \quad GSI = \frac{Footprint\_m^2}{Site\ Area\_m^2}$$

No	Name of Tower	Coordinates	Year	Height_m	Height_ floors	Underground_ floors	Footprint_m2	Total Floor Area Above.Gr._m2	Site Area_m2	FSI - Floor Space Index	GSI - Ground Space Index
1	Alban Tower (4-Ever Green)	41.32612°N 19.81652°E	2023	107	25	-6	590	12400	1370	9.05	0.43
2	Downtown One	41.32412°N 19.82386°E	2025	144	40	-5	1600	77000	4380	17.58	0.37
3	Eyes of Tirana	41.32232°N 19.81984°E	2025	135	31	-7	2000	63500	3350	18.96	0.60
4	InterContinental Hotel Tirana	41.32833°N 19.81722°E	2025	133.5	33	-4	1105	36500	2500	14.60	0.44
5	TID Tower (Maritim Plaza)	41.32778°N 19.82154°E	2015	85	24	-4	1050	46000	3550	12.96	0.30
6	Tirana's Rock (Skanderbeg Building)	41.3245°N 19.8179°E	2024	89	26	-5	1700	35000	3000	11.67	0.57
7	Tirana Garden Building	41.3235°N 19.8087°E	2024	85	24	-4	4300	65000	6000	10.83	0.72
8	Sky Tower (Sky Hotel)	41.3235°N 19.8175°E	2002	74	20	-3	1090	22000	1750	12.57	0.62
9	Arena Center Tower	41.31833°N 19.82389°E	2019	112	24	-4	26500	54000	43000	1.26	0.62
10	Tirana Vertical Forest	41.318°N 19.8215°E	2025	75	21	-4	1100	23100	2150	10.74	0.51
11	Ekspozita Building	41.3237°N 19.8177°E	2025	93	24	-5	3300	70000	8500	8.24	0.39
12	ABA Business Center (COIN Tirana)	41.32°N 19.82278°E	2009	83	21	-3	1800	30000	3000	10.00	0.60

Table 1. *Data collected for the twelve selected towers and calculation of FSI and GSI.*
Source: Author.

After defining the FSI and GSI for each tower, these two main parameters, just as mentioned in the methodology are considered as key components for creating Mohr's Urban Circle per each tower. The calculations performed altogether with formulas are shown in table 2.

No	Name of Tower	Sigma_v (σ_v = FSI)	Sigma_h (σ_h = GSI)	Radius_R ($\tau_{max} = [\sigma_v - \sigma_h]/2$)	Center_C ($C = [\sigma_v + \sigma_h]/2$)
1	Alban Tower (4-Ever Green)	9.05	0.43	4.310	4.74
2	Downtown One	17.58	0.37	8.607	8.97
3	Eyes of Tirana	18.96	0.60	9.179	9.78
4	InterContinental Hotel Tirana	14.60	0.44	7.079	7.52
5	TID Tower (Maritim Plaza)	12.96	0.30	6.331	6.63
6	Tirana's Rock (Skanderbeg Building)	11.67	0.57	5.550	6.12
7	Tirana Garden Building	10.83	0.72	5.058	5.78
8	Sky Tower (Sky Hotel)	12.57	0.62	5.974	6.60
9	Arena Center Tower	1.26	0.62	0.320	0.94
10	Tirana Vertical Forest	10.74	0.51	5.116	5.63
11	Ekspozita Building	8.24	0.39	3.924	4.31
12	ABA Business Center (COIN Tirana)	10.00	0.60	4.700	5.30

Table 2. *Indicators database for drafting Mohr's Urban Circles per each tower.*
Source: Author.

With the data from table 2 are drafted the graphs of Mohr's Urban Circle per each tower, some of which can be seen below. In the horizontal axis are plotted the $(\sigma_v\ ;\ \sigma_h)$ whereas in the vertical axis the (τ). Interpreting vertical tensions (σ_v) as the intensity of the city's height, horizontal tensions (σ_h) as the use of land for building, and tangential stress (τ) as the morphological and cultural tensions, it allows to see how disproportions between these parameters lead to visible transformations of the urban landscape.

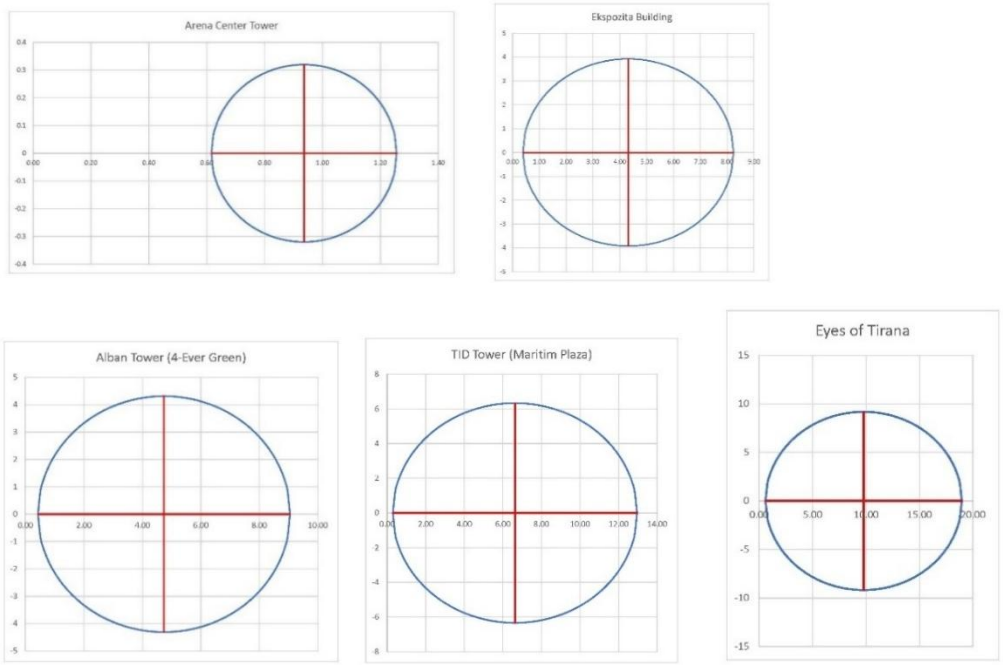

Figure 2. *Mohr's Urban Circles plotted for each tower.*
Source: Author.

Considering that looking at individual circles do not give a significant interpretation, they have been combined in one graph, from which can be seen an interesting pattern, as shown in figure 3.

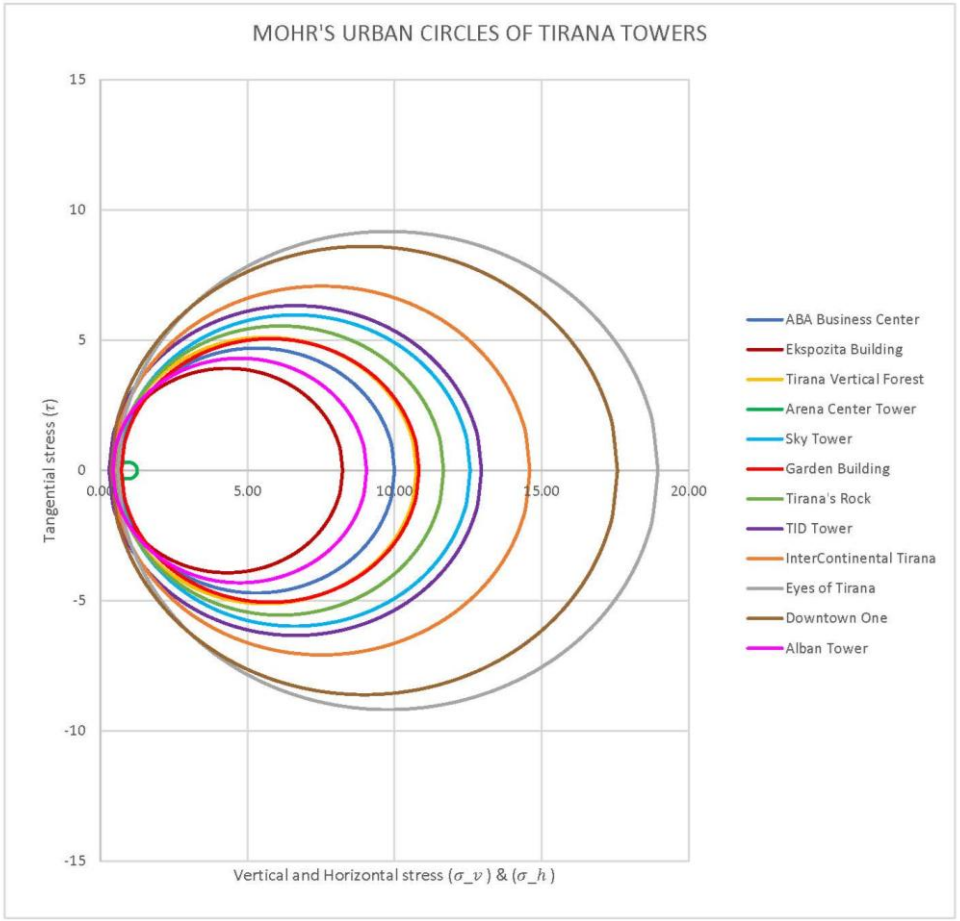

Figure 3. *Mohr's Urban Circles of Tirana Towers.*
Source: Author.

From the results obtained through the application of Mohr's urban circles as a conceptual tool in the morphological analysis of Tirana it can be concluded that the construction of new towers generates urban tensions.

In general, the results show that buildings with balanced dimensions between height and occupied space create smaller "circles" and, therefore, lower tension in the urban fabric. On the other hand, a building that emphasizes its height by minimizing the horizontal footprint creates larger circles, resulting into significant conflicts with the surrounding typologies (Marshall, 2005). The result also confirms the theories of urban morphology that emphasize the importance of balance between vertical density and horizontal spread of a city, for maintaining the visual and functional cohesion (Whitehand, 2001).

The results show that the bigger the towers are in comparison to their context, the more likely they are to create "cracks" in the inherited urban structure (Conzen, 1960). Thus, the results synthesize a picture where new vertical constructions are not merely physical additions but

also producers of conceptual tensions that can serve as an indicator for future changes in the morphology of the city.

4.1. Horizontal tensions in the landscape

According to the proposed methodology of using Mohr's urban circles as a conceptual tool to analyze urban tensions, the presented results provide a clear understanding of the impact of adding new towers on the morphology of Tirana. When several towers are close together, the circles begin to overlap. This visualizes exactly the "interference" of urban tensions. The circles create "pressure waves" in the horizontal urban fabric. The map in figure 5 illustrates this clearly. Moreover, it is evident that the existing towers already interfere irregularly with each other, as well as being clustered primarily around the main boulevard, linking "Skanderbeg" and "Nënë Tereza" square.

Figure 4. *Tirana Tower's Map of Mohr Urban Circles.*
Source: Author.

These overlapping circles highlight areas where resources and infrastructure may be strained, leading to increased traffic, pollution, and competition for space, especially for the public spaces. As these pressure points intensify, they necessitate strategic urban planning to manage growth and maintain livability. Addressing these challenges requires collaboration

among city planners, residents, and policymakers to ensure sustainable development and create environments that reduce stress and enhance the quality of life for residents.

5. Discussion

In any case, the discussion of these results places Tirana on a typical trajectory of cities moving from the traditional horizontal morphology of the dominance of vertical typologies. Tall buildings, along with increasing tensions in the urban environment (as visualized by Mohr's urban circles) are the signs of this morphological transition, where the inherited landscape is challenged by a new monolithic presence.

This is in line with the observations theorized in the literature on the effects of vertical densification in Mediterranean cities (Peterson, 2018). Obviously, towers produce a form of "verticalization" that leads to changes in the scale and perception of the city (Dovey, 2016; Peterson, 2018). However, this verticalization is also associated with a "horizontal pressure", where the footprints of buildings are gradually limiting public spaces and transforming the relationship between private and public (Goci & Dhamo, 2021).

The discussion cannot remain solely at the level of morphology, as the tensions created also have an impact on social and spatial levels. Public spaces, which have always been the key elements that cities rely on to absorb the shocks of urban evolution, are being diminished and usurped by new private developments. This leads to what Gehl (2010) calls "shrinkage" of the collective experience and civic access to the city. In this sense, the Mohr's urban circles are not only a metaphor for the constructive tensions but also an instrument for understanding the limits of urban and social acceptability regarding new developments.

6. Conclusion and recommendations

Vertical urbanization in Tirana is an inevitable reality that requires careful planning and management. Tall buildings can provide solutions to the demands of a growing city, but only if they are carefully integrated into the existing urban fabric. This requires a reassessment of urban policies, a more critical approach to new projects, and a serious commitment to the protection of architectural heritage.

Drafting comprehensive guidelines for vertical development is recommended, defining areas where tall buildings are acceptable and where they should be prohibited. Involving communities in their spatial planning and enhancing the role of cultural heritage organizations in the construction permit process are also essential. In this way, Tirana can create an urban future that respects its history while embracing modernity in a sustainable and reflective manner.

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Public Space and Urban Identity

Tracing the Shifts of Epidamn Boulevard, Durrës

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MSc. Arjola SAVA
ORCID 0000-0003-4906-7700
Department of Architecture and Civil Engineering, POLIS University, Tirana, Albania,
arjola_sava@universitetipolis.edu.al

Abstract

This research aims to investigate the transformation of one of the main axes of public, social, and cultural interactions in Durrës, the "Epidamn" Boulevard. Since its inception as a boulevard, it has undergone a series of functional and symbolic changes, influencing not only the urban shape but also the social life of its inhabitants. These changes were mainly dictated by political approaches, which were reflected directly in the public space. Through these morphological and comparative analyses of the boulevards across historical periods, this study identifies how public spaces are shaped and oriented by the relationships between built structures and public space. At the centre of this study is the evaluation of how urban and architectural interventions have influenced the shape and morphological aspects of public space.

The findings suggest that "Epidamn" Boulevard serves as a pure reflection of the dynamic urban development of Durres, while also serving as a case study to better understand the relation between the urban form, local identity, and influence from political jurisdictions. By looking at how both form and function have changed, this research underlines not only the sustainability but also the fragility of urban public spaces as they evolve. In addition to these contextual observations, the study draws on existing literature about public space and urban form – most notably Kevin Lynch's ideas on the image of the city, along with other works that examine boulevards and similar urban environments. Building on these theoretical perspectives, the focus here is to situate Durrës within a wider debate on urban form and spatial change, while stressing the importance of keeping the identity of Mediterranean cities intact in the face of fast urban growth and fragmented planning. By analyzing changes in form and function, this research highlights the sustainability and vulnerability of urban public spaces through their transformations.

Besides these contextual analyses, this study also relies on literature about public spaces and urban form, including Kevin Lynch's theories on the image of the city and other research that had in focus the same topic as boulevards and public spaces. While grounded in these theoretical frameworks, this study aims to place Durrës within a broader discussion on urban form and spatial transformation, focusing on maintaining the identity of Mediterranean cities facing rapid urban growth and fragmented interventions.

In conclusion, the research proposes a regenerative approach that balances the preservation of historical and cultural values with the improvement of public access and reorganization of public space as a vital key component in civic life.

Keywords

Epidamn Boulevard, historic transformation, public space, urban identity, urban morphology

1. Introduction

Urban identity and social interoperability are significantly shaped by public places. In addition to being places of travel and commerce, these also represent the history, culture, and collective memory of the local populace. Public areas, like as plazas and main boulevards, are crucial in determining the structure of the city and the form of urban identity in Mediterranean coastal communities like Durrës.

The major thoroughfare of Durrës, presently called "Epidamn," has a distinctive past. Its name comes from the name of the ancient city, Epidamnos, which the Romans adopted after Greek colonists used it in the seventh century.

This name, nowadays, serves as a link to the past, giving the modern city a greater sense of its ancient origins while highlighting that the boulevard has a sense of historical regeneration and importance.

The name has shifted from “Dyrrah Boulevard” to “Trading Road”, in different times, due to its function as the main axis of commercial activities, as well as being the most frequented zone for social activities.

In this way, the morphological analysis is made while analysing the form of the Boulevard at three moments of its urban development: the maps from 1928, 1937, and 2015 (Figure 1). The 1928 map represents an organic structure, as a combination of some small plazas and spaces for commercial trading among inhabitants, as well as tourists visiting the city. These elements give the boulevard a richer and dynamic character.

In the second map of 1937, the boulevard seems to be transformed toward a more linear axis due to the influence of Italian modernist visions. The organic plazas seem not to be evident anymore in this period. Also, the facades alongside the boulevard have been reorganized. The previous organic characteristic is replaced with narrow roads that represent well a geometrical order. If we observe the map of 2015, the elements previously mentioned have disappeared almost completely. In this period, the dominance is focused on the linearity of the boulevard, which seems to be dividing the two neighbourhoods completely geometrized from side to side. Even though from the second map to be analyzed (the one of the 1937 year) the facades seems to not have changed, it could be accepted that the whole identity that made this boulevard unique, now it is no more. All three phases chosen to be analyzed, apart from the ease of finding the maps, show dominant analytical elements from the historical period they belong to. In this way, wearable information is gathered for different historical

periods, becoming important in order to understand the relationship between urban form and historical memory.

Figure 1. *Three maps serve as the basis for the analysis. In the first map, (a) shows the map of the year 1928 of the whole city of Durrës. The second map (b) shows the map of the city of Durrës in 1937. The third map (c),shows one part of the 2015 of the city of Durrës.*
Source: AQTN.

Another important aspect that adds value to this boulevard is the position in the middle of a space rich with archaeological heritage, where the functionality of this boulevard would be different in historical periods, as well as for the space surrounding it and its urban form.

Epidamn Boulevard in Durrës represents one of the most evident cases of urban transformation within the city, spanning different historical periods that have led to changes in form, function, and the perception of its residents. Starting from the Ottoman era and continuing through the Italian invasion, socialism, and the post-1990 transition, the boulevard mirrors the various political, economic, and social changes that have influenced the city's public life and identity.

2. Literature review

The study of urban form provides a theoretical framework for understanding how cities evolve, integrating physical, social, and environmental determinants. Urban morphology, determined firstly by Conzen M. R. G. (1960) and later on explained by other contemporary researchers, is focused on the relationship between urban structures, such as roads, paths, parcels, and buildings, and the processes that affect their formation.

In this context, “Epidamn” boulevard might be a good case study on using urban morphology tools to better understand how the coastal cities embody history, culture, and economy through time changes. While these current transformations tend to fit modern development, they are also challenged by rapid urban growth and mass tourism.

Since from ancient times, Boulevards have served as places where politic, culture and economic activities coexist. Same as, Boulevards operate as axis (mainly linear ones) that link parts of the city with other parts further from the city centre.

An important researcher who focused on the Paris Boulevard Champs-Élysées is Allen S. Weiss. In his study "A hybrid space inaugurating modernity", he nominates the Boulevard as a space that represented modernity in a city that previously was described as a city with a medieval identity. From this point of view, the intervention taken over Paris to create space for the Boulevard was seen not only as a need to solve the problems but as a symbolic solution, rich with linear perspectives that clearly indicate the urban vision of its time.

In the same way, the theme of the perception of the space from inhabitants and visitors of the city is treated, as well as the manner in which Boulevards shape the identity of a city. The same transition parallelism could be made over the city of Durrës. The transformation from a multi-plaza Boulevard, in a linear axis without dynamics, has influenced the functionality and the sense of the city.

Similarly, the idea of transformation in the city is supported by Dousard et al. (2004), while exploring new methods of thinking and living in the city, like the urban metabolism. In this way, the idea of the city as an entity always in transition, always on alterations, modifications, and adaptations is highlighted, rather than being a rigid, solid form. With analysis of this concept in the Champs-Élysées, the researchers confronted the politics of existing spaces, their modifications while planning new spaces, and how small interventions made in different times over public spaces affect the metabolism of the whole city. This concept could also be used in the city of Durrës; every intervention in different periods of time has resulted in changes in the aesthetic of the city as well as in the functional shifts.

Other researchers, as Carr, Francis, Rivlin, and Stone (1992) or Jan Gehl (1987), study the relationship between public spaces, the livability of the city, and how changes in form and structure induce worsening or improvement of this. In this context, Low and Smith (2006) in their book, "The Politics of Public Space," discuss the importance and disappearance of public space as a democratic arena, where power and social interests clash. These perspectives are crucial in understanding that the Epidamn Boulevard transformations must not be viewed solely as physical transformations, but as a reflection of the social, political, and cultural movements that have shaped the city's history.

Spiro Kostof (1991) has studied in his book "The City Shaped" the urban evolution seen from the morphological aspect. He argues that the elements that bear social and political importance in a city are the linear axis encountered in most of the towns, the plazas, and the boulevards. In this way, these elements are the ones that give the city its identity. Otherwise, Conzen M.R.G. (1960), brought the idea of showing that paths and buildings are the one that reflects the historical and cultural identity of the city.

Muratori (1959), parallel to Conzen, presented the concept of tissue and figure-ground analysis being used in urban morphology spatial research. Also, Caniggia and Maffei (1979) explored the typological evolution of the urban form and how it reflected on the shape of

parts of the city. The same analysis could be made in Durrës Boulevard, representing the typological sustainability as a factor influencing the shifts of the Boulevard.

International literature on boulevards as urban forms, such as Choay (1969) and Hazan (2002), examining Paris as a case study, illustrate how Haussmann's interventions reshaped both urban infrastructure and the city's perception. In this understanding, boulevards became the symbols of modernity, urban control, and the aspirations of contemporary societies. On the other hand, Rykwert (2000) situates the boulevards within a broader historical context, viewing them as a reflection of social and economic developments. In contrast, Kostof (1991) describes them as part of a morphological system that conveys political and cultural meanings. These analyses help to understand that, being used in different periods as an expression of modernity, the boulevard transformed itself as a symbol of political aspirations.

Calabi (2004), in his studies of European cities in different early modern periods, analyzes the link between public spaces and commerce. He highlights the fact that roads or spaces where the trading was held play a crucial role in the formation of urban identity. In this way, the economic and social functionality of the city was preserved, making this connection even stronger. The same thing could be said for Durrës Boulevard, while supporting this theory more with the denomination of this as "Rruga Tregtare" ("The Trading Road"), putting together these two notions: Road (Boulevard/ Public space) and Trading.

Meanwhile. In a more contemporary context, Amin and Thrift (2002) see the whole city as a communion of social, economic, and cultural relations. Meanwhile. In a more contemporary context, Amin and Thrift (2002) see the whole city as a communion of social, economic, and cultural relations. Said this, public spaces could be thought of as places generated from these relations, and the absence or the excessive presence of one of these elements could evoke deformation or shifts to be better assimilated in their location. The same logic is valuable in Durrës, supporting it with Buka, Demaj, and Kumaraku's (2023) study about the shift of the city center of Durrës, from the middle of the Boulevard toward the northern part, outside the city walls fortification.

In conclusion, the rich international literature, as well as some local studies, position the Boulevard as a complex urban morphological element that works in different orientations in order to adapt the form according to the function it has in different periods.

Meanwhile, morphological studies see the boulevard as shaped by historical layers and urban typologies. Conversely, research on trading and public spaces highlight their importance to the economic life of citizens. In the Albanian context, although the literature is limited, existing studies provide a framework for understanding the political and social factors behind public space changes. This study aims to address a gap by examining "Epidamn" Boulevard as a case, showing how it has evolved and been reinterpreted over different historical periods, always influenced by political, social, and cultural shifts in Durrës.

3. Methodology

This study employs a combined approach of morphological urban analysis and a critical review of the literature, focusing on boulevards and public spaces. The methodology integrates empirical observations with the analysis of cartographic sources and insights from scientific research.

The analysis in the empirical framework centers on comparing historical and current maps, highlighting three key moments: 1928, 1937, and 2015. These maps provide a straightforward basis for tracking the urban development of “Epidamn” boulevard in relation to the city's overall structure. The choice of these periods is deliberate: the 1928 map is the first accurate depiction of Durrës, along with other reasons discussed later; the 1937 map shows the impacts of the monarchy period and European planning influence; and the 2015 map captures recent growth amid post-socialist transition conditions. Through the comparison of these maps, it was possible to identify changes in the length, width, functions, and the presence or absence of small plazas along the boulevard, as well as relations with other parts of the city.

This study is built upon theoretical research made mainly for Boulevards, public spaces and urban morphologies, similar to analytical analysis from researchers like Choay, Kostof, Sitte, Conzen, and Murtori.

These comparisons or speculations for Durrës, offer a detailed information for the shifts of the Boulevard, becoming in this way a non-isolated case study but repetitive in cases with similar dynamics.

4. Results

Morphological analysis of Boulevard, shows the complexity of urban form and the slow passage from an organic structure to a top-down planned space. The first map taken into consideration (Figure 2) shows the organization and orientation of the structures on both sides of the boulevard. It is clearly observed that the positioning of the buildings does not follow a certain rule, but placed in this way, with irregular angles, allows the possibility of creating these small spaces between them that can be interpreted as small squares. The same logic applies to the buildings located along the boulevard, as well as inside the residential areas on the side of the Boulevard. These small squares function as independent entities from the Boulevard, but at the same time, they become part of the whole, being considered as extensions of it (figure 7). From examining the shape of the Boulevard itself, it can be noted that the overall shape is formed by these smaller geometric shapes of squares that, when combined, create the boulevard. From here arises the hypothesis that these small squares could function even when separated from each other, developing various trades in them.

Figure 2. *The map of 1928, where the "Epidamn" Boulevard is generated by an organic way of urban planning.*
Source: Author.

Figure 3. *The map of 1937, in which the Boulevard seems to be transformed into a linear axis.*
Source: Author.

Another important element is the way in which the boulevard is "broken" by secondary itineraries, which link this main axis with the neighbourhoods around. These urban gaps create forms similar to "wedges", suggesting a natural orientation of movement and also enhancing the idea of the boulevard as a space integrated with the city's urban structure. In this way, the boulevard is represented not only as a transit road, but as an open network of spatial and social interactions.

The small spaces along the boulevard have diverse geometric shapes that add typological variety. For instance, the main plaza is shaped like an arc with roughly 10-15 degrees, while other areas feature plazas with triangular, rectangular, and trapezoidal layouts. These varieties of geometric shapes encountered within an axis, give a unique character to the Boulevard. Likewise, a very important element is the geometric and visual closure of the Boulevard at its two ends, in the north by the "Great Gate" and in the southern part, where the connection with the port was made at the "Sea Gate" and at the same time the "Prince Vid's Mansion". These end closures of the Boulevard gave it a monumental character. Likewise, the latter is emphasized by the location to the south of a public space, one of the largest that this Boulevard has. The way of placing and organizing the end objects clearly presents the principles of composition.

Meanwhile, in the other map from 1937 (figure 3), even though we are discussing a map of a situation 9 years after the first, the shift that the Boulevard underwent, both in urban form and in function, is clearly noticeable. Here, one can clearly see the first tendencies of creating a more look-like Cartesian grid starting from the boulevard axis. The main axis is deliberately positioned, involving the adjustment or removal of existing buildings to form two linear facades on either side of the boulevard. During this change, the plazas, previously key elements of urban design, are eliminated and replaced by broader routes that segment the main axis into multiple parts.

Although one element that is preserved (we also find this feature in the later map of 2015) is the arch formed from the orientation of some buildings in the northwest of the boulevard, liked with the existence of antique amphitheatre as a strong element referenced by the concept of "landmarks" by Kevin Lynch, as well as an "urban Artefact" by Aldo Rossi. Big changes are noticed even in the extremities of the boulevard (figure 6). In the north, the collapse of the big gate releases the space and opens the boulevard through the other part of the city, whereas in the south, new interventions are linked with the buildings of the Italian period. Nevertheless, in the 1937 map, the southern closure is not yet finished or intentionally left open toward the west (the Volga region nowadays), as a space designated for further development. Additionally, the plazas that were once part of the boulevard are displaced within the surrounding neighborhood, thereby weakening its role as a direct extension of the main axis.

In the 2015 map (figure 4), another transformation phase is evident, in which the boulevard appears to have gradually lost its identity and its inherited morphological particularity. The plazas have vanished, and the boulevard is reduced in two main continuous facades that follow its line. Although the vertical interruptions that permeate the boulevard continue to exist and also the arch linked to the amphitheater is maintained as an orientation element, the southern part appears detached (figure 7). The structures of the Italian period are not organically connected to the boulevard, creating a strong interruption and giving the impression of a space without a clear identity, unlike previous periods, when this axis maintained a special and distinct character.

Finally, the analysis conducted for "Epidamn" Boulevard in these three different periods – 1928, 1937, and 2015 – shows clearly the phases in which the most evident changes were made. The placement of opposite positions shows the complex evolution of the urban form of this boulevard. These results highlight the fact that the boulevard must not be seen only as urban roads, but also as spaces that mirror the changes and challenges a city undergoes over time, from its first organic structure, full of interactive spaces for trading and social activities, to a more linear and rational axis.

Figure 4. *The map of 2015 year, where the fragmented boulevard has now lost its historical identity.*
Source: Author.

Figure 5. *The analysis of the formation of the boulevard in 1928.*
Source: Author.

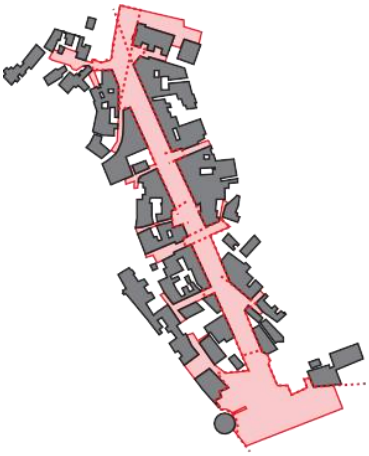

Figure 6. *The Boulevard transformed into a traight line in the year 1937.*
Source: Author.

Figure 7. The Boulevard analysis showing the main axis of the boulevard losing all the organic shapes.
Source: Author.

5. Discussion

The discussion on being a non-solid structure of the urban form, brings out the "Epidamn" Boulevard as a typical case from which this idea can be examined. Observing the transition from the first map (1928) of the organic structure (Figure 8) to a more rational form of 1937 (Figure 9) to the urban fragmentation of 2015 (Figure 10), the idea unfolds that in different periods, the regime proposes different versions of public space that adapted to the vision of the time. In this way, we can say that the Boulevards are a good laboratory to study the historical urban stratifications and the relationship with the architectural and urban forms as well.

From a perspective focusing on the public spaces (squares) that once served as gathering spaces and commercial activity, it seems as if they have disappeared over the years. This can be directly (or indirectly) related to the loss of the social dimension in the Boulevard, as the urban "pockets" with social and commercial activity functioned, were withdrawn. While today the Boulevard is seen more as a transit axis that connects 2 parts of the city and shortens mobility time.

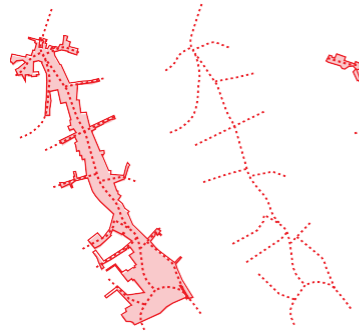

Figure 8. *The organic structure analysis of the Boulevard in 1928.*
Source: Author.

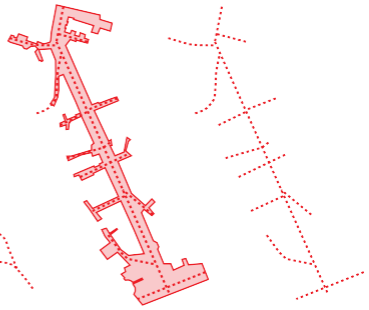

Figure 9. *The rational linear analysis of the boulevard in 1937.*
Source: Author.

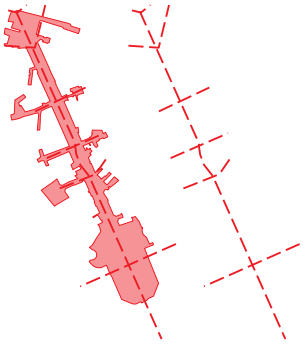

Figure 10. *The strictly fragmented linear boulevard analysis in 2015.*
Source: Author.

While in some fragments of this part of the city some objects have resisted time (the City Amphitheater), and are still read today as urban artifacts (Rossi, 1982), some others resisted change only as memory and not physically. These "landmarks" (Lynch, 1960) that are still seen today as the city's memory can serve as a basis for the reinterpretation and recovery of these public spaces.

Preserving sustainable features in an amphitheatre supports Aldo Rossi's idea of urban artifacts and their influence on the city's identity. Along with Kevin Lynch's concept of "landmarks," this shows that even amid fragmentation, the city maintains a memory and identity axis that can serve as a foundation for reclaiming public space. The debate over "Epidamn" Boulevard highlights the universal urban planning challenge: how to conserve historical memory without hindering modern growth, and how to strike a balance between practical use and aesthetic appeal.

6. Conclusion

Research on shifts and changes in "Epidamn" Boulevard clearly showed that the city, with the expansion of its borders, has shrunk its public spaces. This reflection of urban history and identity has undergone a radical transition, embracing modernist characteristics today.

The process described in this study focuses on the importance of morphological analysis (Figure 11) to explore changes in form and function.

Likewise, it is important to understand that the social approach to a city is what keeps it connected and makes it function better.

This study serves as a case study to understand how urban visions of different time periods may have worked better or not, and whether it is useful for these memories from the past to be returned to the city again, of course adapting to the needs of today.

This also encourages viewing these spaces as places where the collective memory and identity of the city are created.

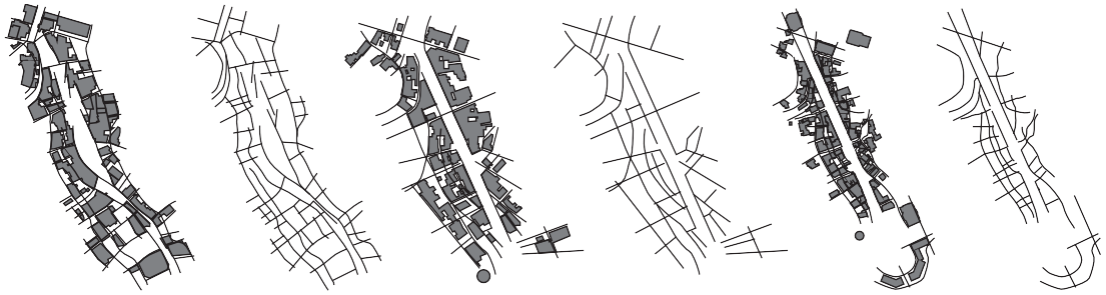

Figure 11. *Morphological analysis of urban patterns, showing changes in form, shape, and urban pattern.* Source: Author.

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Durrës After Transition: Urban Identity at the Edge of Time, Tourism, and Transformation

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MSc. Vjola ZIU
ORCID 0009-0001-1335-3599
Faculty of Research and Development, POLIS University, Tirana, Albania,
vjola_ziu@universitetipolis.edu.al

Abstract

Durrës has been a city in constant transformation since the 1990s, particularly following the fall of communism in Albania. Uncontrolled construction, particularly in the tourist zones, especially along the coastal zone extending to Kavaja, was triggered by this important historical turning point. Throughout this entire period, extending from the 1990s up to the present day, the city has experienced an uncontrollable and ongoing era of urban transition, losing some essential aspects of its historic identity and gradually becoming a hybrid city that combines elements of tourism, informality, and endangered history. Once recognised widely as a clear representation of a city with a history spanning thousands of years, Durrës is now increasingly a site of conflict between urban expansion, cultural heritage, mass tourism, and real estate investment. All these transformations have significantly and visibly affected the character of the city, overshadowing its historical core and its valuable cultural heritage, thereby deeply impacting its image and the values it embodies. Despite the fact that Durrës has undergone substantial physical and social changes over the years, it has consistently managed to attract a large number of tourists and investors from around the world. Through a variety of targeted and multifaceted marketing strategies intended to highlight and promote the city's attractive features, this phenomenon has effectively sparked major reactions on social media platforms. However, this promotional approach tends to overshadow the deeper and underlying issues that the city is currently facing, positioning it as an urban space in a transitional state between modernity and postmodernity. The aim of the research is to carefully analyse how the city's physical and symbolic image has changed over time to reflect its current situation and what this transformation ultimately represents in relation to the broad social and economic context in which it is taking place.

Keywords

Urban identity, city image, cultural heritage, tourism

1. Introduction

1.1. A glimpse of history

Durrës is known for a three-thousand-year history as one of the most important cities in the region, in terms of its geographical position, port, cultural, political, and economic role. It has always been the gateway to Albania and a trade hub between East and West. It is also important to mention the cultural and urban heritage from antiquity to the present day. The city's space has been significantly impacted by every historical era, including the Ancient, Byzantine, Ottoman, Italian, and Communist periods. Examples include the Castle Walls, the Amphitheatre, the Venetian Tower, "*Liria*" Square, the City Hall, and more. However, amid the 1990s and the fall of communism, urban changes took a completely unexpected turn: the coastal area's rapid expansion, as well as the population of the former *"Keneta"* and *"Spitalla"*[1] area. From 1992 until 2000, national and municipal urban administration failed, resulting in informal settlements (Misja & Misja, 2004).

The internal migration that occurred from the North and East regions was one of the main causes of this phenomenon (Figure 1). Being known as Albania's principal port city and the country's second-most important city after Tirana, this might attract entrepreneurs and individuals who came to the city for greater opportunities in the future. The exact same thing applies for newcomers who purchased homes near the city centre, considering the area as an appropriate replacement for Tirana that may provide an urban lifestyle at a more affordable cost. The city's social and physical attributes witnessed transformations as the result of these developments. On the other hand, the added pressure of tourism generated a sharp contrast between the recent established urban areas and the historical legacy. Due to this process, Durrës offers a unique case for understanding the way urban layers interact with the challenges of the post-socialist transition.

Figure 1. *Migration to the city of Durrës by area of origin.*
Source: Albanian Stats (2023).

[1] Spitalla and Këneta are two neighboring areas located in the western part of Durrës, Albania, close to the industrial and port areas of the city.

1.2. Analysis of the Transformation of Urban Image

The physical transformation of the post-socialist city of Durrës was marked by the spread of informal settlements along the city's outskirts, replacing agricultural land, while the central areas were dominated by high-rise buildings built at the expense of the public green spaces that had characterized the socialist period. The focus will be on urban transformations relating to the city centre and the coastline area because peripheral urban transformations are beyond the purpose of this study. Locations nearby the city's main plaza, *"Liria"*, the beachfront and *"Taulantia"* promenade, *"Aleksandër Goga"* Street, *"Dyrrah"* Boulevard, and especially the sloping area along the coast and Royal Residence hill, were obviously of the greatest interest to investors. With profit maximization as the main objective of developers, a wave of high-rise construction emerged without much consideration for historically significant areas of the city, including the surroundings of the Royal Villa, the Roman-era Amphitheatre, and the inner districts of the old city. One of the earliest documented cases of public opposition to such developments in the 2000s was the construction of the *"Fly"* Building near the Port of Durrës. The controversy stemmed from its proximity to the Venetian Tower and the castle walls, as well as its placement atop a historic wall in an area known for its rich archaeological heritage (Figure 2).

Figure 2. *Portiku Bar, "Fly" Building.*
Source: Tripadvisor (2016).

In many cases, multi-storey apartment blocks with impressive designs have been built in the city centre without adhering to a comprehensive urban regulation, as building permits have been granted through so-called "partial urban plans". In Durrës, this planning approach has produced a hybrid urban structure, where old detached houses from the periods of Ottoman, Albanian and Italian occupation coexist with large post-socialist buildings and mid-sized modern structures from the socialist era (Manahasa, 2023). Some of the city's most important historical sites have been overshadowed by the size and intensity of post-socialist developments, creating an unbalanced image of the city and weakening its urban character. Furthermore, the construction of unauthorized detached houses - a number of which were later legalized - near historical monuments has damaged the city's aesthetic image and, consequently, its sense of urban identity.

2. Durrës in historical layers

This study's morphological analysis of a major central and coastal area of Durrës aims to examine the city's urban character by presenting three urban phases: the pre-socialist, socialist, and post-socialist.

2.1. The pre-socialist urban layer

The pre-socialist urban layer is connected to the historic core of the city, including monuments from antiquity, as well as architectural heritage from the Ottoman, Albanian Kingdom and Italian occupation periods. Due to its low-rise structure and antique ornamental decorations, these buildings can be easily identified. There are two primary types of buildings from this era: public and residential. The residential structure includes low-rise apartment blocks dating from the Kingdom and Italian occupation periods, along with detached dwellings preserved from the Ottoman era. Notably, along the *"Mercantile Street",* some buildings display neoclassical features, while structures erected after 1926 reflect the stylistic principles of Italian Rationalism (Semini et al., 2014).

Private houses, which are primarily deteriorating and in poor condition based on our observations, cannot be stated to be in the same condition as the majority of low-rise apartment buildings. Because of their public character, the majority of the buildings on *"Mercantile Street"* are used primarily for ground-floor commercial operations. Large windows and vaults that have ornamentation and often serve as tunnels connecting the inner neighborhood to the street, were highlights of the ground floors.

Since the "Plazhi"[2] zone had not yet established as a dense urban district, the pre-socialist layer there is less noticeable than in the historical center. Rather, there were few summer residences and a largely undeveloped beach.

2.2. The socialist urban layer

Buildings constructed after World War II until the regime's overthrow in the 1990s are included in the socialist period urban layer. Most of these are low-rise structures designed to support a socialist lifestyle based on equality and collectivism. The socialist regime's construction by voluntary labor was one of its tactics; individuals from institutions worked over work hours to create these houses, which frequently produced poor apartments. Using technology imported from China to build prefabricated mass houses was another tactic used in the 1970s. Finding affordable and efficient technology to build apartments for the socialist society was the ultimate objective. These structures were constructed alongside *"Dyrrah"* Boulevard, close to *"Pranvera",* close to *"Liria Square",* and in the vicinity of the stadium, where they are most prevalent. Purist regular forms and up to six floors were the primary characteristics of socialist-era architecture. The main staircase was accessible from the entrance, which was primarily exposed to the street. The main cadres of the Labor Party confirmed the accepted apartment block plan scheme. Apartment blocks from the socialist era had a modernist look, but in other ways they were also dull and lifeless (Manahasa et al., 2022).

[2] Plazhi zone is located along the southern coastline of the city, stretching from *"Dajlan"* Bridge to *"Plepa".*

During these years, the Plazhi zone changed into a state-run leisure area meant mostly for mass tourism. One of the main hotels built on the coastline in that period was *"Hotel Adriatik"*. It was built in the late 1950s (around 1957) as one of the most modern socialist tourism buildings in Albania. It was part of a state-controlled network for mass tourism, but with a special status as a prestigious hotel. Because it was often used by foreign delegations, the political elite, and ordinary workers and citizens, the hotel had a character that was in between the masses and the elite.

2.3. The post-socialist urban layer

Buildings constructed after the 1990s and up to the present day compose the current post-socialist urban layer. The city's overall architectural characteristics were significantly impacted by the regime change. The use of more flexible and dynamic forms in residential buildings is a reflection of the freedom that democracy brings. On the other hand, in some cases, the use of public space for the erection of high buildings could be defenced as a democratic "misinterpretation." Additionally, buildings from this period have highly distinct architectural styles. High-rise apartment complexes and detached houses are the two primary housing typologies associated with the post-socialist period. Up to fifteen floors can be observed in the high-rise buildings. High-rise apartment buildings are particularly apparent in the second line and, in some ways, surpass previous ones, whilst the first line buildings are part of the pre-socialist layer. While the upper floors are used for residential purposes, the floors beneath are primarily utilized for business purposes. In certain instances, the commoditization of space has resulted in detached houses that are conceptualized using the same logic as modest apartments. Comparing these housing typologies to high-rise buildings, their volumes do not create a visual disruption because they are just four floors high (Figure 3).

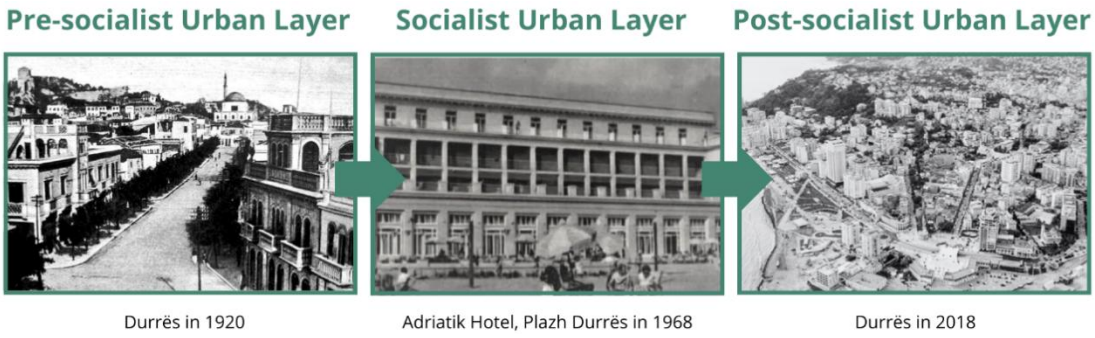

Figure 3. *Historical layers of Durrës.*
Source: Author.

3. Tourism and the new urban imagination

The market economy and mass tourism were brought in Durrës following the collapse of communism. Urban and tourism growth intensified as a consequence, with contemporary infrastructure construction frequently taking precedence over heritage preservation. According to (Turku, 2019), the ancient city of Durrës, which is built on archaeological layers, became a terrain for major investments, often at the expense of monuments and historical memory.

A notable example of this transition is the *"Veliera"* project (2016–2018), a massive concrete building built next to the Byzantine wall and the Venetian Tower that was supposed to be a representation of touristic modernity. The goal of this project was to establish Durrës as a modern tourist destination by creating an "urban icon" for the city. However, it went opposite the aims of cultural heritage preservation and economic and tourism development, as demonstrated by the courts and media. Strong institutional, legal, and civic responses resulted from the intervention near the Venetian Tower and the Byzantine wall, which brought to light the conflict between the city's remarketing strategies and irreplaceable archeological assets. The case of *"Veliera"* illustrates that in the conditions of post-socialist transition, tourism is often seen as an immediate economic engine, while historical heritage is seen as an obstacle, although in fact it constitutes the most valuable cultural capital for sustainable development and the long-term image of the city (Figure 4).

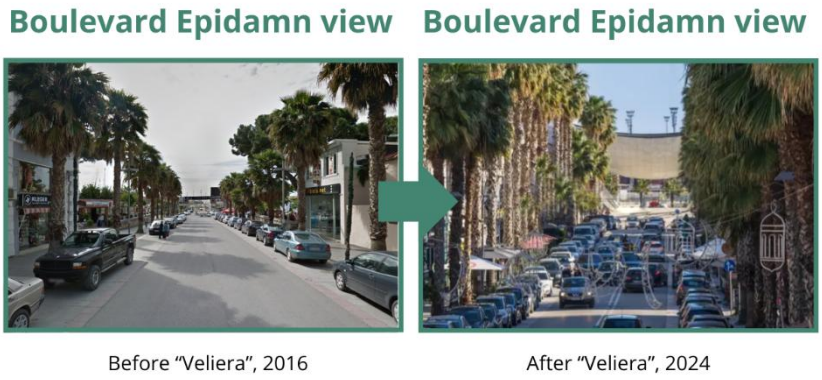

Figure 4. *Boulevard view before and after "Veliera" project.*
Source: Author.

Also, the building of the *"Kamelia"* resort on the beach zone of *"Golem"* in the midst of Durrës' post-socialist expansion, clearly demonstrates the relationship between the rise of mass tourism and the absence of a sustainable city identity concept (Figure 5).

This resort, positioned on spaces that were once public and accessible to the community, reflects the typical model of transition: the transformation of the coast in the function of elite tourism and the privatization of the territory, often at the expense of the general civic interest. If *"Veliera"* represented the symbolic intervention on historical heritage, *"Kamelia"* illustrates how commercial tourism is putting pressure on the beach's natural and social landscape, further dividing the preservation of the collective right to a sustainable environment and tourism, from short-term economic development. This case highlights that the post-socialist tourism model in Durrës has often built an image of modernity through monumental structures or private resorts, while weakening public access and the preservation of urban and social identity.

Figure 5. *"Kamelia" Resort, Durrës.*
Source: Reddit (2024).

4. Conclusion

The aim of this research was to examine how the image of Durrës has evolved across three distinct historical periods and to analyze the urban transformations of the city over time. According to the research, the most significant and most drastic changes happened in the post-socialist period when uncontrolled construction became a major factor in the loss of urban identity and the preservation of natural and cultural heritage, which had a direct impact on the tourism sector.

By reviewing the case studies of the *"Veliera"* and the *"Kamelia,"* it can be argued that these represent inappropriate interventions that disrupted both the image of the "old" city of Durrës and the natural environment of its coastline. From this analysis, valuable lessons can be drawn by comparing Durrës with relatively similar Balkan cities such as Kotor and Dubrovnik, where the "old" town has been carefully preserved, restored, and shielded from postmodern interventions aimed at "improving" it. In these neighboring cities, this preservation has been guarded with rigor and strategically promoted through international marketing. This approach has increased authenticity and attracted tourists' interest, both of which have benefited the tourism sector.

The city's urban and cultural qualities could have been better exploited, enhancing its true urban character and producing a stronger and longer-lasting effect on tourism development, if such inappropriate interventions as those in Durrës had been avoided.

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II. Traffic Crises in Cities and New Models of Sustainable and Resilient Cities

Infrastructure and public transport in relation to urban crises: The impact of urban form on circulation and mobility.

Public space design (squares, streets, sidewalks) and the reduction of architectural barriers for free movement.

New technologies in planning (GIS, AI, etc.) / Modeling, simulation, and digitalization / Co-progress in regenerative urban development / Automation of planning, architectural, and engineering processes.

Tactical Urbanism as a Catalyst

Shaping People-Centred Mobility in Malta through Experimentation

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Dr. Antoine ZAMMIT
ORCID 0000-0001-8137-1468
Department of Spatial Planning and Infrastructure, Faculty for the Built Environment, University of Malta, Malta, antoine.zammit@um.edu.mt

Abstract

As Euro-Mediterranean cities grapple with traffic congestion, limited public space and rising climate vulnerabilities, there is growing interest in adaptable, citizen-led solutions to reframe urban mobility. This paper explores the role of tactical urbanism – temporary, low-cost and participatory interventions – as a strategic tool for testing and transitioning towards more resilient and sustainable mobility systems, centring on the Maltese Islands.

Malta's long-lasting car-centric culture has posed significant barriers to mobility transformation. At the same time, its compact urban form offers potential for tactical experimentation. This paper presents some key case studies that have attempted to push the tactical urbanism agenda. These include the Slow Streets *project, which positioned tactical urbanism as a key mobility strategy. Other examples include initiatives within the* Vjal Kulhadd *projects, sustainable mobility guidance for Local Councils and efforts to establish temporary play streets and weekend street closures. These endeavours have aimed to reimagine urban streetscapes as shared, flexible and inclusive spaces, though not without challenges. A notable case is Mosta Square, where pedestrianisation during weekends sparked political and community controversy but also demonstrated how temporary closures can challenge car dominance and reclaim civic space.*

Localised play street projects – facilitated through short-term road closures and signage – have generally been well-received, fostering social and recreational functions. The paper explores why some projects are more successful than others, suggesting that the interventions' temporary nature might influence community acceptance.

Ultimately, the research argues that these modest interventions may influence behavioural changes and promote institutional learning. They serve as prototypes for longer-term spatial and policy shifts. The conclusion calls for formalising tactical urbanism as a core component in mobility planning across Euro-Mediterranean regions, emphasising its potential to address spatial constraints, promote civic engagement and enable low-risk experimentation to drive sustainable urban transitions.

Keywords

Tactical urbanism, Malta, sustainable mobility, people-centred mobility, Slow Streets

1. Introduction

This paper examines the role of tactical urbanism in shaping and testing sustainable mobility options in Malta, to create more resilient urban development and urban areas that are more people-centred. It provides a comprehensive overview of the contemporary mobility landscape in Malta's car-dependent island setting, examining recent developments characterised by a rise in both top-down and grassroots experimentation, as well as an intensifying public debate on the island's mobility futures.

Tactical urbanism – comprising short-term, flexible interventions in public spaces – is increasingly being embraced in several urban areas worldwide as a tool to advance sustainable mobility and liveability goals. It involves reclaiming street space through measures such as temporary pedestrian zones, pop-up bike lanes and traffic-calming installations, allowing cities to test and refine solutions before implementing them permanently (Lydon and Garcia, 2015). Tactical urbanism, particularly during the COVID-19 pandemic (Meinherz et al., 2021), has demonstrated its potential as a tool for reallocating street space to support active travel modes, such as walking and cycling. Such temporary interventions have allowed cities to test alternative mobility solutions, challenge car-dependence norms and introduce people-centred designs (Suslowicz and Hillnhütter, 2025). Meinherz et al. (2021) highlight how tactical urbanism, implemented during the COVID-19 crisis, served as a rapid and reactive approach to manage mobility challenges. It leveraged the crisis as an opportunity to test and implement sustainable mobility infrastructures, such as bicycle lanes, which could catalyse a shift toward people-centred urban mobility.

By allowing communities to experience these changes first-hand, tactical urbanism builds support for permanent infrastructure that prioritises sustainable mobility (ITDP, 2020). In this manner, streets take on another important role in the development of a city, as they become urban laboratories, allowing authorities and local communities, especially residents, to experiment, gather feedback and build the momentum for more permanent changes.

2. Theoretical foundations

Numerous urban areas confront challenges of congestion, road safety and environmental degradation rooted in entrenched car-centric mobility systems. Tactical urbanism is a transformative, grassroots approach that offers rapid, low-cost interventions, reclaiming streets for pedestrians, cyclists and social activities. Conceptualised by Lydon and Garcia (2015), with the phrase "short-term action for long-term change", tactical urbanism operates as an experimental, participatory "urban prototyping" process fostering rapid feedback and community empowerment. Its agility and affordability contrast with conventional infrastructure projects and rigid traditional planning processes, as it reallocates public space to active modes in a reversible and visible manner (Lydon and Garcia, 2015) before committing to expensive and permanent infrastructure on the ground. Lydon and Garcia's (2015) work demonstrates how small, rapid interventions may generate broader shifts in urban design and mobility culture, emphasising adaptability, community engagement and empowerment as core principles. This approach echoes Christopher Alexander's incremental urbanism theory (1987) and it has been celebrated by Curitiba's former mayor, Jaime Lerner, whose "urban acupuncture" approach was instrumental in the city's rethinking and restructuring. In his words (in LCA, 2025):

> "The lack of resources is no longer an excuse not to act. The idea that action should only be taken after all the answers and the resources have been found is a sure recipe for paralysis. The planning of a city is a process that allows for corrections; it is supremely arrogant to believe that planning can be done only after every possible variable has been controlled."

In addition, by reclaiming streets for people and community uses, tactical urbanism further contributes to broader social resilience and urban liveability goals (Fernandes Barata and Fontes, 2017). These authors extend the discourse of tactical urbanism by linking it directly to sustainability, particularly through the promotion of active transportation modes such as walking and cycling. They argue that tactical urbanism projects provide an experimental and participatory platform for testing and implementing interventions that encourage less car dependence and healthier urban mobility patterns – an approach that fosters the creation of sustainable urban environments, by reallocating space and prioritising non-motorised transport.

In Malta, these thoughts have found themselves in good practice guidance published by the Local Councils' Association (LCA), which seek to empower Local Councils with knowledge on various subjects, under the *Resident First* initiative (LCA, 2020). To date, the LCA has published several documents related to its first pillar, sustainable mobility. These documents serve as manuals or toolkits, translating important theoretical concepts and national policy goals into actionable measures at the community level. They provide technical advice, promote best practices and facilitate the comprehension of technical jargon.

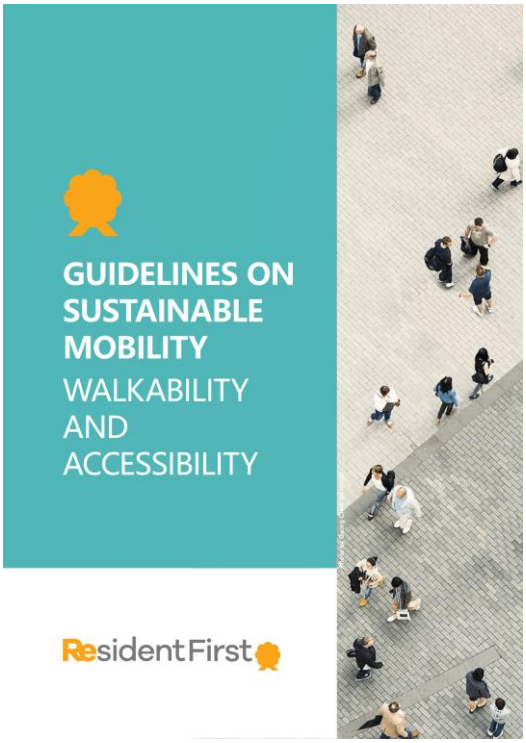

Figure 1. *Guidelines on Sustainable Mobility: Walkability and Accessibility.*
Source: Zammit and Local Councils' Association (2023).

Its *Walkability and Accessibility* guidance document (Figure 1) includes a dedicated section on tactical urbanism, contending that if a pedestrian area is to thrive, it must be suited to local conditions, and tactical pilots may allow the community to experience potential change before permanent works are implemented. Some practical examples of tactical interventions are provided, such as using temporary signage and

bollards to close streets for special uses (for instance, as play streets); deploying planters to define pedestrian zones or narrow intersections; putting out movable street furniture to turn parking spots into mini-parks (parklets); painting pavements or crossroads to signal pedestrian priority; and adding appropriate signage that discourages through-traffic and encourages walking or cycling. These examples mirror actual proposals suggested to different localities participating in the *Slow Streets* project, which is discussed later. The guidance underscores the trial-and-error nature of tactical urbanism; however, this flexibility is seen as an opportunity for creative solutions. It frames tactical projects as the "starting point for real change", noting that they can accelerate the implementation of ideas that may otherwise languish in plan form (Zammit & LCA, 2023).

The extent to which lessons derived from such experimentation may subsequently feed into policy development and complement formal planning instruments, by providing a feedback loop where community responses and observable outcomes can guide broader strategic plans, is debatable. Authors such as Bertolini (2020) have been critical as to whether these temporary experiments could truly lead to lasting change – the transformative potential of these experiments is often limited by their short duration and low frequency. While street experiments may be radical in challenging dominant practices, feasible due to their temporary nature and highly communicative and mobilising, their connection to long-term change pathways might prove to be weak, especially if they lack integration with broader urban policies and structural interventions, such as permanent infrastructure changes or transport policy reforms. Bertolini's analysis highlights the need for such experiments to become part of broader policy frameworks and to involve broad stakeholder engagement to drive a modal shift and urban mobility transformation effectively – a critical discussion we return to later.

In a similar vein, assessing international practice and institutional uptake of tactical urbanism for active travel promotion, Suslowicz and Hillnhütter (2025) identify institutionalising tactical experimentation as one of the key challenges. They argue that this transition, from temporary experiments to permanent changes, requires strategic planning and public support, including adequate funding. Their research suggests that temporary interventions often fail to address systemic issues, such as wider connectivity opportunities and other complementary mobility measures, which are essential for fostering sustainable mobility habits and ensuring project longevity. These issues find parallels in the Maltese context, to which our attention now turns.

3. Malta

As an island state that became independent in 1964, and following centuries of foreign rule and occupation, Malta's recent history has frequently seen decisions favouring short-term economic growth – especially via tourism and development - often at the expense of sustainable planning, infrastructure capacity and environmental or social resilience (Oglethorpe, 1984; Grech & Rapa, 2017). In the space of a few years, road building and subsequent road widening initiatives transformed the Maltese territory, facilitating vehicular movement, liberating areas for development and relegating pedestrians in the process. The exponential population increase over the past decades, with a corresponding high housing demand, has accelerated this trend. Fostered by a culture of both home and car ownership, vehicular pressures have been immense. Malta has one of the highest rates of private vehicle ownership in Europe, with the latest statistics showing 450,794 licensed motor vehicles at the end of June 2025 (NSO, 2025); a number that obtains even more

significance when considering that, in 2023, there were 277,837 driving licence holders (NSO, 2024). This entrenched car-oriented culture has posed significant challenges to implementing people-centred sustainable mobility initiatives and shifting the mindset, even within institutions responsible for transport planning (Bajada, Mifsud and Scheiber, 2023).

Local streets in Maltese towns and villages are often narrow and heavily used by vehicles, leaving little space for pedestrians or cyclists; indeed, many pavements are under 1m in width, forcing people to walk close to traffic (Zammit, 2022a). These conditions contribute to a plethora of issues – ranging from road safety, congestion, air pollution to serious threats to public health – and highlight the urgency for a modal shift towards sustainable mobility. In turn, opportunities to rethink new road design have been few and far between – often, prioritised by road standards to facilitate vehicular flow, even if this has implied overly generous road space (Zammit, 2022a) (Figure 2).

Figure 2. *Streets in Malta – varying realities.*
Source: Author.

4. Mobility efforts in Malta

The paper now discusses key interrelated mobility efforts, some of which have seen this author's involvement over the past five years:

- the *Slow Streets* programme that was modelled around tactical urbanism suggestions;
- local play streets initiatives;
- the government-backed *Vjal Kulħadd* (*Everyone's Street*) project to create safer, greener streets; and
- on the ground, the case study of partial pedestrianisation of the locality of Mosta's main square.

Cross-cutting themes are subsequently discussed to assess the success of tactical urbanism in advancing sustainable mobility efforts in Malta. While the focus remains local, some of the issues addressed in this paper are shared by other Southern European cities, potentially allowing the extrapolation of the Maltese experience to similar urban contexts in the Mediterranean region.

4.1. The *Slow Streets* project

In 2020, inspired by the dramatic lack of vehicular traffic during lockdowns due to the COVID-19 pandemic, the LCA, together with the Ministry for the National Heritage, the Arts and Local Government and in coordination with Transport Malta (TM) and the Ministry for Transport, Infrastructure and Capital Projects,

announced a joint effort to implement *Slow Streets* across Malta and Gozo (Zammit, 2022b). The idea was to create pedestrian-friendly areas by reducing vehicular traffic, lowering speed limits and making it safer to walk or cycle, thereby contributing to improvements in residents' quality of life. 43 out of the 68 Local Councils throughout the Maltese and Gozitan territory signed up for this project, reflecting a growing appetite for more liveable, less car-dominated urban environments. Detailed studies and consultative designs were prepared for these Local Councils by a team of urban designers led by this author and his team (Figure 3).

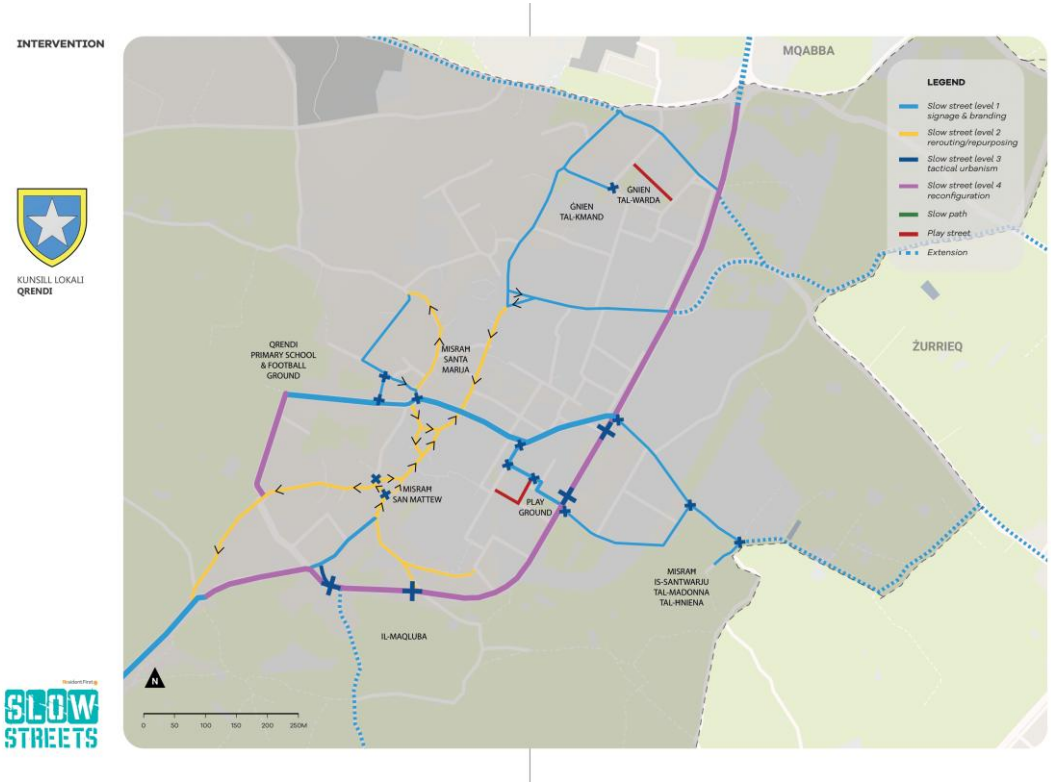

Figure 3. *Typical Slow Streets document/mapping strategy illustrating intervention levels.* Source: Studjurban, LCA.

Tactical urbanism constituted a central approach within the *Slow Street* project, which proposed removable planter-lined corridors and the introduction of road paint that increased the allocation of safe pedestrian space within streets (simultaneously narrowing the available road space in order to reduce vehicular speeds), improved signage to facilitate walking and temporary road and square closures (accompanied by traffic management and rerouting) to create play streets and give back town centres to people (Zammit, 2022a) (Figure 4).

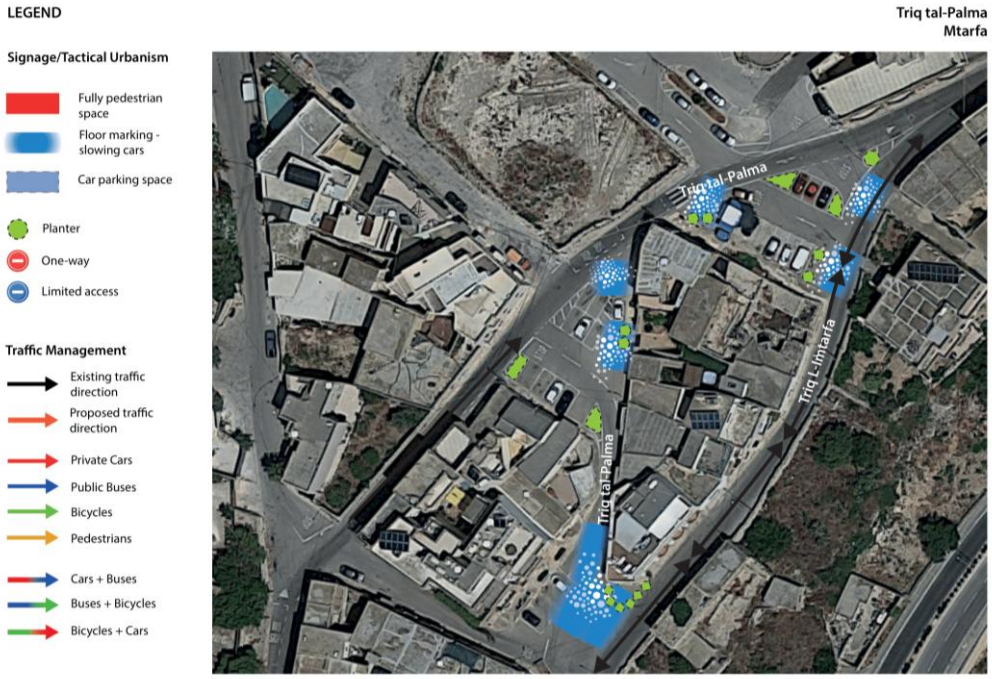

Figure 4. *Tactical urbanism in Slow Streets, Malta.*
Source: Studjurban, LCA.

The overarching objective was that local residential streets and town centres would become safe walking corridors connecting key landmarks, locality assets and services, with vehicular traffic potentially diverted to peripheries. This approach is now being touted within a wider national strategy, which is seeking to strategically place mobility hubs on the peripheries of localities to liberate town centres and return such critical urban spaces to the people (MTIP, 2025). In turn, this strategy stems from recent work on the Sustainable Urban Mobility Plan (SUMP; Transport Malta & Ministry for Transport, 2022), which provides the high-level policy context for sustainable mobility, complementing tactical on-the-ground efforts. SUMP Measure 1.3 (*Trial timed-pedestrianisation in the direct vicinity of schools*) specifically addresses the possibility to use tactical urbanism to enhance safe accessibility to and from schools. It further spells out the potential of tactical projects in commercial hubs, stating that "[i]n the spirit of a tactical urbanism approach, these spaces may be tested for increased pedestrian activity and subsequently reverted back, or they may be made even more permanent, depending on the outcome of such pilot initiatives" (Transport Malta & Ministry for Transport, p.63).

Sadly, despite high initial hopes and the identification of dozens of candidate streets, the *Slow Streets* rollout in Malta has been markedly slow. The primary obstacle has been funding. The LCA estimated it needed about €8.3 million to implement Slow Streets in the interested localities for design, materials and management and its President has repeatedly expressed his frustration at the lack of a central funding mechanism (Times of Malta, 2024). Despite this funding shortfall, some Local Councils proceeded independently with tactical changes aligned to the *Slow Streets* ethos. In the village of Xewkija in Gozo, for instance, the village square became car-free every Saturday and Sunday (Gozo News, 2021). Local play street initiatives have also increased. We turn our attention to these projects next.

4.2. Local Play Streets

These initiatives are partly a result of the momentum generated by the *Slow Streets* project, which had introduced the concept of 'play streets' in Malta. They are furthermore the result of the Children's Local Councils, set up in 2002 with the support of the Malta Foundation for the Wellbeing of Society (Children's Local Councils, 2025).

The pioneer in this movement is the locality of Ħaż-Żebbuġ, which in April 2025 launched *"Toroq Ħajjin (Living Streets) – Playstreets"*. Under this initiative, every second Saturday of the month, a different residential street in the locality is closed to vehicles from 1 pm to 4 pm, allowing children to take over the urban space safely (Malta Today, 2025). The selection of streets has been undertaken by the town's Children's Council, which chose streets that would benefit most from being car-free occasionally, together with the support of the Local Council. On these playstreet days, the street becomes a pop-up playground – children are free to run, cycle, play games, while parents, neighbours and the local community at large may socialise freely (Figure 5). Building on the project's success to date, the longer-term objective is to emulate it in other localities.

Figure 5. *Living Streets project in Ħaż-Żebbuġ, Malta.*
Source: Ħaż-Żebbuġ Local Council.

4.3. *Vjal Kulħadd (Everyone's Streets)*

In 2024, the newly appointed CEO of Infrastructure Malta (IM), the Government's road works agency, agreed to channel funds (€10 million in its first phase) into the *Slow Streets* initiative as part of a broader synergy, *Vjal Kulħadd*. In part, this was also intended to implement *Slow Streets*' objectives, with a dedicated funding stream and with the inclusion of further objectives, such as that of injecting more green

infrastructure within existing urban spaces to create more permeable surfaces for better stormwater management and shading to mitigate heat (IM, 2025). Both Local Councils and NGOs submitted proposals that were subsequently evaluated by IM and other experts for eventual implementation.

Vjal Kulħadd's core mission reflects a wider national policy shift toward people-centred infrastructure, encompassing interventions such as improved pedestrian paths, alternative mobility routes (with the potential incorporation of bicycle lanes), enhanced public transport access and green infrastructure on streets (Malta Independent, 2025).

One of the chosen projects is modelled on tactical urbanism principles and deserves to be singled out. In the locality of Msida, a local street (Triq Oscar Zammit) shall be temporarily pedestrianised to host community events and promote sustainable mobility (Malta Independent, 2025). The inclusion of this project is significant because it effectively institutionalises tactical urbanism within a formally funded government programme, auguring well for the prospect of tactical urbanism being better integrated within local mobility strategies (Figure 6).

Figure 6. *Vjal Kulħadd proposal for Triq Oscar Zammit, Msida, Malta.*
Source: Infrastructure Malta.

4.4. Case Study – Mosta Square

The town of Mosta, home to one of Malta's largest and busiest squares (and notably the site of the iconic Rotunda Church), has become a focal point of debate on tactical pedestrianisation. Its trials illustrate the political complexities tactical urbanism faces.

In mid-2023, following IM's intention to upgrade the road network passing through the centre of the town, and building further on the *Slow Streets* project from previous years, the (Labour-majority) Mosta Local Council launched a locality-wide traffic management plan and decided to undertake a redesign of the square to introduce better pedestrian infrastructure and landscaping and thus elevate the town centre's status (Figure 7). For decades, the square was simply a traffic artery, characterised by significant vehicular volumes including numerous public transport routes. The proposed design aimed to enable the closure of the main square to traffic on designated days. At the time, the Local Council initiated evening weekend closures, effectively transforming the area in front of the church into a pedestrian plaza (Times of Malta, 2023).

Figure 7. *Before and After images of Mosta Square project.*
Source: Google Maps, Sean Mallia for Studjurban.

This project was championed as a pilot that would enhance the town's liveability, encourage leisurely activities and test traffic management alternatives for the busy intersection, wherein a limited amount of traffic could still navigate peripherally (Studjurban, 2025) (Figure 8). For some months, the square was closed on weekend evenings and open to pedestrians. This, however, was not without its critics. The most vociferous came from the opposing political party, which criticised the lack of initial consultation within the council and with residents about such a closure. During its local elections campaign, it vowed to remove the restriction on vehicles in its entirety if elected (Malta Today, 2024). A new Local Council, led by a

majority from the opposing party, was indeed elected. This was, naturally, due to several factors; however, the Mosta square project became a symbol of this political shift, and the newly elected council wasted no time in attempting to halt the weekend closure. The new mayor announced that, as of 1 November 2024, the temporary closure would end and the square would revert to full access at all times, thus restoring "free access" for the community and businesses (Malta Today, 2024).

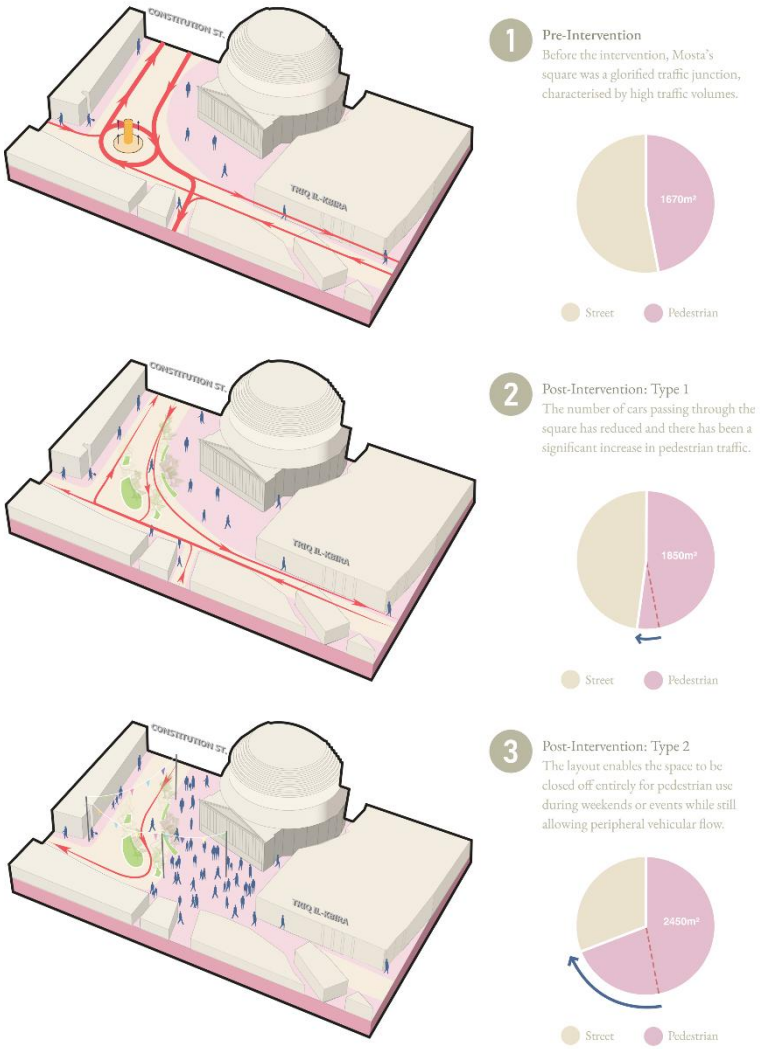

Figure 8. *Mosta Square spatial distribution, pre- and post-intervention.*
Source: Studjurban.

TM, on the other hand, publicly defended the pedestrianisation trial, together with other groups such as the Chamber of Architects (Malta Independent, 2024). In a rare move of a national agency overriding local government, TM stated it had already initiated procedures to extend the Friday-Saturday evening closures beyond October 2024, effectively revoking the new council's decision. TM cited encouraging public feedback and positioned the initiative as aligning with national policy goals of reducing car use and enhancing public accessibility within town centres. A compromise was reached in the end – today, the

square is closed off to vehicles for a limited amount of time during weekend evenings. At the same time, its take-up has progressively increased, with different events being organised by various activity groups.

The TM – Local Council standoff highlights the push and pull between car-oriented interests and pedestrianisation advocates, as well as the tension between different governance levels, especially when coming from opposing political ideologies. Importantly, it is also a lesson on the critical need for stakeholder engagement and multi-level coordination.

5. Extracting key lessons

The Maltese case studies demonstrate the dual potency of tactical urbanism to rethink the dynamics of the physical urban form and drive wider social and institutional change. Even as a mostly planned (rather than fully implemented) initiative, the *Slow Streets* project has provoked vital public debates that have challenged car dominance, motivating grassroots experiments despite financial and political constraints. At the same time, the experience underscores that temporary interventions still require sustained political and financial backing to transition from plan to reality. Tactical urbanism is not a replacement for policy commitment; rather, it is a tool that flourishes under an enabling framework. The project's alignment with the high-level Resident First vision and its incorporation into guidance documents have been positive; however, execution has been hampered by the lack of committed funding. The lesson here is that quick-win projects often need integration into formal budgets and strategies. In contrast, by bringing together central government, Local Councils and civil society, the *Vjal Kulħadd* initiative addresses the lack of a centralised support system experienced in the *Slow Streets* project. Institutional support, through dedicated funding and inter-agency collaboration, is therefore imperative to sustain such initiatives, especially if they need to be scaled up.

Indeed, implementing national mobility recommendations and targets in the future (such as those present within the SUMP) could benefit from the expansion of tactical interventions nationwide. In a small island context, the scaling up of different micro-projects could have a macro-level impact. The Maltese experience suggests that strategic plans and tactical urbanism are most effective when used in tandem – strategic plans identify what needs to change and why, while tactical actions demonstrate how change could occur on the ground and rally public opinion in the process.

The play streets initiatives illustrate the grassroots capacity to shift societal values regarding street users and foster outdoor activity and community cohesion, essential ingredients for sustainable mobility and broader liveability objectives. The power of such projects should not be underestimated, especially when children are actively involved as co-creators, not just as users. First, they have the potential to shift mindsets, helping people envision a different use for their street, which could initiate longer-term pedestrianisation. Second, they educate the next generation to accept that streets do not need to be dominated by vehicles.

Conversely, the Mosta Square case study highlights political sensitivity and governance challenges that require transparent, participatory planning and alignment across levels of government. These findings are further supported by other studies (Meinherz et al., 2021; Suslowicz & Hillnhütter, 2025). Meinherz et al.'s (2021) study emphasises the importance of political processes and social dynamics in the success of tactical urbanism projects. In turn, Suslowicz and Hillnhütter (2025) contend that effective communication and participatory processes are critical for mobilising public support and reducing resistance to change. They

argue that projects that clearly articulate their rationale, align with long-term mobility goals and involve stakeholders in co-creation are more likely to succeed. This is further echoed by the ITDP (2020), which highlights how participatory processes can empower communities and align projects with broader sustainable mobility goals.

6. Concluding thoughts

The tactical urbanism efforts in Malta, as discussed earlier, have not yet resulted in significant modal shifts. Despite modest achievements, these small shifts have generated a much-needed debate and are slowly building momentum that is challenging the status quo. Historically, Malta's towns had vibrant street life, much of which was curbed by the influx of cars in recent decades. Tactical urbanism, in a sense, revives those traditions within a new reality. This is even evident in the language used by its proponents – the *Slow Streets* project is all about giving "streets back to people" (LCA, 2025) – and signals a return to core Mediterranean urban values of social interaction and human-scale environments.

Malta's practice-led urbanism experience offers lessons for other cities in the Euro-Med context. First, it shows that size is not a barrier – even micro-states or small islands may initiate wide-ranging tactical programmes. Indeed, their scale could be an advantage in quickly rolling out pilots across numerous local communities. Second, it highlights the value of coupling top-down frameworks with bottom-up action. A purely grassroots approach might not necessarily falter, as evidenced by the success of local play street initiatives; however, resource limits might hamper its implementation, as seen with *Slow Streets* initially. At the same time, a purely top-down approach has its own issues, as experienced in Mosta's Square. A 'hybrid' model, possibly on the lines of *Vjal Kulħadd* with its central funding and expertise empowering local projects, could be emulated in other countries through national urban resilience grants or EU-funded schemes aimed explicitly at tactical trials.

Moving forward, it will be crucial for authorities and Local Councils alike to measure impacts (including, but not limited to, traffic counts, air quality, economic footfall and public satisfaction) of these tactical projects to build the case for permanence. Continuous monitoring may further identify where a tactical project is falling short of expectations – measurement and iteration thus become critical points in this discussion.

By proactively shaping institutional and physical spaces for experimentation, the longer-term objectives of systemic, people-centred sustainable mobility may be achieved.

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How does the form of road infrastructure impact the propagation of traffic-induced noise in urban areas of Tirana?

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MSc. Kelvi PETI
POLIS University, Albania, kelvi_peti@universitetipolis.edu.al

Dr. Fiona IMAMI
ORCID 0000-0001-6630-1445
Co-PLAN, Institute for Habitat Development, Albania, fiona_imami@co-plan.org

Abstract

Over the years, Tirana has undergone rapid development, particularly after the 1990s, when at least one-third of the country's population migrated from peripheral and rural areas toward the capital and larger urban centers.

This phenomenon, combined with the fast pace of globalization, the introduction of a market economy, and the increasing accessibility of private car ownership, has gradually led to a significant rise in road traffic – now the main contributor to urban noise pollution. The level of acoustic pollution (which exceeds the standards set by the EU) is not only a current reality in Tirana but also a growing concern, directly affecting the quality of life and the health and well-being of those exposed to it. While many studies have explored the impact of mobility on noise pollution levels, few have examined the influence of road infrastructure design and form on noise propagation.

This study aims to analyze the extent to which the urban road infrastructure form influences the level of acoustic pollution in high-traffic areas in Tirana. By combining quantitative and qualitative measurements, the study investigates the distribution of acoustic pollution in these traffic-dense zones. The areas are compared through a Multi-Criteria Assessment (MCA), using key criteria such as road infrastructure form, presence and typology of noise barriers, height and distance of surrounding buildings, among others.

The results reveal significant differences between urban forms in how noise spreads. The study concludes with a set of strategic and specific proposals for improving infrastructural and urban design elements, showing that certain urban forms and road designs can be more effective than others in containing noise pollution within urban spaces.

Keywords

Sound propagation, urban noise, acoustic landscape, urban morphology, traffic, Multi Criteria Assessment – MCA

1. Introduction

1.1. Background

Urban noise pollution has become a pressing environmental and public-health concern in many European cities, and Tirana is no exception. Rapid development after the 1990s transformed the capital into the primary destination for internal migration, accommodating nearly one-third of Albania's population. This demographic shift, accompanied by globalization, economic liberalization, increased car accessibility, and expansion of urban infrastructure, has resulted in unprecedented vehicular flow. Today, traffic constitutes the leading source of noise pollution in the city.

Noise levels in Tirana regularly surpass EU standards, affecting residents' well-being, sleep quality, mental health, and overall quality of life. Although noise is often treated as an inevitable by-product of urbanization, research increasingly shows that it is a design problem as much as it is a mobility problem. In addition to traffic intensity, urban form, building arrangement, street width, vegetation, and noise barriers play critical roles in shaping the propagation of sound.

Despite this, Tirana lacks comprehensive research analyzing how road-infrastructure form specifically influences noise propagation patterns. This gap represents both a scientific challenge and an opportunity for evidence-based urban design intervention.

1.2. Identified research problem

Previous studies in Albania focus primarily on mobility, exposure to noise, or general environmental assessments. What is missing is a detailed comparison of how distinct infrastructural morphologies influence the spatial distribution and intensity of acoustic pollution. In dense urban areas with heavy traffic, noise does not spread uniformly; instead, it interacts with physical elements such as building height, façade distance, street geometry, and roadside obstacles.

Thus, the driving research question becomes:

How does the form of road infrastructure influence the propagation of traffic-induced noise in high-traffic urban zones of Tirana?

1.3. Aims and research questions

The study aims to investigate the relationship between road-infrastructure morphology and noise propagation. More specifically, it seeks to determine whether certain infrastructural forms inherently amplify or reduce acoustic pollution, even when traffic volumes are similar.

Core research questions include:

1. How do different street forms and building configurations influence noise propagation?
2. How does the presence or absence of noise barriers affect acoustic levels?
3. To what extent do road-width, sidewalk geometry, and vegetation contribute to noise mitigation?
4. Which infrastructural form among the four case areas performs best in limiting noise diffusion?

1.4. Practical contribution

The study helps urban planning in a practical way by pointing out which parts of the infrastructure tend to make noise worse, which design choices help keep it down, and by giving concrete evidence for improving certain road sections. It also lays out clear suggestions for policymakers and designers who want to make Tirana a quieter and more pleasant place to live.

2. Context

2.1. Urbanization and noise in Tirana

Tirana's rapid and often unregulated urban expansion has produced a complex mix of infrastructural typologies. Historic areas coexist with wide boulevards, informal settlements, newly reconstructed corridors, and hybrid mixed-use zones. This heterogeneity results in significant variation in acoustic conditions across neighborhoods.

International evidence shows a few clear patterns: narrow streets lined with tall buildings tend to trap and reflect noise; open intersections help sound spread out and fade; green buffers can noticeably reduce mid-frequency noise; and dense traffic corridors create a constant, wide-band noise that often reaches high decibel levels.

All of this is directly relevant to Tirana, where traffic is heavy but the infrastructure has done little to address the noise issue.

2.2. Theoretical concepts used

The study is built on a few key ideas. First, it looks at how sound moves through the city — basically, noise travels as pressure waves and reacts to whatever it hits. It can bounce off surfaces, get absorbed, bend around corners, or pass through materials. In a city, tall buildings act like mirrors for sound, while busy roads keep producing steady low- and mid-frequency noise.

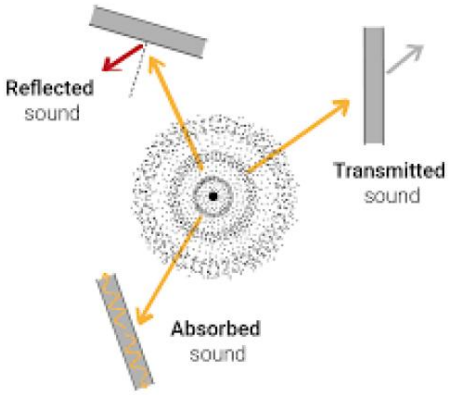

Figure 1. *Behavior of sound when interacting with different materials.*
Source: AtelierCrescedo (2024).

It also considers what long-term traffic noise does to people. Reports from the European Environment Agency show that constant exposure to loud roads is linked to stress, heart problems, poor sleep, and even learning issues in children.

Finally, the study breaks down what counts as road infrastructure: things like lane width, sidewalks, barriers, crossings, greenery, and the layout of nearby buildings. Put together, these features shape the "acoustic character" of a street – basically, how that space sounds and behaves when noise moves through it.

2.3. International illustrative studies

Three external studies support the theoretical framework:

1. Sound design in public squares (Steel et al., 2019) **–** shows natural soundscapes reduce perceived noise even when measured dB levels remain similar.
2. Traffic flow and noise in Skopje (Domazetovska et al., 2020) **–** demonstrates noise peaks at 1000 Hz and is primarily linked to tire-road interaction.
3. Trees as noise barriers via 3D modeling (Yean et al., 2024) **–** confirms vegetation plays a significant role in mid-frequency noise reduction.

These findings validate the need to examine sound propagation in Tirana through both measurement and morphological analysis.

3. Methodology

3.1. Research design

The methodological structure of this study was developed to capture the complex relationship between traffic-generated sound and the physical form of road infrastructure in Tirana. Noise in urban environments is not the result of a single variable; it emerges from an interaction of traffic intensity, street geometry, building configuration, and the presence or absence of natural or artificial barriers. Because of this multidimensional character, a combined methodological approach was considered essential.

The research design therefore integrates both quantitative and qualitative elements. Objective measurements were used to establish the acoustic profile of each selected area, while perceptual data helped reveal how noise is experienced by individuals who use or inhabit these spaces. At the same time, a morphological assessment of each road segment provided insight into the physical factors that either amplify or reduce noise propagation. Finally, a Multi-Criteria Assessment (MCA) was employed to synthesise all indicators into a comparative framework that reveals which infrastructural forms perform better or worse in managing noise diffusion. The strength of this combined approach lies in its ability to show not only how much noise is produced, but why it spreads differently across areas with similar traffic levels.

3.2. Strategy for selecting the study areas

The selection of the four study areas – QSUT, Zogu i Zi, 21 Dhjetori, and Kthesa e Kamzës – was guided by the intention to compare distinct urban morphologies rather than to simply examine four busy intersections. The objective was to identify representative samples of different road configurations that exist within Tirana's urban fabric and to analyse how these configurations influence the behaviour of traffic-related noise.

Each area embodies a unique spatial typology. QSUT, for example, is a hospital-service zone where traffic is influenced not only by private vehicles but also by ambulances and service cars. This produces a sound environment marked by both continuous traffic noise and sudden impulsive sounds such as sirens. This specificity made QSUT an important case for understanding how emergency-related traffic contributes to the overall acoustic climate.

Zogu i Zi and 21 Dhjetori represent highly dense urban corridors, characterized by narrow building distances, mixed-use functions, and intense traffic flow during most hours of the day. Their morphology is typical of Tirana's post-1990 development trajectory, where rapid construction, limited spatial regulation, and the proximity of high-rise buildings create "urban canyons" that intensify sound reflection. These areas were chosen because they exemplify the type of spatial enclosure that tends to trap noise and amplify its intensity.

Kthesa e Kamzës was selected for a different reason. Unlike the previous two zones, this area has a more open road profile, with greater distances between building façades, more vegetation, and fewer acoustically reflective surfaces. Such characteristics made it an ideal case for evaluating whether an open infrastructure layout contributes to the dissipation of sound, even when traffic volume remains high.

The four zones thus form a comparative set representing different combinations of street width, building height, vegetation presence, and functional context. This deliberate contrast allowed the study to determine whether morphological differences are capable of producing measurable differences in noise propagation, independent of traffic load.

3.3. Data collection methods

3.3.1. Acoustic measurements

To establish a reliable acoustic profile for each area, measurements were conducted during three key intervals of the day: morning, midday, and evening. These intervals were chosen because they reflect distinct phases of urban activity, where fluctuations in traffic volume and flow patterns influence sound levels. Measurements were taken at standardised heights and distances to ensure comparability across the study zones.

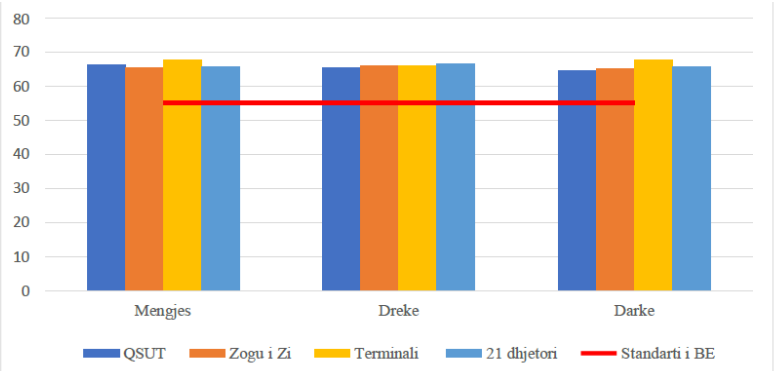

Figure 2. *Average level of acoustic pollution expressed in dB.*
Source: Author.

The main metric used was LAeq, representing the average sound level over a given time period. In several cases, a second measurement point was established deeper inside adjacent residential areas to evaluate how much of the noise penetrated beyond the immediate roadside environment. This made it possible to assess the extent to which the built environment either attenuated or enhanced sound propagation.

3.3.2. Traffic observations

Since traffic is the primary generator of noise, detailed traffic observations accompanied the acoustic measurements. These included the number of vehicles passing per minute, the pace of traffic flow, and the frequency of horn usage. The latter is an important variable in the context of Tirana, where the horn is frequently used as a means of communication or impatience, often independent of necessity. Horn sounds, being impulsive and high-intensity, contribute disproportionately to acoustic disturbance, which made their documentation essential.

Figure 3. *Monitoring point locations and their average values expressed in dB, QSUT area.*
Source: Author.

Figure 4. *Monitoring point locations and their average values expressed in dB, 21 Dhjetori area.*
Source: Author.

Figure 5. *Monitoring point locations and their average values expressed in dB, Zogu Zi area.*
Source: Author.

Figure 6. *Monitoring point locations and their average values expressed in dB, Terminal area.*
Source: Author.

3.3.3. Morphological analysis

A thorough morphological reading of each road segment was conducted to identify the physical characteristics that might influence sound behaviour. Elements such as the width of the carriageway, sidewalk dimensions, building height and materials, façade continuity, and the presence of trees or vegetated strips were all examined. The role of these elements lies in the way they shape the acoustic field: narrow streets with continuous building fronts tend to reflect and concentrate noise, while open spaces or vegetated edges may diffuse or absorb it.

This analysis helped establish a spatial narrative for each zone, explaining the physical reasons behind the acoustic patterns observed in the measurements.

3.3.4. Qualitative component

To understand how noise is felt rather than merely measured, a qualitative component was added through surveys conducted with residents, pedestrians, and frequent users of each area. Respondents were asked to describe their daily experience with noise, the times of day they found most disturbing, the types of sounds they found hardest to tolerate, and the effects noise had on their well-being, concentration, or sleep.

These accounts provided a human perspective that complemented the objective measurements, revealing how living in a high-noise environment shapes daily life. The qualitative dimension was particularly useful because noise perception is influenced by familiarity, tolerance thresholds, and personal sensitivity – factors that cannot be fully captured through decibels alone.

3.3.5. Multi-Criteria Assessment (MCA)

Once the quantitative and qualitative data were gathered, they were integrated into a Multi-Criteria Assessment framework. The MCA enabled the evaluation of each zone across a set of unified indicators,

such as sound levels, building distances, vegetation, traffic characteristics, and residents' perceptions. Each criterion was assigned a relative weight based on its presumed influence on noise propagation. The final scores offered a synthesized comparison of the four zones, showing which infrastructural forms performed better and why.

3.4. Limitations of the study

Despite the breadth of the methodological approach, several limitations must be acknowledged. First, the measurements were collected within a limited time frame and do not include seasonal variations, which can significantly affect sound levels. Weather conditions such as wind and humidity might also have influenced some measurements. Second, the perception-based data rely on subjective accounts, which, although valuable for understanding lived experience, cannot always be generalized. Third, the MCA method involves the assignment of weights that, even when reasoned, still contain an element of subjectivity. Nevertheless, the triangulation of multiple sources of data mitigates these limitations and allows for credible interpretations.

4. Results and discussion

4.1. General findings

Across all four study areas, noise levels consistently exceeded the European Union's recommended threshold of 55 dB, ranging between 64 and 68 dB throughout the day. Although these values seem similar at first glance, the way noise behaves in each area is remarkably different. This difference cannot be attributed solely to traffic volume; instead, it is largely influenced by the morphological character of the surrounding infrastructure. The results show that the physical configuration of streets – such as width, building height, and presence of vegetation – plays a decisive role in shaping the acoustic environment.

	Dimensionet e zonës & bimësia si barrierë akustike					
Zonat	Distanca ndërtesave paralele	Distanca e ndërtesave përballë	Gjerësia e karrexhatës	Gjerësia e trotuarit	Lloji i pemëve	Nr. i pemëve
"21 dhjetori"	5.5m	28 m	22m	2.5 m	Pema Penjë	106
"Zogu i zi"	11m	45m	22m	3m	Pema Capëz	104
QSUT	5m	20m	10m	5m	Pema Gështenjë	51
Kthesa e Kamzës	22m	74m	15 m	2.5 m	Pema Palmë	18

Table 1. The MCA analysis of the objects surrounding the study areas.

Monitorimi i zhurmave & përpunimi i të dhënave						
Zonat	Niveli i dB për 7 min	Raporti dB për automjet	Raporti bories për automjet	Niveli i dB pas vijës së parë të ndërtimit	Niveli i dB pas vijës së dytë të ndërtimit	Perceptimi i banorëve mbi ndotjen
"21 dhjetori"	65.5	0.35	62	50.4	48.4	3.55
"Zogu i zi"	65.1	0.32	99	49.9	46.4	4
QSUT	64.6	0.63	13	49.8	47.5	2.75
"Kthesa e Kamzës"	67.8	0.31	36	55.3	51.6	4

Table 2. *Acoustic pollution level and the ratio per number of vehicles.*

4.2. Detailed results

QSUT exhibited a unique acoustic pattern dominated by sudden peaks of noise produced by ambulances and emergency vehicles. These impulsive, high-intensity sounds made the environment feel more disturbing than the average decibel level might suggest. The narrow alignment between road and hospital buildings created reflective surfaces that prolonged and intensified sound. Respondents emphasized that the unpredictability of noise, rather than its average volume, caused the greatest discomfort, often disrupting concentration and rest.

Zogu i Zi demonstrated a different, yet equally challenging, acoustic behaviour. Here, noise persists almost continuously due to the area's canyon-like morphology. Tall, uninterrupted façades positioned close to the carriageway create an environment where sound becomes trapped. Even during off-peak periods, noise levels did not drop proportionally, revealing that the physical form of the corridor maintains high acoustic pressure regardless of traffic fluctuations. Residents commonly described the zone as "always loud," reflecting the constancy of the measured noise.

At 21 Dhjetori, a combination of heavy traffic and mixed commercial-residential activity produced a multi-layered soundscape. Delivery vehicles, buses, and motorcycles introduce highly variable noise frequencies. The arrangement of surrounding buildings forms semi-enclosed pockets where noise travels deeper into residential areas than expected. These interior spaces act as acoustic chambers that store sound and prolong its presence throughout the day. Consequently, many residents experience noise even when physically removed from the main road.

Kthesa e Kamzës, meanwhile, showed a comparatively more balanced and less aggressive noise pattern. Despite handling similar volumes of traffic, the wider road dimensions, irregular building lines, and presence of trees allowed sound to dissipate more effectively. Vegetation partly absorbed and dispersed sound, reducing both reflection and perceived intensity. Respondents described the noise as "moderate" and "manageable," highlighting the positive influence of open spatial configurations.

4.3. Comparative discussion

Vlerësimi i kritereve & pikët përkatëse						
Zonat	Niveli mesatar i ndotjes akustike	Raporti dB për automjet	Raporti bori. për automjet	Niveli i dB pas vijës së parë të ndërtimit	Niveli i dB pas vijës së dytë të ndërtimit	Perceptimi i banorëve mbi ndotjen
"21 dhjetori"	7	3	4	5	4	7
"Zogu i zi"	7	3	1	5	4	10
QSUT	7	6	9	5	4	4
"Kthesa e Kamzës"	7	3	6	6	5	10
Pikësimi	0.1	0.2	0.2	0.05	0.05	0.1

Table 3. *Evaluation of the MCA criteria, matrix 1.*

Vlerësimi i kritereve & pikët përkatëse						
Zonat	Niveli mesatar i ndotjes akustike	Raporti dB për automjet	Raporti bori. për automjet	Niveli i dB pas vijës së parë të ndërtimit	Niveli i dB pas vijës së dytë të ndërtimit	Perceptimi i banorëve mbi ndotjen
"21 dhjetori"	7	3	4	5	4	7
"Zogu i zi"	7	3	1	5	4	10
QSUT	7	6	9	5	4	4
"Kthesa e Kamzës"	7	3	6	6	5	10
Pikësimi	0.1	0.2	0.2	0.05	0.05	0.1

Table 4. *Evaluation of the MCA criteria, matrix 2.*

The comparison between the four areas reveals clear relationships between morphological traits and acoustic performance. Zogu i Zi and 21 Dhjetori – areas with narrow profiles, continuous façades, and limited vegetation – demonstrated the highest and most persistent noise levels. Their structural enclosure amplifies and retains sound. QSUT emerged as a particular case where morphological conditions are compounded by the irregular acoustic impact of emergency traffic. Kthesa e Kamzës, benefiting from an open layout and natural elements, performed the best acoustically, showing how spatial openness contributes to noise reduction even without decreased traffic intensity.

The Multi-Criteria Assessment further validated these observations. Kthesa e Kamzës scored highest due to favourable spatial characteristics, while Zogu i Zi consistently ranked lowest because of its enclosed and reflective morphology. These findings confirm that the form of urban infrastructure significantly shapes how noise is generated, reflected, and perceived.

5. Conclusion and recommendations

5.1. Conclusions

The study concludes that traffic noise in Tirana is strongly conditioned by the physical form of the urban environment. Although high traffic volumes contribute to elevated noise levels, it is the geometry, materiality, and arrangement of buildings and open spaces that determine how sound spreads and accumulates. Enclosed corridors intensify and prolong noise, while open and vegetated areas enable more effective dissipation. Thus, urban noise must be understood not only as a transportation problem but as a broader urban design issue that can be mitigated through thoughtful spatial planning.

5.2. Recommendations

To improve the city's acoustic environment, new infrastructure projects should integrate noise-sensitive design principles from the outset. Widening certain street sections, breaking long reflective façades, and introducing more consistent vegetation could significantly reduce noise propagation. Traffic calming strategies may also help limit impulsive noise sources, particularly horn usage. Most importantly, local planning policies should formally recognise acoustic quality as a key component of urban well-being. By embedding noise criteria within regulatory frameworks, Tirana can gradually transform its public spaces into healthier and more comfortable environments, even under the pressure of increasing traffic.

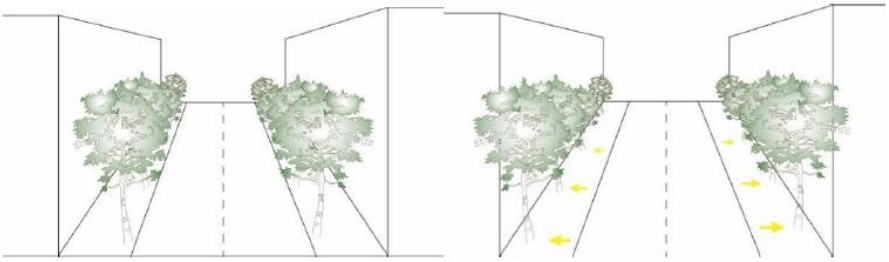

Figure 7. *Repositioning of trees near the façades.*
Source: Author.

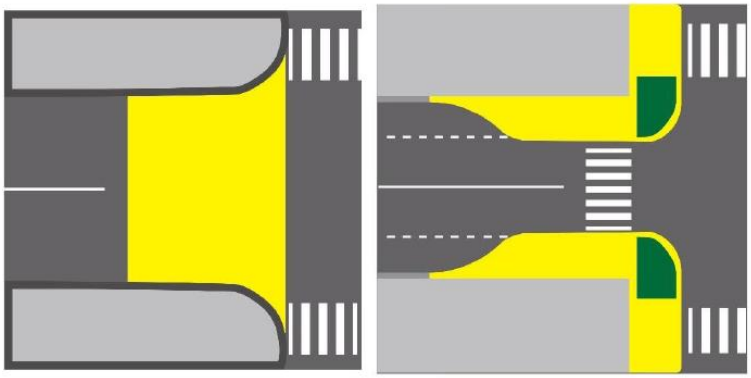

Figure 8. *Implementation of speed-reduction strategies in urban infrastructure.*
Source: Author.

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Peripheral Journeys: Youth Mobility, Urban Margins and Social Inequality in Naples

The Everyday Experiences of Student Commuting and Spatial Injustice in a Euro-Mediterranean City

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Domenico Salvatore GALLUCCIO
ORCID 0009-0004-9439-0931
Department of Social Sciences, The University of Naples Federico II, Italy

Luca AMATO
ORCID 0009-0004-9217-3263
Department of Social Sciences, The University of Naples Federico II, Italy

Alessio CRISCUOLO
ORCID 0009-0005-9491-1490
Department of Social Sciences, The University of Naples Federico II, Italy

Francesco DE NIGRIS
ORCID 0009-0007-9621-3762
Department of Law, University of Naples Federico II, Italy; Amsterdam Law School, University of Amsterdam, Netherlands

Emanuele Mauro ABRIOLA
ORCID 0009-0002-9369-0399
Department of Social Sciences, The University of Naples Federico II, Italy

Abstract

In Naples, Italy, the urban traffic crisis is not merely a technical or infrastructural issue it is a multidimensional social phenomenon that reflects and reinforces existing inequalities in education, access, and opportunity. Among the most affected populations are students living in peripheral urban areas, who face long, fragmented, and often unpredictable commutes to reach educational institutions across the city. This sociological study adopts a qualitative methodology based on semi- structured interviews and field observations to investigate the everyday mobility experiences of high school and university students in Naples. The aim is to explore how transport inefficiencies shape young people's educational trajectories, emotional well-being, and spatial perceptions of the city. As Salmieri (2019) points out, youth mobility in Naples is both constrained by systemic barriers and animated by informal strategies of adaptation and social navigation. Recent research on student choices in the Campania region of southern Italy confirms that mobility patterns are significantly shaped by socio-economic background and urban geography (Santelli et al., 2022; Rondinelli et al., 2024). The findings of this study complement this literature by highlighting students' lived experiences, their everyday forms of resilience, and the structural limitations of current urban transport policies. Drawing on the concepts of spatial justice (Soja, 2010) and the right to the city (Lefebvre, 1968), the paper argues that access to education in Naples is mediated by mobility systems that often

exclude rather than include. For many students, public transport becomes a space where inequalities are not only experienced but reproduced, challenging their full participation in urban life. This contribution advocates for mobility planning that transcends technocratic approaches by embedding citizens' lived experiences into inclusive, participatory, and socially resilient urban strategies. While rooted in the specific case of Naples, the study reflects broader tensions within Euro-Mediterranean urban contexts, where spatial fragmentation and uneven infrastructure continue to shape the daily geographies of opportunity and exclusion.

Keywords

Right to the city, peripheries, youth mobility, spatial justice, urban inequality

1. Introduction

1.1. Background and rationale

In the metropolitan areas of southern Europe, a macro-region rich in paradoxes, neoliberal policies have eroded public services and increased inequalities. For over fifteen years, crises of different natures and durations have been intertwining, with solutions remaining uncertain due to the varied responses of governments and urban societies (Molinari & Froment, 2022). One of these crises concerns educational inequalities, more pronounced in Mediterranean and Eastern Europe than in the North (Palmisano et al., 2022). Within this context, Naples represents a major strategic city for the Mediterranean basin, with a complex urban character shaped by centuries of successive dominations. "Naples is the result of a contradictory multiplicity […] the sum of several cities, one inside the other" (Punziano & Terracciano, 2017, p. 301) a layered architectural and social palimpsest where each historical period left indelible marks on the urban fabric. This complexity makes Naples "a privileged laboratory in the study of urban development" (ibidem, p. 302) where structural inequalities become concentrated and visible. According to Cerreta and colleagues (2020), "urban segregation dynamic is, in many cases, to be related to the negative impacts of social housing and planning policies […] within the Municipality of Naples (Italy), where entire communities, living in social housing districts, face critical conditions of social isolation and exclusion from the processes of urban development." From a politico-administrative perspective, Naples exemplifies extreme territorial fragmentation: 81 municipalities compose the "de facto city" and 116 form the metropolitan area as defined by the OECD (Calafati, 2016). Nearly a decade later, despite the institutional establishment of the Metropolitan City (*Law No. 56/2014*) in 2014, this fragmentation persists. The *"metropolitan thought"* Calafati called for remains an incomplete project. As recent studies (D'Alessandro & Sommella, 2022) demonstrate, institutional transformations have introduced planning instruments but have not necessarily reconstructed the metropolitan logic urgently needed. Today, in 2025, persistent tensions exist between the "formal metropolis" (*de iure*) with its integrated plans and institutional competencies and the "real metropolis" (*de facto*) defined by actual mobility flows, daily commutes, and social networks traversing municipal boundaries. This gap between what has been actually implemented provides the critical context for our research: student mobility exposes how governance fragmentation translates into daily spatial injustice. Recent spatial analysis by Benassi and De Falco (2025) provides empirical precision to this urban portrait through GIS mapping and spatial statistics. Using a hexagonal grid with cells of 0.25 km² and principal component analysis, they constructed a socio-economic status index (Fig.1) integrating variables

on poverty rates, income levels, property values, and foreign resident distribution. Their urban accessibility index (Fig.2) measured minimum travel cost to essential services museums, theatres, healthcare facilities, schools, parks using both walking and public transit modes. Most significantly, they employed bivariate local Moran's (Fig.3) I analysis to examine the spatial relationship between these two dimensions. This technique identifies local clusters where high or low values of one variable spatially correspond with high or low values of another, revealing four patterns: High-High clusters (advantaged areas with good accessibility), Low-Low clusters (compounded disadvantage), and spatial outliers where accessibility and socio-economic status diverge. Their findings reveal "a clear division between central and peripheral areas" (ibidem, p. 9). Critically, Benassi and De Falco argue that "these accessibility issues are not simply outcomes of segregation they perpetuate and deepen systemic inequalities" (p. 2). European comparative literature highlights how student mobility represents a key lens for examining the everyday reproduction of urban inequalities (Lage et al., 2022).

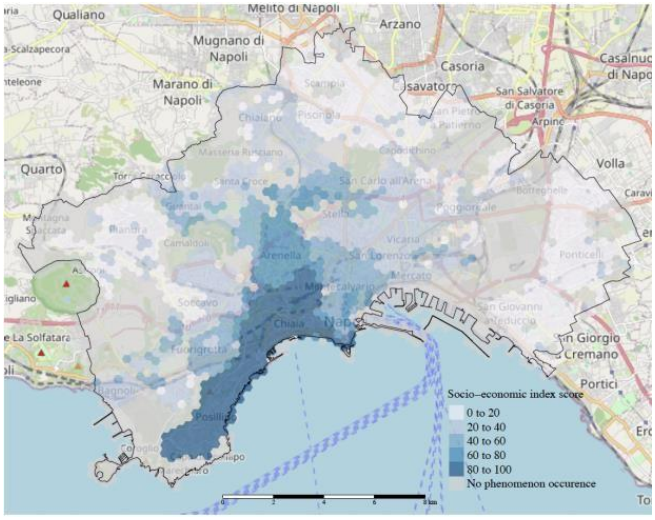

Figure 1. *Socio-economic status index score map of Naples.*
Source: Benassi and De Falco (2025).

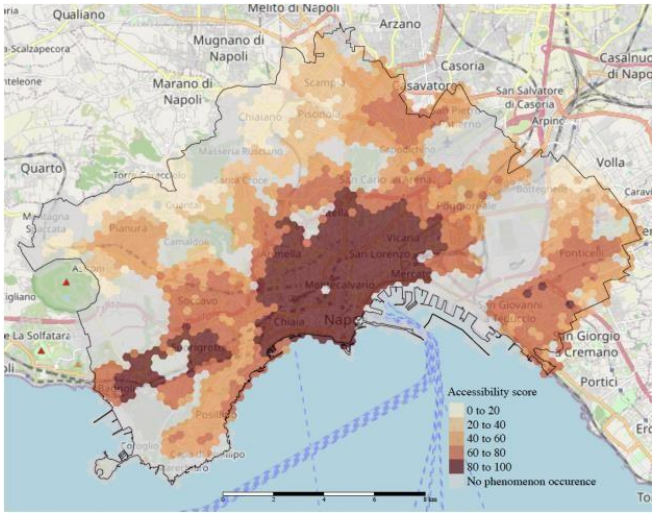

Figure 2. *Urban accessibility index score map of Naples.*
Source: Benassi and De Falco (2025).

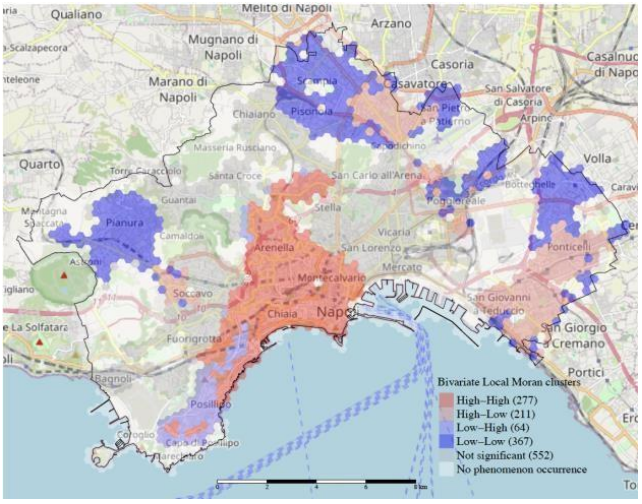

Figure 3. *Bivariate local Moran's I results, showing the relationship between urban accessibility and socio-economic status in Naples.*
Source: Benassi and De Falco (2025).

1.2. Research question and objectives of the study

Against this backdrop of spatial dualization, this study asks: How does the public transport system shape the educational trajectories, emotional well-being, and spatial perceptions of students living in Naples' peripheral areas? The objectives of this research are to (a) document the lived experiences of student mobility in Naples' peripheries, (b) reveal how spatial injustice operates through everyday commuting, and (c) advocate for mobility planning that embeds citizens' experiences into inclusive urban strategies.

2. Literature review

The theoretical framework systematized here, positions our work at the crossroads of multiple disciplinary traditions within sociology and beyond:

2.1. Urban sociology

We draw on critical urban sociology to understand questions of the right to the city (Lefebvre,1968) and spatial justice (Soja, 2010). As Harvey (2013) further argues, the right to the city is much more than an individual or group right of access to the resources that the city embodies: it is configured as a collective right to reinvent the city in a way that is more in conformity with our needs, a form of decisional power over the processes of urbanization. In the context of student mobility, this means: not only being able to reach schools but participating fully in educational life; not only moving through space but contributing to defining urban planning priorities; not only adapting to existing systems but imagining and building alternatives. We mobilize contributions from Lefebvre (1968); Harvey (2000, 2013); Wacquant (2008); Soja (2010); Barbieri et al. (2019); Corbisiero (2022); Wacquant & Vandebroeck (2023).

2.2. Sociology of education

We turn with the sociology of education, particularly Foucauldian and Latourian perspectives, to examine how educational inequalities are materially produced through infrastructure and policy. As Landri (2014) demonstrates, educational policies materialize in the socio-material assemblages that enact them; in the Neapolitan context, this implies recognizing that buses, timetables, and infrastructures are not neutral backdrops but active components in the production of educational inequalities and access." Prominent commentators in the ANT tradition have emphasised the importance of following details in the everyday, to look down at the particular, not up at abstract categories that homogenise and control" (Fenwick & Landri, 2012, pp. 4-5). We draw on Fenwick & Landri (2012); Landri (2014); Grimaldi (2011); Grimaldi et al. 2015).

2.3. Sociology of emotions and everyday life

We draw on the sociology of emotions and studies of everyday life and embodiment (Merleau-Ponty, 1962, cited in Adey, 2010) to examine how spatial exclusion is lived and felt through experiences of boredom, fatigue, and disenchantment among students who spend long hours commuting. Emotions function as indicators of social identity confirmation: they emerge from our participation in social life and are embodied, insofar as they are connected to physiological processes and reactions that occur within our bodies (Cerulo, 2015, 2019).

2.4. Transdisciplinary mobility studies

Our work engages extensively with transdisciplinary contributions on mobility particularly research on commuting practices, sustainable governance and participatory processes. We mobilize Kaufmann (2002); Sheller & Urry (2006); Adey (2010); Cresswell (2010); Büscher et al. (2011); Verlinghieri & Schwanen (2020); Santelli et al. (2022); Schwanen (2022); Tarabini et al. (2022); Zawieska & Archanowicz-Kudelska (2023); Orjuela et al. (2024); Rondinelli et al. (2024).

2.5. Problematizing urban resilience

The concept of resilience, originally emerging from ecology (Holling, 1973), has become a dominant paradigm and cognitive horizon shaping contemporary development and urban policies. As it migrated into the social science it accumulated significant epistemological and political implications. This diffusion produced conceptual ambiguity, as resilience now refers both to the capacity to return to equilibrium and to transform amid change (Meerow et al., 2016). Yet, as Meerow and Newell (2019) remind us, “the underlying politics of resilience have been ignored,” urging us to ask “resilience of what, to what, and for whom?” (p. 309). Such narratives often obscure inequalities and depoliticize social processes (ibidem). Consequently, we argue that resilience must be reframed as a process rather than a fixed condition a dynamic challenge for urban planning (Brunetta et al. 2019).

2.6. Gaps in the literature

The literature review reveals several significant gaps: (a) Focus on inter-regional mobility of students: most Italian studies concentrate on South–North flows, overlooking everyday intra-urban mobility; (b) Lack of in-depth qualitative studies: quantitative analyses prevail, failing to capture the experiential dimensions of mobility; (c) Separation between urban and educational studies: there is a lack of a framework that systematically integrates spatial and educational analysis; (d) Under-theorization of the bodily dimension: the mobile body is often absent from analyses.

3. Methodology

Started in February 2025, this study adopts a qualitative research design to investigate the lived experiences of student mobility in Naples' peripheral areas.

3.1. Participant selection and sampling

We employed purposive sampling (N = 15) guided by spatial data identifying compounded disadvantage areas (Benassi & De Falco, 2025), recruiting university and high school students aged 18-25 from peripheral neighborhoods. This age group was selected because they occupy a critical transitional life stage, depend predominantly on public transport, and represent transformative potential for urban futures. Participants were first approached *in situ* on public transport routes serving peripheral areas, during daily commutes**.** Subsequently, we engaged peripheral community associations to reinforce local trust and employed snowball sampling to expand participation within the identified communities. The results are not intended to be statistically generalizable but to provide in-depth, context-specific understanding.

Figure 4. *Demonstration and public assembly, 21 June 2025 at the Scampia metro station, Naples. Over 50 organizations joined citizens and activists to protest the three- month closure (23 June-15 September 2025) of the Scampia, Chiaiano and Frullone Line 1 stations, demanding a permanent dialogue to safeguard the right to mobility.*
Source: https://www.instagram.com/p/DLKpj14oK2K/?img_index=2&igsh=Yngxejc4b.

3.2. Data collection methods

We conducted semi-structured interviews explored multiple dimensions: sociodemographic profiles, daily mobility practices, transport barriers, adaptation strategies, educational impacts, emotional experiences, spatial perceptions, and perceived inequalities. Interviews integrated two techniques: the Critical Incident Technique (Flanagan, 1954; cited in Cardano, 2011), asking students to narrate significant moments when mobility systems broke down, and photo elicitation (Harper, 2002), whereby photographs stimulate memory and evoke information beyond verbal accounts. Five participants also maintained mobility diaries (Büscher et al., 2011) documenting their daily journeys over two weeks. Crucially, we adopted Kusenbach's (2003) go-along methodology, accompanying students on their actual daily commutes "a hybrid between participant observation and interviewing that explores the role of place in everyday lived experience." We did not just interview students about mobility; we experienced it with them. We also conducted multi-sited ethnography (Marcus, 1998, cited in Adey, 2010): stationary observation at metro stations and bus terminals, and mobile observation aboard vehicles. Observations were conducted during peak commuting hours morning rush (7:00–9:00 AM), post-school dismissal (1:00-3:00 PM), and evening rush (5:00-7:00 PM) to capture student and worker congestion patterns, as well as during first runs (starting from approximately 6:00 AM) and last runs (approximately 9:20-10:00 PM) to document service extremes and temporal accessibility constraints. Field notes documented crowding patterns, temporal rhythms, infrastructure conditions, and passenger interactions.

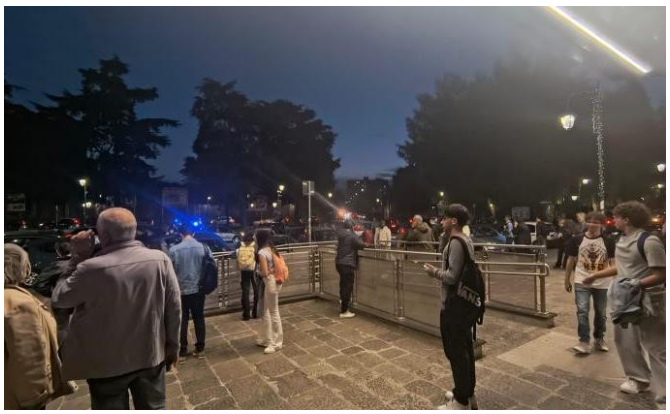

Figure 5. *An example of a stationary observation.*

Figure 6. *An example of a mobile observation.*

3.3. Data analysis, validation and ethical considerations

Interview transcripts, mobility diaries, and field notes were imported into the qualitative data analysis software NVivo. We conducted a thematic analysis informed by an abductive approach (Timmermans & Tavory, 2012), iteratively moving between data and theory, to foreground embodied, emotional, and temporal dimensions. Validation was ensured through triangulation across data sources and continuous follow-up with participants, including the return of preliminary findings to co-produce knowledge rather than extract data. We obtained informed consent and ensured anonymity for all participants. Following Grimaldi et al. (2015), we understood researcher positionality in intersectional terms relational, unstable, and contextually situated within interactions between researchers, participants, and the socio-political context. This reflexivity was particularly critical given power asymmetries inherent in researching marginalized youth.

4. Results and discussion

Our empirical evidence shows that the transport system systematically compromises educational trajectories, through delayed degree completion, diminished performance, and impossibility of reconciling attendance with employment. Students face exclusion from full academic and civic life, precluded from relational networks crucial for professional insertion. The system imposes impossible emotional management demands while foreclosing relationship construction. "The urban space, in the physical and social sense, is the 'boundary' in which the living conditions, accessibility and usability of services can affect the well-being of citizens" (Cataldo et al. 2019, pp.112-113). The embodied dimensions of transport failure reveals itself most powerfully through direct testimony. One female participant narrates a morning commute that epitomizes the daily violence students endure:

"This morning though, something happened – it was total chaos. Because at 7:40 a train went by with just a single car, 7:40 just one car, I don't know. And in fact people complained a lot, they started saying 'this seems ridiculous, getting off with these trains all pressed up against each other,' you couldn't understand anything, people couldn't get on. [...] I was standing there alone. I experienced the full discomfort, I was like: 'when are we getting out of here, please, let's get out of here,' and then you've got someone next to you who hadn't washed. So like, you get it?"

Overcrowding produces paradoxical isolation: bodies pressed together yet profoundly alone. It materializes as corporeal suffering and cyclical entrapment the endless repetition of wanting to get out. The temporal dimension proves equally significant. Another participant articulated the chronic rather than episodic nature of this suffering, identifying transport as *"one of the greatest sources of stress in my life"* sustained over five years stress compounding daily until defining existence rather than interrupting it. This accumulation of bodily assaults and psychic exhaustion produces a profound affective transformation. When daily violence becomes unbearable yet inescapable, when bodies are repeatedly violated yet must continue functioning, when stress defines rather than interrupts existence protective psychosociological mechanisms emerge. "The students who claim to manifest boredom on a daily basis appear as contemporary blasé individuals: subjects with no stimuli towards the actions of the present and without any trust in the future" (Cerulo, 2015). Students develop coping strategies operating at both individual and collective levels. At the individual level: attending only mandatory academic obligations while foreclosing informal learning spaces; self-exclusion from opportunities before attempting them (declining evening activities, part-time work, cultural events); reconfiguring domestic space as sole possible study environment; oscillating between irony, resignation, and protective boredom; relying on unauthorized transport services that emerge to fill voids left by official systems. At the collective level: female students travel together confronting gender violence and harassment; students coordinate informal carpool; share real-time information about delays and cancellations on social network; temporarily stay at peers' homes to avoid impossible return journeys. These represent resilient adaptive attempts to navigate failing systems. Yet these warrant critical interrogation rather than celebration. These strategies exemplify self- disciplining within neoliberal governmentality (Grimaldi, 2011) students internalize *geographical destiny*, responsibilizing themselves for infrastructural abandonment. "Living in an urban periphery not only affects young people's educational choices and transitions by means of the material constrictions associated to their mobility patterns. It also generates a 'practical sense' of what is perceived as appropriate and adequate for 'people like us'" (Tarabini et al., 2022, p.27). It is about giving shape to the aspirations of those who often feel like citizens without the city (Corbisiero, 2022). Resilience thus operates as an analytical

short-circuit: it enables survival while simultaneously concealing the structural violence that makes such survival strategies necessary, allowing depictions of peripheral youth as disengaged to obscure the systemic roots of their condition. "Now the neighbourhood no longer offers a shield against the insecurities and pressures of the outside world; it is no longer this familiar landscape, unified by a shared culture, which reassured and reaffirmed the residents in their collective meanings and forms of mutuality. It has mutated into an empty space of competition and conflict, a danger-filled battleground for the daily contest for subsistence, scarce collective resources (such as the use of public spaces and amenities) and, above all, for finding the means to escape" (Wacquant, 2008, p.271). Those who cannot escape close themselves at home; the disappeared body becomes final testimony to infrastructural violence. Our research focused on the corporeal dimension precisely to comprehend how this systematic spatial violence culminates in bodily disappearance the ultimate manifestation of segregation processes. The extrema ratio emerges in what we term the *ghost student* individuals formally enrolled yet systematically withdrawn from educational and social life. One participant's partner exemplifies this collapse: *"she deprived herself of the possibility of experiencing university; only went to exams because she always studied at home"*. This represents not merely logistical difficulty but bodily and psychic collapse linked to individualization processes produced by contemporary global capitalism.

5. Conclusion

This study demonstrates that student mobility in Naples reproduces spatial injustice through a cascading logic of fragmentation. Administrative fragmentation translates into fragmented multimodal journeys, which in turn fragment students' daily lives. Cumulative uncertainties – *will the bus come? will I make the connection? will I arrive on time?* – generate not only logistical difficulties but also forms of existential insecurity. When horizons fragment, we lose not only the ability to plan our days but, more profoundly, the capacity to plan our lives. These young people are deprived of the possibility to project futures, to imagine alternatives, to construct life trajectories. This is the ultimate violence of inadequate mobility: it forecloses not just opportunities, but the very ability to conceive of opportunity itself. Peripheral resilience thus appears not as a solution, but as a symptom of systemic failure. Our analysis engages with what Cafiero (2009) calls the *ordinary emergency,* the perpetual crisis that has characterized the processes of urbanization in Southern Italy since unification. Rather than normalizing constant adaptation, we must transform the systems that continuously reproduce these emergencies. This research is ongoing. The next phase will involve focus groups with community associations, mobility experts, activists, and political representatives, alongside the launch of a participatory emotional mapping campaign. Crucially, we propose the creation of Urban Living Labs for mobility justice in the most disadvantaged neighborhoods where students can co-produce urban policy rather than merely being its subjects (Cuntò et al., 2025). These Labs aim to create conditions of possibility for collective subjectivation processes, bringing situated knowledge into planning practices. Students are not recipients of interventions but holders of expertise essential for effective urban transformation. By embedding citizens' lived experiences into inclusive urban strategies, this approach reclaims the right to change the city by changing ourselves (Harvey, 2013).

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III. New Housing Models and Innovative Architectural-Urban Forms to Adapt to Demographic, Technological and Development Trends/Challenges

Housing affordability / Housing and land markets / Social housing / Housing policies and challenges.

Passive energy strategies / Energy efficiency in buildings / Heating and cooling loads / Indoor and natural ventilation / Natural lighting / Building materials and technologies.

Circular economy in the construction sector.

Cooperative Dwelling and Participative Governance

The Wogeno Case in Zürich

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Dr. Luca LEZZERINI
ORCID 0009-0003-7441-429X
Department of Research and Development, POLIS University, Albania,
luca_lezzerini@universitetipolis.edu.al

Abstract

Zürich's dwelling costs are very high, and it seems that many city centres are facing the same issue. According to the Smart City Index 2024 from IMD, one of the most recurring issues is the high cost of housing in cities, not only in Zürich, which has been ranking first in this index for many years, but also in many other cities. However, it is precisely in Zürich that a significant, long-running case study exists about cooperative and affordable housing. The research examines the case of Wogeno cooperative housing, investigating its governance model and its integration into a broader network of similar experiences. Started in 1981, it cannot be called a new model, but it is undoubtedly a reliable one, ensuring lower costs for housing and effective management of complex condominium facilities, which include not only apartments but also commercial and professional spaces. The research is based on a literature review and direct on-site evaluation, as well as discussions with key players and ordinary people who are stakeholders. The research summarises all these materials and defines a SWOT analysis, as well as a simple roadmap to replicate the experience elsewhere. Additionally, the impact on urban planning and urban policies is examined, and summary guidelines are provided for both.

Keywords

Cohousing, sustainable dwelling, urban planning, urban policies, governance

1. Introduction

1.1. Background and rationale

Zürich has been ranked as the first "smart city" in the Smart Cities Index (Lanvin et al., 2024), compiled by the International Institute for Management Development (IMD). Its KPIs are all above the average, and it appears to be one of the best places to live in the world. Nevertheless, when interviewing citizens about the priority areas to be improved, 77% of them answered that it is affordable housing. The same answer comes from Oslo (73%), the second-ranked city, and from Canberra (85%), the third. Scrolling through the ranking, the situation remains unchanged; in most cities of the index (110 out of 146), affordable housing is the top priority, according to citizens.

1.2. Research question or hypothesis

The research question is whether it is possible to address the challenge of increasing housing costs, both for rent and purchase, in large cities through an approach that, in parallel with state measures for affordable housing, leverages citizens' cooperation. This paper examines a specific case, generalising it in a way that can be applied in different contexts.

1.3. Objectives and scope of the study

The study aims to analyse a successful case of a cooperative housing model that has been operating in Zürich since 1981 and define urban planning and policy guidelines to address the issue of affordable housing rent costs.

The reasons for the increase in housing costs, both for owners and renters, have been analysed by many scholars. One of the most important factors is the financialisation of housing.

The study, which is a step in a larger research project aimed at providing elements to address this affordability issue, aims to analyse a specific case to provide a solution for both renting and owning a house. The idea is to ease a two-step process where people can rely on lower rent rates to save financial resources that they can later invest in buying their house. The Wogeno Zürich model has demonstrated some interesting elements that can support this process.

2. Literature review

2.1. Overview of relevant studies

A first important study is related to a deep analysis of the decline of housing for low-income renters in Western Europe (Dewilde, 2017), from which the critical impact of housing financialisation is considered and deeply analysed, leading to the conclusion that it is, together with general price inflation, the cause of the loss of affordability. According to Lee et al. (2022), the primary factors influencing housing costs are the downsizing of the welfare state, raw costs (such as land and construction), and financialisation.

In many studies, financialisation is shown to be a driver of increasing housing costs. Very often, this is tied to speculation. Many scholars have demonstrated this assertion, tying it to boom and bust behaviours

(Greenberg et al., 2024; Kholodilin et al., 2018). Another element is the short-term rental typical of home-sharing and similar practices, especially in tourist cities (Barron et al., 2021). However, this phenomenon appears to have a minor impact. Vacancy is a paradox that is becoming increasingly frequent in many cities: reducing affordability leads to an increase in empty houses, which in turn fuels speculation over real estate and exacerbates the problem, even prompting networks of activists to fight the issue (Portman, 2024).

2.2. Theoretical or conceptual framework

In the context depicted by the above studies, some elements should be considered to face speculation. Several controls are available to regulate the market, including taxes on vacant properties (Segú,2020) and regulations on short-term rentals. Nevertheless, these controls can have undesired side effects on other sides (construction of new buildings or house value) (Han et al., 2023; Menard, 2012).

The idea behind this research, which this paper represents a step toward, is whether a private cooperative model for housing can be applied to improve affordability in cities in both developed and developing countries.

Major price drivers (Tripathi, 2020) for housing rentals are the supply and demand dynamics (Howard, 2021), location attributes (Egner, 2018), property features (unit size, quality, and condition), macroeconomic and financial factors, regulations and policies, speculation dynamics (Yang, 2020), exceptional factors (natural disasters and pandemics), and sociodemographic factors (changes in household structure and migration).

These factors will be examined from the perspective of understanding whether and how the proposed cooperative model impacts them, and how regulatory policies and urban planning can lead to improvements in housing affordability.

Although numerous studies have been conducted on this topic, a significant research gap remains regarding specific urban planning guidelines.

3. Methodology

The methodology employed in this research, from which this paper is an intermediate result, involves a literature review followed by a classification of various cooperative housing models within the Western context. For each class, a SWOT analysis will be performed, and then strategies to address the threats and weaknesses through policies and urban planning will be defined. An on-site review will be conducted in 2026 to review and validate the intermediate research results regarding the cooperative models. A final review and summarisation of these results will be conducted to derive validated and comprehensive findings about policies and urban planning guidelines.

This paper presents the first result of a specific cooperative model, the Wogeno Zürich model, which was chosen as the subject due to its unique characteristics when compared to other similar models.

4. Results

4.1. General results

Wogeno Zürich operates under the "cost-rent" principle, meaning that rents are structured to cover expenses and save equity for future development or needs, without focusing on maximising profit.

Using this model, rents are typically 20-40% below Zürich market rates (Sanchez-Bajo, 2024).

Cooperative membership requires an equity share of CHF 3,000, which is refundable upon departure. The membership fee is not tax-deductible; it is interest-free, and refunds are typically issued several months after the transaction. It must be declared as a financial asset.

Each member of the cooperative, when living in the apartment, is required to dedicate approximately 3-4 hours per week to voluntary work for community activities (e.g., decision-making, budgeting, data collection, and data entry, among others).

4.2. Size

As of the end of 2023, Wogeno has:

- 6,339 total members (876 living in Wogeno housing, 5,463 waiting for a house)
- 78 properties with a total of 565 apartments covering 37,223 m² of residential space in Zürich city (the analysis has not considered other properties in the neighbouring areas)
- 4,054 m² of commercial/workspace
- A zero-vacancy rate, with significant waiting periods due to high demand.

The Wogeno model is currently able to meet the rental needs of approximately 13.8% of its members.

An analysis of Wogeno's last two years' economic and financial performances (2022 and 2023) has evidenced (Wogeno Zürich, 2023; Wogeno Zürich, 2024):

- Strong liquidity position, even if liquid assets decreased by 57% but with an increase in reserve funds of about 8%
- Current liabilities decreased by 28%
- Growth of the membership base demonstrates confidence and trust in the cooperative model

All these values have been obtained in a complex market period, and some negatively influencing factors:

- An increase in maintenance costs
- Assets depreciation

4.3. The member selection criteria

Wogeno relies on a strict two-tier process to assign apartments for renting.

First, a committee at the cooperative level verifies candidates against statutory requirements. Recently, this has been supported by custom software. These statutory requirements are:

- Membership seniority (minimum 3 months)

- Household size relative to apartment space (to optimise space use)
- Integration ability and community participation (3-4 hours of communal work weekly)
- Financial circumstances ensuring affordability
- Urgency of housing need

In high-demand cases, a digital lottery is conducted to ensure equal opportunities for people.

The final decision lies with the local building association, known as the "Hausverein", where people already in the building assess the candidate's ability to integrate with the existing community and their agreement with Wogeno values.

4.4. Impact

Wogeno's rental fee is at least 20% below the market average, although there are not many studies comparing its rent costs to the market average. Considering similar cases, the Wogeno pricing should be from 20% to 36% lower than the market average.

5. Discussion

5.1. Interpretation of results

Wogeno continues to uphold its cooperative principles, avoiding speculation and maintaining an effective cost-rent model that ensures price affordability for middle- and lower-income households. Thanks to its unique, locally self-managed housing model through its 42 house associations (the Hausvereines), which supports cooperative governance with strong and democratic member participation, Wogeno performs very well towards its objectives.

Its model also aligns with a long-term outlook because it has evidenced losses mainly due to significant investments in new buildings. Wogeno's zero vacancy rate and near-zero vacancy rate in Zürich city ensure business continuity. Strong reserve funds provide significant protection from unexpected events.

The Wogeno experience has been running since 1981 and has demonstrated continuous and steady growth, albeit at a slow pace. This moderate expansion pace has been demonstrated to be a good strategy, allowing enough time to integrate new acquisitions and become profitable before investing in other significant projects.

The locally self-managed cooperative model has demonstrated excellent performance over the years. However, it requires a strong education of members and their real and voluntary agreement on Wogeno's cooperative values.

Wogeno yet relies too heavily on banking for loans, which implies an impact of growing interest rates and, in general, financial costs, as seen in 2022-2023. Models like this should rely more on members' financing schemes and less on banks.

A summary SWOT diagram is depicted in Figure:

Figure 1. *Wogeno model SWOT summary.*

5.2. Comparison with other similar cases

Over 18% of households in Zürich already live in cooperative apartments (Laos.io, 2025). This phenomenon is so evident that a few years ago, the City of Zürich set the goal to have 1/3 of all apartments available at affordable prices (both through cooperatives and municipal housing).

Zürich has over 100 housing cooperatives of various sizes. Wogeno is among the top ten in terms of the number of apartments. It has a peculiar model that is self-managed with strong active participation.

Other cooperatives primarily employ a traditional approach or focus on specific targets, such as innovation in living concepts or promoting low-carbon culture. Some of them are also focused on specific areas, while others are distributed all over Zürich. The Wogeno is especially interesting due to its peculiar two-tier governance model.

Financial and economic performances of the Wogeno case are similar to those of the cooperative housing sector in Zürich.

5.3. Implications for theory, practice or policy

The Wogeno model for cooperative housing has been demonstrated to be reliable and long-lasting in Switzerland. A first issue could be whether the model can be replicated elsewhere due to the compulsory requirement of a strong involvement in the Hausverein activities. To provide an initial answer to this

question, a similar case in a different context has been analysed to define the geographical capability of expansion for the cooperation model. The Mondragon Corporation has been considered the largest cooperative in the world, analysing its members' nationalities to identify countries where cooperative principles are well-received by people. A rough estimate has been made considering the local workers' population and statistical distribution analysis. According to this rough analysis, potential countries in Europe that could accept cooperative models like Wogeno could be Spain, France, Poland, Italy, the Czech Republic, and Germany. Another analysis has been conducted to examine the diffusion of the cooperative model across Europe, considering the percentage of cooperative members in relation to the entire population. The most suitable countries are the Netherlands, Finland, Cyprus, Ireland, France, Sweden, Norway, Denmark, and Germany. The last ranking, based on the absolute cooperative members, is France, Germany, the Netherlands, the United Kingdom, and Italy.

To improve this suitability, training on cooperative models should be introduced as part of the standard educational path for new generations. Therefore, an educational policy with this aim should be introduced into the ordinary schooling process and also funded consulting from technical resource groups that will provide legal compliance, financial planning, architectural design and member training (essential in the Wogeno case due to their strong involvement for 3-4 hours a week). Additionally, professional counselling to enhance democratic engagement and mitigate burnout should be funded.

A policy that supports housing cooperatives is the taxation of empty houses. However, it is a policy that should be considered as secondary, because it also impacts other parameters, such as construction. In a city where space is strongly constrained, taxation seems to increase availability, but not necessarily reduce costs.

A simplified, yet with necessary precautions to protect investors, self-financing policy at the national level could help cooperatives reduce financial costs and increase member participation in cooperative life.

Policies regarding municipal land leasing could be very effective in supporting cooperative models.

Additionally, tax exemptions or deductions for membership equity, along with favourable taxation for cost-rent cooperatives, are valid policies to support them.

To avoid speculation, specific policies should be introduced, such as forbidding the sale of cooperative shares or placing a ceiling on the maximum equity allowed for each member.

Public lines of credit at low interest and a streamlined permitting process will ease the creation of new settlements.

At the urban planning level, when defining new settlements or planning the reuse or restoration of spaces, a significant portion of the residential space should be allocated for cooperative housing. A percentage of 33%, as proposed in Zürich, could be meaningful. Many cooperatives (including Wogeno) often look for older buildings to keep acquisition costs low and, after restoration, produce an increase in value. Alternatively, defining special area plans for cooperatives would be a good strategy.

Specific policies and appropriate urban planning guidelines should enable cooperative spreading, avoiding the so-called "cooperative ghettos".

Another policy could be to reserve a portion of each cooperative space for low-income households, for example, 10%-20%. This policy may conflict with the self-management model of Wogeno, thereby limiting

the decision-making autonomy of the Hausverein. Today, Wogeno primarily caters to middle-income individuals.

When designing new buildings or districts for large cities, particular care should be taken to facilitate a cooperative model. For example, this can be achieved by creating shared spaces for community and cooperative life within the building area, including spaces for warehouses and workshops to support the maintenance process.

Participating in organisations aimed at sharing and spreading best practices in the cooperative housing sector should be supported by both contributions from cooperatives and other stakeholders, as well as specific public funding.

6. Conclusion

6.1. Summary of findings

The Wogeno model has demonstrated strong stability and high effectiveness in a housing-supply-inelastic city. Rent fees can be reduced by 20% to 40% while maintaining a strong financial position.

A faster growth path can likely be achieved, and a larger self-financing proportion can also be attained, while maintaining current solidity.

Spreading into other contexts needs particular attention to the cooperative maturity and culture of the members. Specific educational policies should be proposed to increase this culture and this maturity.

6.2. Limitations and suggestions for future research

The issue about exporting it from Zürich should be investigated.

Additionally, the policy of reserving a portion of the space for low-income households appears to be far from applicable to the Wogeno model and requires further investigation.

Long waiting times (6-9 years), time-intensive participation, and small scalability (13% of members housed) are challenges that emerged from the Wogeno case and should be addressed by further studies.

Last, but not least, scholars should investigate how to reliably implement a two-step process that, starting with affordable rent rates, can support citizens in saving money to buy a house, possibly including both financial aid from the State and from the cooperative, as well as implementing specific financing schemes.

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Reimagining Urban Living: Beyond Building Housing – Building a Community

Affordable, Sustainable, and Innovative Housing Solutions for better Quality Living

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Erez ELLA
Bezalel Academy of Arts and Design, HQ Architects (Founder), Israel

Abstract

In response to rising housing needs, changing demographics, and climatic challenges, we acknowledge the need to challenge the standard Housing typology. Housing, usually synonym to dull and standard design, one that is unimaginative, made to basic living standards and often associated with building types such as the mundane, contextually isolated tower blocks. As architectural scholars and practitioners, we strive to develop innovative architectural and urban models that combine affordability, community, and sustainability. The intention here is to create engaging architecture that responds to the diverse needs of a wide demographic and be effortlessly part of urban context, embracing topography and climatic conditions, proving both a sustainable and humane environment for dwelling, while at the same time acknowledging the market demands and system as well as align with the developer's perspective. Overall housing is part of a multi-layered system that needs to be approached simultaneously and work together with multiple stakeholders and bodies, on which housing is made of and made for. This paper, through housing and planning projects, seeks to demonstrate how challenging the housing typology and embracing a wider design vision, has the ability to create quality housing resilient, inclusive neighbourhoods by linking architecture with social, economic, and environmental ambitions.

Keywords

Housing, sustainable, mixed-use development, inclusive urbanism, residential

1. Introduction

"Housing manifests an incredible complexity of issues, touching on social, economic, political, aesthetic, and urban questions".[1]

In both professional architecture practice and academic discourse, housing has traditionally been regarded as a complex challenge – a puzzle difficult to solve. This comes as no surprise, since is an area in architecture and planning that is affected by rapid and continuous socio-economic shifts, expected to accommodate a wide variety of requirements, guidelines and aspirations from different sides, while quality and innovation are often overlooked. Historically, the housing typology has attracted great attention from the architecture profession, aspiring to create forms of housing that goes beyond mere shelter, providing instead exciting architecture that enhances quality of life, builds safer and more humane neighborhoods, and ultimately elevates urban living conditions.

'Architects and Urban designers have less control over the framework of their projects than some other participants in the development business, but they have the synergetic mission to combine numerous and partly contradicting forces to create a culturally meaningful outcome. Seen from this angle, typology unfolds as a sub-discipline that, despite its serious cultural interdependencies, defines maybe more than others, including structures and materials what one could call the autonomy of architecture: a system that is unique to the profession. If we lose it, we might lose a lot of what architecture can bring to society: an intrinsic connection to the past that is not ideological, an appreciation of long term processes, a rigor of analysis that combines hard and soft sciences, and-most importantly – an intentional focus on the relationship between public, private and the communal realms'.[2]

Although many parameters influence the quality of a housing project, we see that typology is the factor that has the greatest impact on its success or failure. It directly and deeply affects residents' quality of life and the urban fabric, in addition to the economic feasibility of the project from the developer's viewpoint. A good typology enables optimal use of land, promotes human interaction, improves a building's climatic performance to enhance sustainability, and often reduces operating and maintenance costs over time. It can generate local identity, encourage a sense of community, and offer innovative solutions for a wide and diverse demographic. From a developer's perspective, a strong typology produces a unique piece of real estate with added value that increases its commercial value and sometimes earns planning or public preference.

Investing in a housing type that is socially relevant, contextual and environmentally-friendly, generates high value on all scales: economic, social, and cultural, showcasing better urban living conditions.

There are several examples, in Israel and internationally, in the last decades that prove that typology is key to the success of urban housing development. Diverse approaches to housing design

[1] Alan Pert (2024), Architecture Versus Housing: If the System Is Broken, Design a new System, introduction in Architecture for Housing: Understanding the Value of Design through 14 Case Studies., by by Djordje Stojanović, Birkhauser, pp. 6-11.

[2] Firley, E., & Deupi, V. (2021). The urban housing handbook (2nd ed.). Wiley-Blackwell. pp. VIII-XI(Introduction to the New Edition)

are emerging, addressing these very same challenges, ultimately aiming to offer quality and resilient ways to urban dwelling.

This paper seeks to investigate, highlight and discuss relevant case studies, focusing on current examples in Israel that focus on the following areas, identified as integral into housing design, both as a typology as well as part of a wider urban context. The following areas are identified as key within the selected case studies:

- Human and nature-oriented Housing Typologies that move away from the generic and often soulless 'Tower-Block'.
- Reducing social fragmentation by designing buildings and neighborhoods that address challenges such as social inequality, safety and limited open spaces, disconnected areas and the absence of shared communal areas.
- Environmentally friendly design that promotes sustainability and well-being.
- Building strategic collaborations with governmental authorities and with local groups from an early stage to gain better understanding of local needs and clearly communicate the vision of both sides (community, municipalities/private investor/architecture vision).

Considering design as a catalyst for change on both the urban and the building scale, this paper investigates the current needs and challenges as well as present the architects/urban planner with a toolkit and ideas on how to navigate in a rapidly changing world in order to best address housing, socio- economic issues that are reflected in the urban and living environment, climatic shift and resilience, among others. Issues that the architecture profession is called to respond to, providing design solutions to address current challenges and anticipated future shifts.

The objectives of this paper are categorised in two (2) different scales:

At urban scale, planning strategies focus on improving connectivity, environmental resilience and sustainable mobility. Embracing the changing needs for living, working, and social infrastructure, we outline an approach that promotes well-connected, mixed-use, walkable environments that strengthen social cohesion and local economic activity.

Objectives:

- Enhance accessibility to open spaces and green areas that upgrade living quality for residents as well as raising the value of the neighborhood.
- Design inclusive neighborhoods that cater for diverse communities and their needs.
- Promote connectivity, accessibility, safety and shared mobility.
- Highlight the benefits of transforming neglected neighborhoods into vibrant mixed- use urban environments.
- Working closely with governmental and private bodies on financial, social, and planning regeneration mechanisms.
- Encourage climate-adaptive and resilient urban strategies that can respond to the future challenges and absorb unknown shocks and stresses.
- Integrate data-driven planning tools
- Utilise existing assets and bring to life neglected areas and buildings

At building scale, successful housing strategies combine flexible layouts, shared spaces, human-oriented landscape, passive climate design, and fast, efficient construction to provide high-quality, affordable housing tailored to the diverse needs of a wide-range population. Public and semi-public areas at street and elevated levels are designed to encourage interaction and community use, while features like natural ventilation, green infrastructure, and reduced car dependency contribute to better environmental performance and to strengthening the community ties.

Objectives:

- Create quality human-oriented housing, both high-rise and mid-rise.
- Develop flexible and adaptable layouts to accommodate changing family structures and lifestyles.
- Design Housing buildings that fortify community ties and promote togetherness, including features such as shared amenities and open communal spaces, among others.
- Create quality living and mixed-use environments that enhance well-being.
- Inject innovation and design excellence into the housing typology to improve its standards.
- Promote environmentally friendly design and resource-efficient strategies that enhances sustainability
- Incorporate passive design principles for natural light, ventilation, and thermal comfort in accordance to the local climatic conditions.
- Promote construction efficiency through smart construction and innovative building materials, that embrace sustainable practices.
- Use landscape and green infrastructure to enhance harmony between architecture and nature, improving biodiversity and micro-climate, while improving the living standards of the residents and local community.

2. Overview of relevant studies

For a long time, urban housing has been a key area of attention and great effort for architects, focusing not only on the design aspect, but in conjunction with external elements such as addressing rapid growth, affordability constraints, and social fragmentation. Traditional typologies, such as the “tower-on-a-base” model that is dominant on a global scale usually prioritise economic and technical feasibility over community building and social engagement, resulting in structural repetition, low standard building methods and aesthetic dullness, in addition to neglected or completely absent public and open spaces. These factors result in generating nondescript housing and generic urban dwelling environments that are uninspiring, detached for their surroundings and fail to meet community’s needs.

There are alternative housing models that manage to resolve existing challenges, reflect the current needs and expectations of residents and provide solutions that are efficient, exciting and effective. Spanning from courtyards, expanding balconies and low-rise terraces to accessible mixed-use neighborhoods welcoming open spaces and green areas, to shared mobility and enhanced connectivity, this paper demonstrates that there is room to build quality housing and neighborhoods and that affordability, community and well-being do not need to be compromised.

This paper contains contemporary case studies from across Israel, of different socio-economic backgrounds, typologies and scapes to investigate such options, demonstrating how design interventions, mixed-use strategies, and activated public spaces can foster socially inclusive, resilient, and high-quality urban dwelling.

2.1. Around the world

Nightingale Housing in Australia is not just a building, but a movement. Groups of residents and architects came together to build collectively and with a transparent approach: no marketing, no excessive profit, no tricks. Here, the central idea is quality of life. The design includes lobbies with seating areas, gardens, community kitchens. Meeting your neighbor is not only allowed, but encouraged.

Figure 1. *An exterior view of Nightingale.*
Source: https://www.nightingalehousing.org/project/nightingale-1.

In Montreal, Habitat 67 by Moshe Safdie, now an iconic piece of housing architecture, was initially an experiment investigating how towers could become 'homes'. Each unit is a cube with a balcony, roof, and privacy, yet the composition of these elements creates community. Representing a ''super-housing" initiative, we witness the repetitive pattern turning into a form of art that itself creates an iconic landmark, now boasting international recognition.

Figure 2. *An exterior view of Habitat '67 by Moshe Safdie.*
Source: Courtesy of Richard McGuire.

In the Barbican Estate in the City of London (by architects P.Chamberlin, G.Powell and C.Bon), we witness an iconic residential and cultural complex that has been profoundly successful for decades, becoming synonymous with community, culture and quality urban living. The complex includes various housing typologies, such as three towers, thirteen blocks, two terraces of small two-story houses and a series of maisonettes.[3] Among the buildings, there are gardens, lakes and ponds, generous communal and open spaces, retail spaces, recreational and cultural facilities including a conference hall, theatre and cinemas, that create a unique atmosphere of togetherness and community. The Barbican has a profoundly strong residential identity that has been so successful over the decades that have even been featured in a single publication under the title 'Barbican Residents', highlighting this remarkable essence of belonging, where the building's identity becomes part of both individual and collective identity.

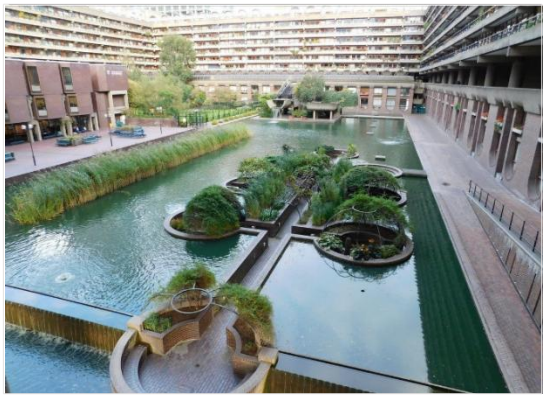

Figure 3. *The Barbican Estate - Central ponds view with residential complex at the back and communal and cultural amenities seen at the sides creating a holistic and human-oriented environment.*
Source: Stephencdickson (2024).

Beyond the residential use, the Estate has been continuously successful to attract a great number of visitors, due to its vibrant cultural, artistic and public life, becoming a destination in its own right for Londoners and foreigners.

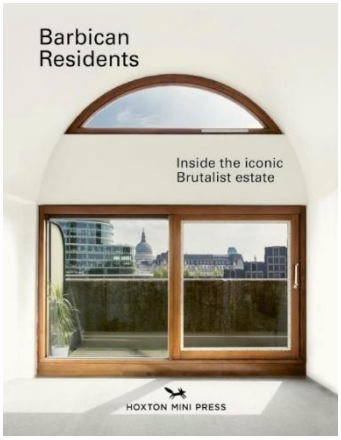

Figure 4. *Barbican residents publication by Hoxton Mini Press.*
Source: https://www.hoxtonminipress.com/products/barbican-residents.

At the 8HOUSE, Copenhagen, a project by BIG that has successfully integrated different types of housing and mixed-uses manages to create a strong and successful community. The 61,000 sqm mixed-use building incorporates three different types of residential housing and 10,000 sqm of retail and offices

comprises Denmark's largest private development ever undertaken. Sitting on the outer edge of the city as the ssouthernmost outpost of Orestad. Instead of using the traditional block typology, the 8 House stacks all ingredients of a lively urban neighborhood into horizontal layers of typologies connected by a continuous promenade and cycling path up to the 10th floor. This approach establishes a three-dimensional urban neighborhood where suburban life merges with the energy of a city, where business and housing co-exist.[3]

Figure 5. *8HOUSE external view.*
Source: Jens Lindhe.

Another example is the Phoenix Heights by Brady Mallalieu Architects in London's Isle of Dogs in the Canary Wharf area. This is an integrated large mixed-tenure residential development, that includes 199 homes varying in height, ranging from 3-23 storeys. Situated in a high-density urban area, it was designed as a family friendly and community-oriented development that provides family-sized units located at the base with gardens and play areas, while smaller units are located higher up with balconies and communal amenities.

Figure 6. *The Capitol Hill Urban Cohousing.*
Source: William Wright Photography.

[3] Kelly Minner, "8 House/BIG," *ArchDaily*, October 20, 2010, https://www.archdaily.com/83307/8-house-big

Across the pond, the Capitol Hill Urban Co-housing project in Seattle, USA, by Schemata.Workshop presents a 5-storey mixed-use infill building in Seattle's dense Capitol Hill neighborhood, designed as a co-housing community for nine households. True to the spirit of co-inhabitation and creating a strong community, the project features a shared community kitchen and dining room, a rooftop urban farm, and commercial space at ground level, depicting intentional community design within a dense urban setting. Although smaller in scale compared to the other mega-developments discussed in this paper, it is a strong example of housing that emphasizes high-density solutions with a community-focused scheme.

Figure 7. *The rooftop garden at Capitol Hill Urban Cohousing.*
Source: William Wright Photography.

2.2. Baugruppen Berlin – a unique approach with residents at the centre of the design process

In the 2000s, Berlin saw the formation of so-called Baugruppen (construction groups) – associations of small- scale investors who pooled their modest capital to commission an architect and construct a multistorey building in which they would own and occupy a flat. They were mostly middle-class families united by a belief in community values and neighbourly contact as well as the qualities of urban living.[4]

The "Baugruppen", translated into English as the building-group model, is an approach to housing that is architect-led, collectively funded, and community-oriented. It involves the creation of resident-driven, multi- family buildings, found typically in the form of condominiums or cooperatives that are located within dense urban environments, most widely implemented in Berlin, among other locations in Germany. The Baugruppen housing present a very strong shared design approach, with shared amenities, higher densities than typical single-family building schemes and with an emphasis on affordability, collaboration, sustainability and community-oriented urban living solutions. The beauty of these Baugruppen Co-housing projects, lies in the concept that the future owners are involved in the process from the very beginning with the ability

[4] Florian Urban, "Berlin's Construction Groups and the Politics of Bottom- Up Architecture," Urban History 45, no. 4 (November 2018): 683–711, https://doi.org/10.1017/S0963926817000694.

to also influence the concept and the design, presenting how people can act as developers of their own homes.

In almost every German city, Baugruppen have become a self-evident and accepted part of housing sector output in the last decades. In Berlin in particular, Baugruppen have been responsible for a minor revolution in the development and construction market. The by now more than 150 Baugruppen projects in Berlin appear to be not only a means to ward off the building crisis, but also contribute in architectural and social terms to the diversity and attractiveness of the city. Using the situation in Berlin as an example, insight is given into the spatial aspects that have contributed to the success of the Baugruppen phenomenon… The Baugenossenschaft - the essence of building as a group is that the occupants take the initiative for a building plan themselves and make almost all their own decisions about the layout of the houses, the façade, possible extra space and so on. This self-purpose and power of self-determination is not something that was developed in the last decade, but enjoys a long tradition in Germany.[5]

These Baugruppen projects are much more than just physical buildings, they are a leading example on how people organize, live, and interact, and an interesting case study of how to provide not only affordable, quality housing solutions but also how to create societies within the urban setting. In Berlin alone, approximately 80 of these cooperatives own around 184,628 apartments[6], accounting for more than 10 percent of the city's total housing stock.[7]

It is interesting to look into more detail in some of these Baugruppen examples in order to understand more about their operating system and design principles: The R50 project in Berlin-Kreuzberg, by Heide & von Beckerath, ifau und Jesko Fezer is a joint building venture project that was initiated by the architects in collaboration with the future residents, as they formed the building group and co-funded the development. The Baugruppe model allowed residents to participate substantially in the planning, design, construction and financing, consequently removing the typical developer profit margin and enabling more affordable housing. The project showcases a new model for this typology that provides high-quality housing that is socially dynamic, architecturally sophisticated and equitably priced than most conventional developer-led projects.

The detached building is surrounded by various housing concepts characteristic of Berlin's post-war period. It has six full storeys, a basement and an attic. It comprises three blocks with 19 individual apartments, one studio and various shared spaces. Underneath is a double-height, flexible community space which connects the building's main access with the public street space. It is made available for neighbourhood groups and other public uses. The reinforced concrete structure was designed to minimum requirements. Combined with the reduced and partly exposed infrastructure, the modular timber facade with fixed and flexible, outward opening glazed door

[5] Annet Ritsema and Vincent Kompier, "Baugruppen as Catalysts for New Urban Housing Quality," DASH | Delft Architectural Studies on Housing 5, no. 08 (2013): P.31, https://journals.open.tudelft.nl/dash/article/view/4865.
[6] Rosa Luxemburg Stiftung, *Who Owns the City? The Role—and History—of the Cooperatives in Berlin* (Berlin: Rosa Luxemburg Stiftung, 2021), 33
[7] Manuel Lutz, "Lived Solidarity: Housing Co-operatives," Assemble Papers, November 20, 2019, 2.

elements was specifically developed for this building. This combined with the all-around balconies on each level allows a direct dialogue between the building's architecture and its use.[8]

Moreover, R50 features a spacious urban garden that integrates harmoniously with its surrounding neighborhood setting. Additional amenities are located at the basement level that include a laundry, workshop space, and a roof terrace creating a communal and ergonomic living environment. On the building's external envelope, wrap-around balconies complement the bright interior spaces while linking the apartments on each floor, enhancing connectivity and communal spaces.

Figure 8. *R50 External view.*
Source: Andrew Alberts.

Figure 9. *D2 External view.*
Source: Thomas Straub.

An additional project in the same philosophy, the Baugruppe Donaustraße 2 (D2) in Berlin's Neukölln district, was developed by 15 families by the architecture studio IFUB* to provide flexible housing units, communal amenities, and strong integration into Berlin's urban context. The D2 site, previously a workshop and garage rental, was acquired by a group of young families who faced the challenge of designing a complex, long, narrow plot with limited street-front buildable area and a large courtyard, while maximizing its use due to high land prices and Berlin's tight housing market. The result is a housing complex that incorporates a wide range of apartments, ranging from compact 1.5-room apartments to 6-room maisonettes, catering to the diverse needs of the new residents. Creating quality open spaces is key to the building's character, with the ground-floor apartments having their own small gardens instead of balconies.

The materiality of the complex creates a distinctive and playful identity for the building that includes timber, titanium-zinc metal sheets and locally sourced glazed bricks with vibrant graphics and colors. The complex has a courtyard, shared garden areas, and flexible communal spaces, as well as roof terraces, with all these elements designed to enhance the communal feel, that include shared activities and social interaction, encouraging residents to enjoy a collective outdoor living

[8] ifau; Heide & von Beckerath; Jesko Fezer et al., "R50 – Cohousing," EU Mies Awards, https://eumiesawards.com/heritageobject/r50--cohousing/

lifestyle. On the ground floor of the front building two commercial units activate the street-front, embedding the project within the neighborhood.[9]

2.3. Retrospective of Israeli housing efforts

The history of housing in Israel includes numerous moments of searching for a quality model. Among several examples, we highlight the workers' housing of the 1930s, which offered a shared inner courtyard; the Gilo neighborhood in Jerusalem from the late 1960s, which adapted to the topography and created a series of buildings; Zvi Hecker's tower in Ramat Gan, which explored alternative morphologies to the classic tower typology; and the Ben-Gurion dormitories, which attempted to articulate a shared experience through the "courtyard typology." Although the examples were isolated and did not create a movement that was widely adopted in Israel, along with many others they share a central idea: a pursuit of collective clarity and an effort to create unique and customized housing, demonstrating that Israel too can be a hotbed for innovative, creative typological thinking.

2.4. The reign of the Tower-Base in Israel

The “Tower on a Base” typology has become dominant in nearly every residential and urban renewal project in Israe, whether in demolition-and-reconstruction schemes, TAMA 38, or new real estate initiatives. It usually consists of some kind of base: an entrance lobby surrounded by lifeless landscaping and parking, or alternatively, an “urban base” that includes commercial floors, parking, and a public lobby. Above it rises a monolithic residential tower of 10-40 stories.

Most of these Tower-Base typologies derive their character from the interior planning of the apartments and the landscape, which aims to connect private and public spaces between buildings, open spaces and the neighborhood. However, in reality they fail to create space for community life and good urbanism, often leaving the landscape between house and neighborhood as an undefined open area – with ornamental greenery, an unimaginative minimalist "square" area or, at worst, bare parking lots.

The “tower-on-a-base” typology is not inherently problematic. In certain cases, it can provide a suitable solution for conditions of high urban density or specific economic requirements. Nevertheless, its indiscriminate use, without criteria that take into account context, climate, social or cultural data, leads to "spatial arrogance", a boring and repetitive building model that imposes its presence on the environment and alienates communities and urban life.

[9] Institut für unerwartete, unkonventionelle, unverbesserliche, umfassende, unglaubliche, ... Baukunst (IFUB)*, *“Baugruppe D2: Newbuild of a residential and commercial ensemble for a housing cooperative,”* https://www.ifub.de/baugrupped2.

2.5. Rethink density and housing

It is time to question the very assumption that towers are the only typology capable of achieving density. Examples from around the world, for instance in one of the densest cities, such as Paris that is among the 70 densest cities in the world, with more than 20,000 residents per square kilometer[10], present an alternative scenario, where high density can be accomplished through a variety of typologies, and not solely with the development of big towers. As a result, urban dwelling maintains a high-quality standard, showcasing an exciting and rich urban appeal that is rooted in spatial diversity, design clarity and human- oriented approach.

We must also confront the fundamental question of life in towers: is living far from the ground, the trees, nature, and the sounds of the street truly suitable for everyone, everywhere? Is not this distance from the ground also a distance from belonging, encounter, and connection? Perhaps by holding onto the "tower-on-a-base" typology we are limited to environments dominated by concrete and asphalt – rigid, inflexible, and with limited livability. The lack of community infrastructure, combined with dependence on costly maintenance, makes community living difficult and often creates environments that do not meet the potential or needs of residents.

Figure 10. *Savonnerie Heymans: a former soap factory in Brussels, Belgium turned into a sustainable housing project.*
Source: www.mdw-architecture.com.

3. Results

3.1. Overview

Drawing on examples from Israel's experiments with housing since the country's founding and discussing current examples and case studies from the practice of HQ Architects (HQA) across different contextual frameworks, but with a key focus on housing, both as typology and as part of the broader urban environment, this paper aims to highlight the shared principles and frameworks,

[10] "Population Density, Île-de-France (Paris Region), by Department, France," *Statista*, accessed 14 September 2025, https://www.statista.com/statistics/1047176/population-density-ile-de-france-paris-region-by-department-france/

which demonstrate proven results and experiences, as well as a to present the thorough planning and participatory processes required to create these projects.

The following case studies illustrate housing examples at both building and urban scales, highlighting shared values such as:

1. Human scale
2. Flexibility
3. Urban Integration
4. Community
5. Diversity
6. Connectivity and accessibility

3.2. Contemporary examples from Israel

To better understand the context of the current Israeli housing scene, before presenting the HQA case studies, it is important to briefly showcase some current examples from Israel that show the effort underway and the momentum that exists in the country. Whether as a deliberate design choice or out of economic necessity, there are housing examples that seek to create a human dimension even within the familiar typology. For example, in Gaby Schwartz's urban renewal plan in Ramat Hasharon, a neighborhood was designed above a massive colonnade floor resembling a stage. This space became an open public realm that connects the towers while lifting them off the ground, not to distance them from it, but rather to return it to the citizens. The ground-floor safe rooms (Mamad) have multiple functions, serving as classrooms, bicycle storage, and music rooms, shaping a supportive community fabric.

In *Ganei Shapira Affordable Housing scheme (2014)*, designed by Orit Muhlbauer Eyal Architects for the Tel Aviv Municipality, the buildings integrate into the existing urban fabric, responding to the city's pathways around them. Encompassing 69 apartments available to rent under the Affordable Housing scheme, there was special emphasis given to the open communal spaces and to the neighborhood's green spaces. The spaces between the structures become small, intimate, and tangible communal areas, fostering a sense of community and social integration. The design offers a modern perspective of the "Shikun" residential housing projects that were built during the years of the massive immigration to Israel (1950-1960) to provide dwellings for refugees and immigrants. However, unlike the old housing complexes of minimum standards requirements, the Shapira housing project benefits from high building standards, presenting a great case study of community-oriented quality modern housing.[11]

[11] Erez Ella, *Gilyon – Journal of Urban Design and Culture* (גליון – כתב עת לתכנון עירוני ותרבות), article: to resist the rule of the tower, published September 2025. pp.81-88

Figure 11. *Ganei Shapira Housing by Orit Muhlbauer Eyal Architects.*
Source: Shai Epstein.

3.3. Case studies

3.3.1. Fein 1 Central – sustainability meets community

'It was a den of drugs and prostitution. Now it's the cutest building in Tel Aviv: The house on 1 Fein Street was for many years considered a symbol of neglect in South Tel Aviv. After being demolished and rebuilt, it became home to colorful residents and a busting community life'.[12]

Figure 12. *Fein 1 Central Apartment Complex by HQ Architects.*
Source: Dor Kedmi

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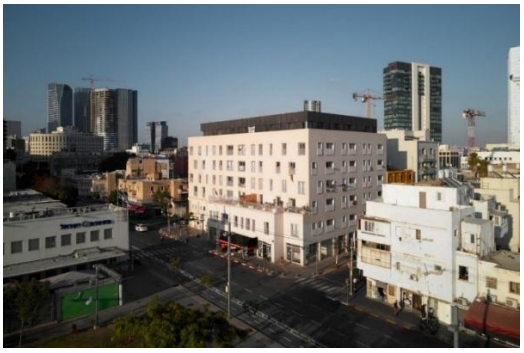

Figure 13. *Fein 1 Central by HQA. External facade view featuring a symmetrical and clean lines on the outside of the building.*
Source: Dor Kedmi.

In Tel Aviv, the Fein 1 Central, a new apartment complex that contributes to the area's regeneration by providing adequate living space for Tel Aviv's degraded yet fastest changing area. The building is situated within the municipality's master plan for southern Tel Aviv, and responds to the neighborhood's social, cultural, and economic growth and transformation. Part of this growth will be the addition of the new premises of the renowned Bat Sheva Dance Company right across the street, and the new light rail station next to apartment building. The building was designed with young families and professionals in mind, aiming to provide them with adequate and affordable

[12] Hilo Glazer, "It was a den of drugs and prostitution. Now it is the cutest building in Tel Aviv," *Haaretz Weekend*, July 3, 2025, online article. Available at: https://www.haaretz.co.il/magazine/2025-07-03/ty-article-magazine/.highlight/00000197-cc86-da1d-a5ff-ec86c1380000

spaces to support them, while promoting the creation of a strong and vibrant community through shared spaces suitable for gatherings, and incorporating sustainable design strategies such as cross-ventilation, shading, and pedestrian-friendly planning. Following the brief's requirements to provide small apartments with cross ventilation, the design moved away from the characteristic Tel Aviv building typology by inverting the typical box building inside – out, and resolving both issues at once.

The building's facade is minimal and symmetrical in an off-white color- typical of local Tel Aviv architecture. Playful color contrast between inside and outside is used to emphasize public and private spaces; a strong red color is used in the courtyard offering a more private and airy shelter from the hot and busy street. The organic shaped balconies offer a fluid form which also contrasts the strictly symmetrical exterior facade, creating a clear distinction between street and shelter.

Fein 1 Central contains medium to small apartments, incorporating 53 apartments comprising 49 two-bedroom apartments, 3 three-bedroom apartments and a 1 four-bedroom apartment. The scale of the apartments allows young families and young professionals – a major affordable housing local demographic, to remain in the neighborhood. In addition to the residential use, the building includes 9 retail units while incorporating 350 m² of existing fragments from the old structure.

The 6,400 m² six-storey building offers high quality apartments arranged around a three-dimensional courtyard, where entrances pass through shared balconies. These balconies do not merely overlook but actively participate in what happens. The courtyard is not a symbolic garden but a readily available space for events, encounters, and the in-between moments of life.

The courtyard also contributes to a more sustainable living, as it promotes low energy consumption by offering shading in the summer and penetration of direct sunlight in the winter.

Figure 14. *Fein 1 Central by HQA. Balconies view taken from the ground-floor looking up.* Source: Dor Kedmi.

The apartment complex also features a private 5-level underground parking in an area that is very dense and lacks vehicle parking space. Also, it was important to create minimal car exposure, and for the neighborhood to remain pedestrian friendly.

The result of key design decisions are evident in the life of the building and its residents that has now become a vibrant community in itself.

In an interview with Haaretz, a resident of the building reflected on the sense of community, stating: "I had my eye on the building for four months before I managed to snag an apartment," he says. "The design blew my mind. Israelis are addicted to balconies, but here they went for something different: an exterior space that faces inward, creating a sort of communal courtyard. I figured there would be more interactions with neighbors, unlike a standard residential building where the stairwell is just a corridor to the elevator. And I hoped those interactions would be positive. But it turned out to be much more – a real community formed here".[13]

The project's impact on the surrounding area and regeneration of this Tel Aviv southern suburb is evident, as is the impact it has on its residents and the internal community that has emerged from this new structure. By providing much needed high-quality housing and activating derelict and dangerous urban spaces, it enhances urban fabric breathing new life to it. Combining both innovative architectural and sustainable design strategies together with building a strong community within, the building's impact is evident inside - out, creating a model for high quality affordable housing that its impact resonates beyond its footprint.

3.3.2. Kfar Yona residential complex - a new vision for urban living

The Kfar Yona Housing Complex is a project that seeks to address the limitations and challenges of typical suburban housing by introducing spatial diversity, promoting social interaction and community life, while presenting environmentally friendly design solutions aimed at creating a resilient and flexible living environment.

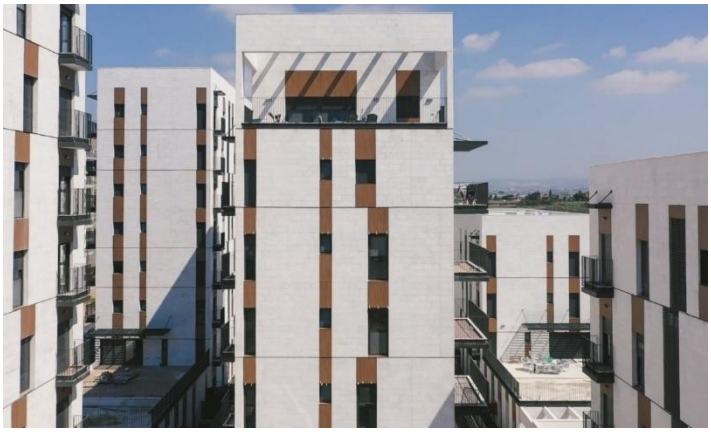

Figure 15. *kfar Yona Residential Complex by HQ Architects.*
Source: Lior Avitan.

The 15,500 m² housing project in East Kfar Yona re imagines a monotonous suburban grid, replacing uniformity with openness, variation, and a renewed sense of community. The site, once dominated by identical H-shaped buildings, offered an opportunity to rethink the spatial logic of everyday residential development. The new design, together with meticulous design of the materials and

[13] Hilo Glazer, "It was a den of drugs and prostitution. Now it is the cutest building in Tel Aviv," *Haaretz Weekend*, July 3, 2025, online article. Available at: https://www.haaretz.co.il/magazine/2025-07-03/ty-article-magazine/.highlight/00000197-cc86-da1d-a5ff- ec86c1380000

the facades of the buildings, created a project that provides quality and unique housing within a neighborhood of "standard" construction. In the compound, a mini-neighborhood was created in one lot, while it provides fertile ground for the development of a new and cohesive community.

The square masses of the conventional H structures are dismantled into six long and narrow structures. The buildings were shifted in plan in order to create further distance between the apartments and to open the view to the landscape. At the same time, by creating buildings of gradual heights, a flow of light and air was made possible and a connection was made to the surrounding urban fabric. The project consists of 6 buildings and 81 apartments. In each of the buildings, only two apartments were planned on each floor, so that all the apartments receive three full facades. Each floor has a 3-bedroom apartment and a 4-bedroom apartment. All the parking spaces in the project were located in an underground parking lot that connects all the buildings. The vehicle-free ground floor creates a safe, defined public space connecting the buildings into an organic compound.

The final outcome is not just a housing project, but rather a dwelling system that provides spatial balance with a distinctive character that is well connected and accessible allowing residents to live within a community that fosters community cohesion, comfort, and well-being and creates a new neighborhood with enhanced social, cultural and economic value.

Figure 16. *Kfar Yona Residential Complex by HQ Architects. Typical level plan.*
Source: HQ Architects.

The Kfar Yona Residential Complex won first prize under the Residential category at the Festival of Israeli Architecture 2019.

3.3.3. Or Sderot – a live-work neighbourhood promoting sustainability and community

The Or Sderot development addresses the lack of high-quality, mixed-use housing in Israel's fringe cities, where standard suburban models usually prioritize cars over community, therefore limiting social, recreational, and working spaces for this purpose. This new live-work complex situated in southern Israel, integrates diverse apartment types, communal amenities, and office units to encourage the creation of a connected, intergenerational community. With an emphasis on walkability, shared mobility, and accessible human-scale design as alternatives to the generic,

compact and car-oriented urban environments, Or Sderot presents a different model for an independent, sustainable, flexible, and socially engaging living environment. This gives this new neighborhood a distinctive identity and the ability to prioritise the community's quality well-being and live- work balance.

Figure 17. *Or Sderot Residential Development by HQ Architects.*
Source: HQA.

Located in southern Israel, the project introduces 200 residential units across eight buildings, two of which are designated for rental. The plan integrates 23,000 sqm of housing with 2,000 sqm of communal ground-floor amenities – including daycare, laundry services, cafés, and shared gathering spaces. A key feature of the development is its integration of workspaces: 1,000 sqm. of office units are sold alongside apartments, enabling residents to live and work within the same environment. A wide range of apartment sizes, from 60 to 140 sqm, supports a diverse and inter-generational community.

Reducing dependence on private vehicles, the project offers fewer parking spots than typical developments and includes a shared mobility service, electric bike charging, and generous outdoor areas. These strategies prioritize walkability and safety, while creating shared spaces for play, interaction, and neighborhood life. Or Sderot reflects a broader ambition: to create new forms of urban living rooted in proximity, flexibility, and community – offering an alternative to the growing density of Israel's centra urban core.

As a whole, Or Sderot presents a contemporary alternative model to typical housing typology and framework: a project that translates principles such as community, diversity, human scale and accessibility into a new-town in the periphery, creating a new urban hub beyond the already crowded central Israel, showing that better and quality housing is not a privilege of the renewal of Tel Aviv and other central cities, but can also emerge in the southern cities and communities of Israel.

3.3.4. Lea Goldberg residential and mixed-use scheme (urban scale)

The primary challenge of the Lea Goldberg Masterplan is to mitigate Lod's long-term urban neglect, with a focus on struggling with housing shortages, poor and outdated infrastructure, and spatial fragmentation, while initiating a sustainable model for urban regeneration focusing on enhancing connectivity, public space, and financial feasibility, while providing adequate housing, commercial spaces and functional public areas that will suit the needs of a diverse demographic.

Figure 18. *Lea Goldberg Masterplan by HQ Architects, provides generous and well-connected open areas, in parallel to retail and commercial spaces, providing a welcoming urban environment for both locals and visitors. On top of the retail and commercial spaces, the housing blocks – with some also providing social infrastructure (kindergartens), rise on top.*

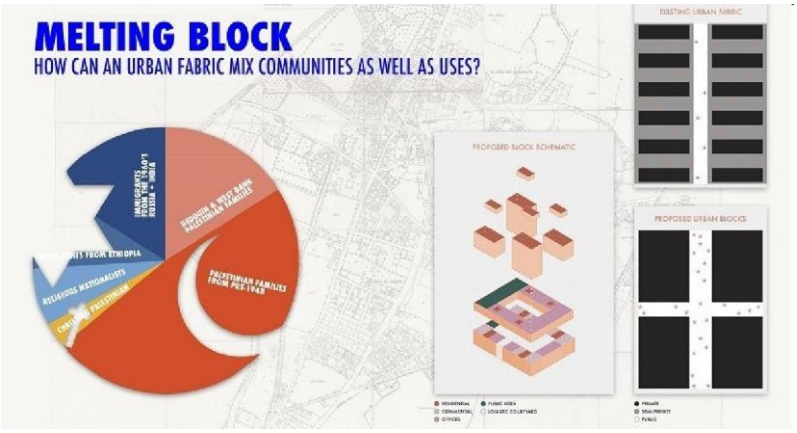

Figure 19. *Lea Goldberg Masterplan by HQ Architects. A diverse community in Lod, a historic city, that currently is neglected and fragmented. A new typology emerges that activates dead space and rearranges housing buildings to enhance connectivity, open up public spaces and create apartment buildings for a wide demographic.*

The scheme focuses on enhancing connectivity, infrastructure and providing quality public spaces together with providing additional housing and commercial areas to enable families to live and work in the area. It opens marginalized spaces and vibrant walkable areas, setting the foundations for Lod's future growth and transformation into a destination, while boosting its real estate value. This is key as the Israel Regeneration Urban Renewal Authority, in order to proceed with the

masterplan, relies on a sustainable financial model mechanism. To enable this mechanism, HQA worked together with Lod Municipality to create social and public interventions to raise the land value before the masterplan's implementation.

The scheme includes 4 plots with 104,598m² residential use (782 apartments), 7,130 m² commercial spaces, 8,000 m² office spaces, 2,250 m² public areas (mainly day care facilities) and 4,7000 m² parking spaces. Mixed use spaces are located on the 2 first floors with residential towers on top. This arrangement presents an urban volume with a continuous facade and an uninterrupted high street, providing a sense of urban coherence in the area.

A strong impact across all scales

The scheme deals with various aspects of transforming a neglected neighbourhood by working closely with governmental bodies on financial, social, and planning regeneration mechanisms. By utilizing neglected infrastructure, it creates open spaces of various scales, from public parks to smaller public walkways and simple courtyards that upgrade the value of the neighbourhood. By introducing a different block arrangement from the existing that eliminates dead communal space, we enable public spaces and streets to be functional again. In a way, the scheme restores the "traditional" Lod city planning, by providing either fully public or fully private spaces. That way, public spaces are easier to maintain, as they are managed in a more straightforward and efficient way. By activating disused communal spaces and creating accessible public areas, the neighbourhood becomes a hub of social life, and together with the commercial high-street it turns into a destination.

Civic engagement and & social participation

By closely collaborating with governmental bodies on financial and planning mechanisms, as well as engaging with local communities and groups from an early stage in a project is key to understanding their needs and shaping better and more effective outcomes. Project-related data demonstrate that collaboration and open dialogue with local municipalities, authorities and residents are essential for the implementation of large and complex projects.

Figure 20. *Lea Goldberg Masterplan by HQ Architects. Site plan with different building blocks and open and green areas. On the right, a render showing a ground floor with retail and commercial spaces and housing on top in an effort to create an exciting high-street essence and promote social interaction.*

Contextuality drives sustainability and community

By re-purposing the neglected existing rail infrastructure, transforming it into functional and inviting public space, and activating disused public spaces turning them into green and open public spaces, the scheme promotes both environmental and social sustainability, enhancing the neighbourhood's longevity and prosperity. The masterplan turns underused and neglected areas into vibrant, accessible and safe public spaces, integrating commercial high streets and social infrastructure, responding to the needs of the local community but also providing the basis to become an attractive destination for visitors to enjoy recreational and retail activities.

4. Conclusion and recommendations

4.1. Reconsider what housing stands for – look beyond walls and blocks; rethink housing as a cultural act

Housing needs to be understood as a multi-faceted scheme, one that encompasses values, social contracts, and provisions, and that surpasses the technical delivery of square meters and basic sheltering needs. We should move away from the typical tower block as a typology that often presents limited design imagination, and instead focus on creating more porous building types that promote interaction, community, connecting with nature and sustainable well-being, while providing an integrated environment that supports a higher standard of living. By rethinking housing typologies, we can reclaim housing in order to redefine social life and community building. Ultimately, housing can become what determines its core qualities; a cultural, social, and urban act that fosters togetherness and community, while providing quality living within the urban environment.

By enhancing the design and development process, we have the opportunity to change the mindset that frames the housing system as a source of uniformity, exclusion, and alienation. By approaching it with a more holistic approach that promotes community, diversity, and well-being, we can implement changes that are required across several layers simultaneously.

a. Regulations that promote quality, not only minimising risk

Many planning guidelines are written out of fear of exceptions. However, despite this concern, frameworks that promote boldness must be allowed. Many cities already apply this approach where deviation from the rules is allowed, provided that there is a clear conceptual logic outlined. Suggested strategies can include:

- Adopting flexible regulatory frameworks that allow exceptions to projects that demonstrate strong conceptual logic and clear urban benefits. These bespoke proposal exceptions to standard planning rules can promote design excellence, sustainability, strong social benefit and long-term resilience.
- Enabling design review boards to promote creative risk-taking and diversity while maintaining public safety and urban consistency.

b. Urban policy arranged around diversity and innovation, not standardization

Work towards urban policies that promote a balanced mix of building typologies, such as high-rise and low-rise developments and between private and communal spaces, aiming to respond to the needs of diverse populations. Public, open and green spaces need to be designed at a human scale, with walkable streets, social infrastructure and community spaces, play areas; all designed in harmony with the natural environment and adjacent urban setting. Creating safe and well-connected landscape spaces that feature pedestrian networks, connected green corridors, and welcoming recreational areas can improve life quality while integrating urban development with the natural environment. Focusing on scale, proportion, and connectivity, can make even the most dense urban environments, feel welcoming and accessible, as well as being environmentally friendly.

To regulate and strengthen these objectives, urban policies should include incentives such as but not limited to the following:

- Land use diversity and flexibility: Promoting mixed-use strategies, adaptive reuse, and diverse density within neighborhoods can lead to the creation of an exciting and dynamic, multi-functional an urban fabric.
- Density incentives: Encouraging developers to work closely with architects and planners and explore innovative typologies and building arrangements that respond to both community needs and spatial constraints and challenges.
- Mixed-use guidelines: Integrating residential, commercial, cultural, and social uses to create vibrant, resilient neighborhoods that combine living, working, and recreational functions.
- Design review models: Ensuring that diversity in form and typology does not compromise quality, safety, or environmental impact.
- Public-private partnerships: Following examples around the world where partnerships of this nature have created successful investments and developments that promote architectural diversity, quality housing solutions that are affordable and inclusive.

c. Rewarding architectural creativity

The current system rewards minimum creativity. A tiered compensation model with fair pay at all planning stages would allow architects to invest time and resources to explore, develop, and lead new and creative housing ideas.

Auxiliary strategies could include innovation grants, competition awards, and recognition programs that could further stimulate research and experimentation in housing design.

d. Economic incentives to promote quality

Currently, there is no planning incentive for developers to invest beyond the bare minimum. Planning quality indicators should be integrated into municipal and public tenders, as well as into tax incentive frameworks, thereby enabling developers to participate in the strive for design quality.

e. Developers as partners in sustainable, sommunity-oriented housing

Developers and private sector stakeholders should encourage responsible and quality-driven investments, which at the same time can be also a social asset. They can be patrons of design innovation, supporting progressive solutions in construction, such as modular building, innovative materials, and carbon-neutral strategies that promote both environmental and economic sustainability.

f. Bring back the architectural ambition of the housing typology

The 20th century saw a remarkable redefinition of housing ambition that was driven by rapid urbanization, industrialization, and social reform. Early Modernist architects addressed social inequities through rational, functional, and standardized housing typologies, emphasizing light, air, and communal amenities. Throughout the past century, the housing typology has been consistently under architectural investigation, remaining to this day a creative challenge. Innovation in the Housing typology can provide ideas and solutions to socio-economic and urban challenges alike. Both architects and developers can create innovative models that seek to provide spaces and redefine areas that enhance accessibility, showcase cultural sensitivity, as well as create opportunities to strengthen communities through spatial organization. The issue with housing is not flat; is multi-layered and deeply rooted to the Zeitgeist. Our time of essence is that of rapid change, innovation, and immigration; the era of information and unprecedented change. Therefore, now is the time for architects to bring back the ambition and accept the creative task to create new housing architecture that corresponds with the current needs, challenges and innovations, seeking the opportunity to create quality housing architecture.

Suggested areas to focus on can include:

- Rethinking housing as an active part of the city. Promote mixed-use environments that provide an integrated live - work environment. Reclaim the street level by activating ground levels and by introducing semi-public uses, with the aim to connect residents with their surroundings, leading to vibrant and well-connected mixed-use spaces.
- Extend the creative network by collaborating with other experts – social, data, environmental- to better understand community behavior and environmental performance. Data collection and process can be particularly insightful in the process.
- The promotion of sustainable living. By embedding nature in design through green roofs, vertical gardens, and courtyards we can improve well-being and create comfortable urban micro-climates. Our cities are changing into more dense urban environments; therefore we need to ensure that they remain human centered and connected to nature.

g. Public education and participatory dialogue

The public should engage with the language of architecture, understanding the benefits and value of certain architectural elements, such as shared courtyards, open lobbies, and hybrid buildings, as well as their overall impact on urban well-being.

Epilogue

Reimagining housing as a cultural act calls for more than new policies or typologies, it suggests a change of thinking, a different mindset and a combined, multi-layered approach. It requires cross-

disciplinary thinking and a collaborative spirit that brings together architects, planners, developers, policymakers, and local communities who together, can redefine what housing means in the era of information and rapid urban change.

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Cultural Dimensions and Entrepreneurial Innovation in Co-Working Spaces

Socio-Spatial Insights from Tirana

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MSc. Belma AJAZI
Advocacy Architects, United States of America

Assoc. Prof. Dr. Xhimi HYSA
ORCID 0000-0002-2279-6690
POLIS University, Albania, xhimi_hysa@universitetipolis.edu.al

Dr. Gennaro MAIONE
ORCID 0000-0002-9167-6369
San Raffaele University of Rome, Italy, gennaro.maione@uniroma5.it

Abstract

This paper investigates the socio-cultural factors influencing innovative entrepreneurial behavior within co-working spaces in Tirana, Albania – an emerging urban setting marked by a nascent but rapidly developing startup ecosystem. Grounded in Hofstede's 6-D Model of National Culture, the study explores how cultural dimensions such as power distance, individualism, and uncertainty avoidance shape entrepreneurial dynamics and innovation processes in shared work environments. Co-working spaces have increasingly become integral to urban transformation, acting as nodes of knowledge exchange, collaboration, and innovation. Despite substantial investments in education and early-stage tech ventures, Albania has yet to produce startups with international visibility and sustainable growth. This research analyzes survey data collected from four co-working spaces in Tirana (using purposive sampling) to assess how national cultural values manifest in these spatial environments and impact the scalability of entrepreneurial initiatives. Findings reveal specific cultural barriers embedded in the daily practices and social interactions of co-working communities, which may constrain or delay innovation. The paper concludes with strategic recommendations for enhancing the socio-spatial design and cultural adaptability of co-working ecosystems in developing urban contexts. By situating co-working spaces within broader urban and territorial frameworks, this study contributes to the discourse on how socio-cultural innovation can drive inclusive and resilient urban development in low-to-medium income countries.

Keywords

Hofstede's Cultural Dimensions, co-working spaces, entrepreneurial innovation, Albanian startup ecosystem, urban transformation, national culture and entrepreneurship

1. Introduction

Over the past decade, Albania has seen a notable surge in its tech startup scene. This growth stems from a collaborative effort between the government[1], and even foreign experts. Despite the infusion of capital and educational resources into these tech ventures, Albania has yet to produce significant startups that achieved international acclaim, especially in revenue growth relative to industry benchmarks. Albania has no critical mass of scalable startups (EU for Innovation, 2024). However, some studies analyze the impact of government support, including grants, subsidies, incubators, and financial assistance programs, or the maturity of the innovative ecosystem, one intriguing aspect that has yet to be explored: *entrepreneurial culture.*

To understand the impact of culture on the tech startup scene in Albania, it is essential to narrow down the research focus. This study will specifically examine whether culture influences the success of startups by looking at one of the critical components of the startup ecosystem: co-working spaces and the organizations that support them. There is a clear link between the more advanced stages of a startup's life cycle, like validation, growth, and scaling, and the role of co-working spaces (EU for Innovation, 2024). DESTIL and Coolab are prime examples of this connection. There is present research on the impact that accelerator and incubation programs have in tech startups in Albania. Startups that achieve success typically navigate through stages such as product-market fit, growth, and scaling, with most successful startups being identified in the development and scaling stages (Ries, 2011). This research will be focused on the observation of the influence of culture in the success of tech startups within the model of co-working spaces.

This thesis aims to observe the application of the 6-D Model of National Culture in the context of co-working spaces in Albania, and to examine how these applied cultural dimensions might influence innovative entrepreneurial behaviors.

This research will answer the following research questions:

1. How do Hofstede's cultural dimensions apply in the setting of co-working spaces in Albania?
2. How do Hofstede's cultural dimensions, as applied in these co-working spaces, influence innovative entrepreneurial behaviors?

2. Literature review

2.1. Co-working spaces and innovative entrepreneurial behavior

Co-working spaces (CWSs) are a modern version display of the sharing economy, characterized by their collaborative environments that foster innovation and creativity, often described by the phrase *"working alone together*". CWS acts as a critical urban practice, especially for freelance workers in cultural and creative industries, contributing to a collective approach to self-help and self-organization to address the challenges of informality and uncertainty in their labor markets (Merkel, 2018, pp. 526-547). These CWS differ from traditional offices because of their cultural

[1] Albania's 2016 Innovation and Startup Law offers tax breaks and grants (Kume & Dobi, 2017).

dimension, contributing to professional collaboration among independent workers through spatial design that encourages interaction (Bencosme, 2022).

Previous research work states that co-working spaces nurture innovative entrepreneurial behavior, by building an environment where collaboration encourages members to share knowledge, network and do creative work. This collaborative culture exposes entrepreneurs to new ideas and potential partnership opportunities, increasing in this way the presence of innovation. Some studies note that entrepreneurs that share the same space with one another have more opportunities for collaboration and innovation, which contributes to the overall growth and success of their entrepreneurial ventures (Bouncken et al., 2018; Weijs-Perrée et al., 2019).

Co-working spaces located in Albania are at the early stages of their lifecycle development. Their primary role is tied to building trust and providing community support within the entrepreneurial ecosystem, which is at the same time nascent. Usually, in more mature lifecycle stages, co-working spaces tend to downgrade to rental facilities, when the ecosystem is competitive. But, in Albania, the industry is still maturing, and the co-working spaces and start-ups are more engaged in a "first partnering relationship" where trust needs to be built both ways for innovation to grow.

2.2. Hofstede's model and innovative entrepreneurial behavior

The innovation process does not happen outside of the cultural context. Hofstede's six-dimensional model (2001) provides context on how national values shape innovative entrepreneurial behavior. Mueller and Thomas (2001) support the idea that individualism and low uncertainty avoidance are in favor of entrepreneurship. However, they also found that more than these traits alone are needed to fully explain entrepreneurial motivation across different cultures (Mueller & Thomas, 2001). To summarize, each of the six dimensions can be linked, in broad strokes, to innovative entrepreneurial behavior.

- Power Distance (PDI): High PDI organizations are dependent on hierarchy, which from a management perspective limits innovation. Low PDI organizations have more fluid roles and collaboration is present, encouraging new ideas. Albania has a high-Power Distance score (90)
- Individualism vs. Collectivism (IDV): Individualism in the workplace puts tasks over relationships, creating "economic persons" that prioritize their own needs. Collectivism puts relationship over tasks, bringing equality in the workspace. The latter fosters incremental innovation, the former radical one. Albania is a collectivistic society (27)
- Uncertainty Avoidance (UAI): Low uncertainty avoidance cultures can be faster at innovating and risk-taking. High uncertainty avoidance cultures tend to rely on formal roles and informal rules when doing business. Albania has a culture of avoiding uncertainty (70)
- Masculinity vs. Femininity (MAS): Masculine cultures are result oriented and rewarded based on performance. Feminine cultures are rewarded based on equality, according to need. Albania has a masculine culture (80), meaning people take pride in their accomplishments.
- Long-Term vs. Short-Term Orientation (LTO): Long-term orientation focuses on future rewards, contributing to a steady but slow innovation, while short-term orientation

focuses on the present, wielding to fast results. Albania has a long-term oriented culture (56).

- Indulgence vs. Restraint (IVR): This dimension influences organizational culture and management practices in the workplace. Indulgent societies encourage personal satisfaction that leads to higher innovation. Restrained societies encourage discipline, control and a conservative approach to work. Albanian culture leans toward Restraint (15).

Table 1 summarizes how each of Hofstede's dimensions is generally thought to shape innovative entrepreneurial behavior. The overall message, however, is that while culture matters, it does not act alone. Other forces, such as economic development, education systems, and institutional support, play equally significant roles (Mueller & Thomas, 2001).

Dimension	Low / High	Innovative Entrepreneurial Behavior
PDI	High	Low probability
IDV	High	Moderate probability (need to be combined with other factors like education system, economic development, and business type)
IVR	High	High probability (need to be combined with other factors like education system, economic development, and business type)
UAI	High	Low probability
LTO	High / Low	High probability (sustainable innovation) / High probability (quick results)
MAS	High	High probability of entrepreneurship, low probability of innovation

Table 1. *Cultural dimensions and entrepreneurial innovation.*

3. Methodology

3.1. Research design

This study examines how Hofstede's cultural dimensions apply to Albanian co-working spaces and how these cultural dimensions influence innovative entrepreneurial behaviors. It uses a mixed-methods approach, combining secondary research through literature review and primary data collection using conditioned sampling questionnaires. This research has used two models to help answer the research questions and observe how culture influences innovative entrepreneurial behavior.

The first model is Hofstede's six cultural dimensions. This model was chosen because it is validated in cross-cultural studies (Hofstede, 2001) and it has been relevant in previous entrepreneurship research (Mueller & Thomas, 2001). The second model used in this research is the Co-working space. These spaces have become an important part of Albania's start-up environment.

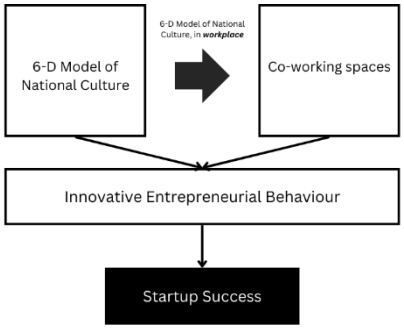

Figure 1. *Research design.*

3.2. Data sources & collection

3.2.1. Desktop research

Secondary data are derived from academic journals and institutional reports. They help in providing context on the Albanian start-up environment and the role of co-working spaces.

Primary data is collected through a questionnaire based on Hofstede's guidelines in Culture's Consequences. Specific cultural dimensions (2 to 6) items were selected for each cultural dimension, adjusted to reflect the experiences of actors such as: freelancers, entrepreneurs, and mobile workers. The questionnaire measures decision-making (PDI), individual versus collective goals (IDV), cooperation and recognition (MAS), tolerance for stress and rules (UAI), time orientation (LTO), and attitudes toward leisure and happiness (IVR).

Question no.	Dimension	Question Type
1 to 6	IDV	Scale from 1 (very important) to 5 (less important)
7 to 12	MAS	Scale from 1 (very important) to 5 (less important)
12 & 17	UAI	Scale from 1 (I never feel this way) to 5 (I always feel this way), and single choice question
14 & 18	IVR	Likert scale question and multiple choice question
15 to 16	PDI	Frequency scale question and single choice question
18 to 19	LTO	Multiple choice questions

Table 2. *Questions grouped by cultural dimensions.*

3.2.2. Data collection & sampling

Given the constraints of time, accessibility during the summer months, and the lack of comprehensive data on the total number of co-working spaces in Albania and their current renting

capacities, a convenience sampling method was employed for this study (Etikan et al., 2016). The questionnaire is designed based on the guidelines mentioned at the end of each chapter and is dedicated to a cultural dimension in Hoftede's second edition of "Culture's Consequences" book and it is built using an online collection tool called Google Forms. From July 8 to August 16, it was distributed t to four well-known co-working spaces in Tirana: DESTIL Co-working, Coolab, Social Hub, and Innospace (EU for Innovation, 2024). 22 freelancers, entrepreneurs, and digital nomads participated in this questionnaire.

3.2.3. Data analysis

Survey responses were analyzed using Hofstede's method for calculating cultural dimension scores. These results were then compared with Albania's national cultural profile and interpreted in relation to innovative entrepreneurial behavior.

3.2.4. Ethical considerations

Participation was voluntary, and all respondents gave informed consent after being briefed on the study's purpose and use of data. No personal information was collected beyond optional email addresses from participants who wished to receive results. The data received was managed following GDPR standards. Secondary sources were cited appropriately, ensuring respect for intellectual property.

4. Result analysis

Between July and August, we collected 22 responses. The result analysis will give an overview of the demographics, and then it will interpret question results across each cultural dimension. The findings for the six dimensions validated for the co-working space model are then compared with the corresponding national-level scores.

4.1. Demographics

The distribution of responses was relatively even across the four co-working spaces: three spaces contributed five responses each, and one contributed six. This balance indicates that no single space disproportionately shaped the findings.

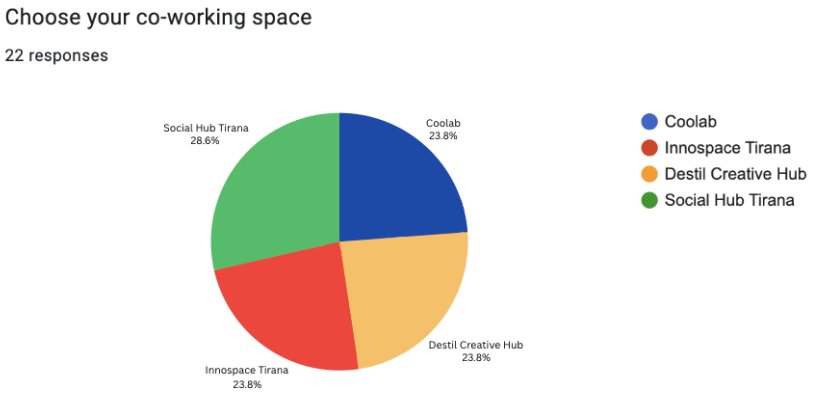

Figure 2. *Responses broken down by CWS.*

The age profile of respondents was heavily skewed toward younger users. 77% were between 18–34 years old, while 18% were between 35-54. No respondents were above 55.

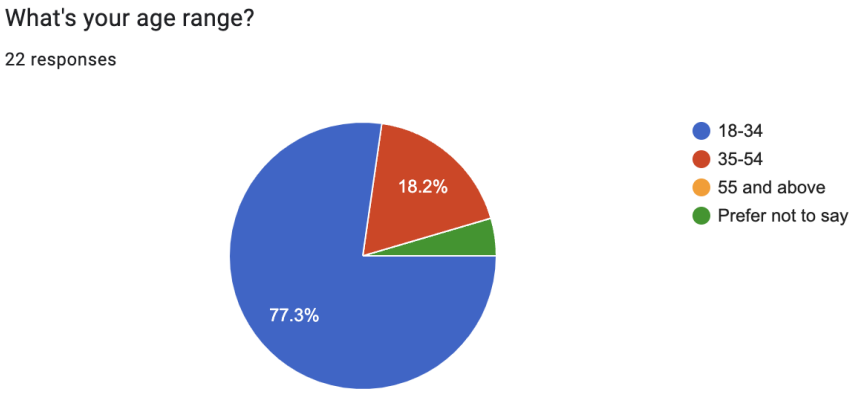

Figure 3. *Age.*

The gender distribution of the respondents is perfectly balanced; with 50% male and 50% female respondents. This shows that both male and female perspectives are equally represented in the data.

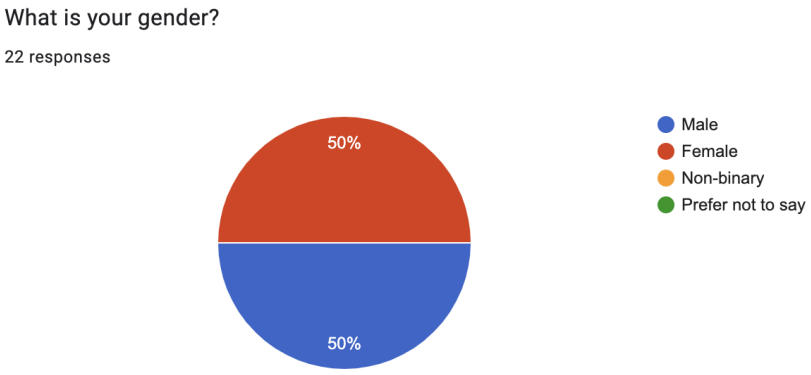

Figure 4. *Gender.*

Most of the respondents have been using the co-working space for a significant period. 86.4% of the respondents have been using the co-working space for more than three months.

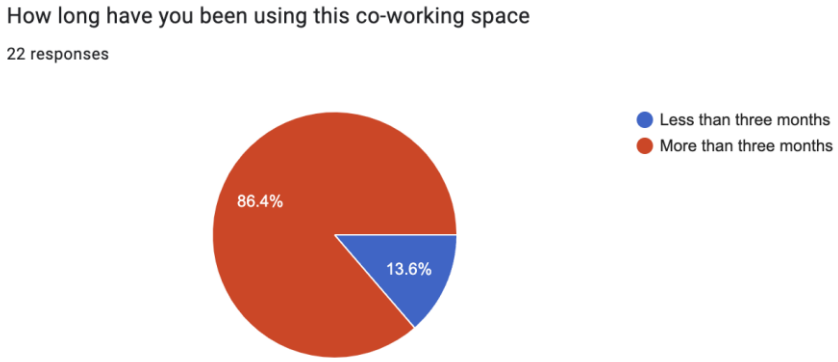

Figure 5. *Longevity of usage of CWS.*

4.2. National culture analysis

(PDI): CWS score: 70, National score: 90. This result rationalizes that CWS environments experience a less hierarchical structure compared to broad society norms. Members of these CWS feel comfortable in challenging authority, making the environment a microcosm of the social venue, where young entrepreneurs are leading a shift to flat decision-making structures.

(UAI): CWS score: 93, National score: 70. This significant difference suggests that members may prefer a working environment where rules, policies, and expectations are clearly defined so that they can avoid ambiguity and risk. Innovation needs to be supported by this baseline.

(IDV): CWS score: 53, National score: 27. The higher IDV score in co-working spaces indicates that individuals in these environments are more likely to value and seek autonomy, personal initiative, and self-expression. This suggests that co-working spaces support and encourage entrepreneurial activities, where individuals are free to pursue their own projects, ideas, and business ventures independently.

(MAS) and (IVR): Co-working spaces scored 41 on MAS and 36 on IVR, compared to national scores of 80 (MAS) and 15 (IVR). The environment of a co-working space is characterized by discipline, and a mentality of work over leisure, but it is more relaxed compared to other working environments on a national basis. Members tend to prioritize work-life balance, cooperation and negotiation.

(LTO): CWS score: 50, National score: 53. These are nearly identical. Co-working spaces foster an environment where users are encouraged to think beyond immediate gains and consider the long-term impact of their work and decisions.

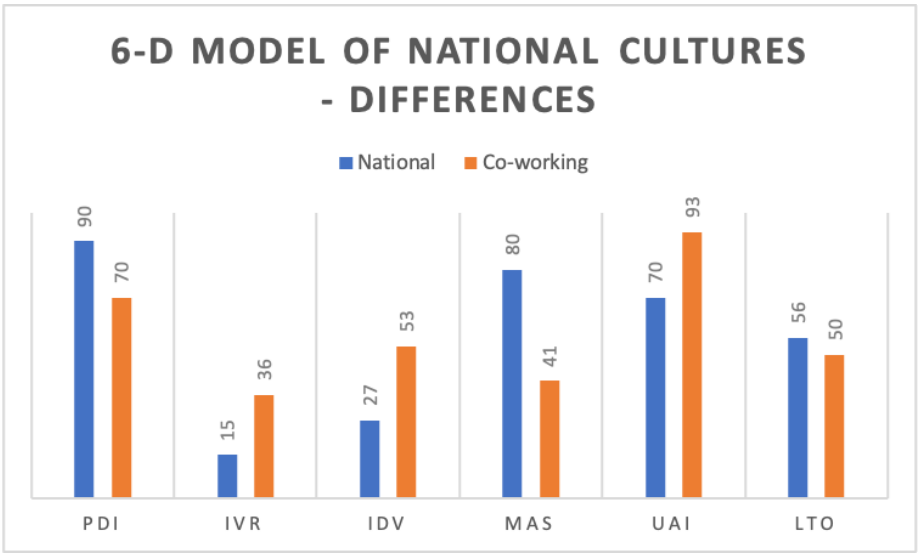

Figure 6. *National vs. CWS scores.*

5. Discussion on findings and conclusion

5.1. Answering the research questions

This study examined how the Hofstede's cultural dimensions within Albanian co-working spaces influence the innovative entrepreneurial behavior, comparing those with the national dimensions. The results suggest that co-working spaces in Albania both disrupt and reinforce national cultural norms, and this duality in effect shows us that these CWS do create conditions that support start-ups, but they mirror national barriers that hold back innovation.

The results show an interesting dynamic interplay between power distance and uncertainty avoidance. Co-working spaces contribute to lowering the PDI, reducing hierarchy and allowing the members to interact freely and exchange knowledge. The young members of these organizations tend to break the ties with old patterns of authority, benefiting from collaboration and peer learning. This cultural shift increases innovation.

However, it is counterbalanced by a higher level of UAI compared to the national scores. CSW members prefer security, predictability, and well-structured environments to build their initiatives. This usually discourages the risk-taking behavior that is needed for disruptive innovation. Members often will choose safer, incremental projects or initiatives compared to the high-risk ones that are necessary for scalable growth, potentially limiting their innovative behaviors. The combination of low PDI and high UAI creates a paradox: entrepreneurs might have great ideas and take them to the planning phase but are constrained in acting boldly on them. This dynamic interplay gives a decent explanation on why Albania has not yet developed a strong base of scalable growing start-ups, despite the ecosystem support.

Other cultural dimensions considered are supportive of this conclusion.

- Although the CWSs have shifted the national score on IDV index to a more individualistic approach, it is still within the balanced threshold.

- Although the CWS have shifted the national score on IVR index, the culture remains that of a restraint.
- Although the CWS have shifted the MAS index it has been towards a feminine culture; lacking the aggressive drive for short-term innovation.

5.2. Limitations

These findings have successfully answered the research questions, however there are some limitations that should be acknowledged.

The sample size for this research is relatively small, because it is based on a sample size of 22 respondents scattered across four co-working spaces, located in Tirana. Also, this research has used a convenience sampling, due to the practical limitations on the time the research was conducted, limiting the diversity of perspectives among other co-working spaces in Tirana.

5.3. Recommendations

Drawing from the findings and limitations of this study, several specific recommendations can be proposed to strengthen the ability of the co-working spaces included in this research paper to promote innovative entrepreneurial behavior. Furthermore, suggestions for future research are provided to address the limitations encountered in this study.

Addressing high UAI: To counterbalance the high level of uncertainty avoidance within the co-working spaces, this paper suggests implementing “Safe Zones” for innovation. Members should be encouraged to experiment boldly with their innovative ideas, and they might do so within a controlled environment. The “Safe Zones” can impose clear guidelines and expectations, reducing the high level of uncertainty avoidance through short-term low risk innovation grands; incremental innovative workshops to build muscle memory around risk-taking behaviors.

Addressing moderate to low MAS: To counterbalance the low MAS index, this research suggests partnerships with universities through recognition programs. This recognition program can help shift the focus towards individual achievements. For instance, awards could be given for "Most Innovative Idea of the Month" or "Best Collaborative Project," which would incentivize both individual and collective innovation while aligning with the low MAS preference for modesty and quality of life.

Future research should use a broader sample of co-working spaces and examine their interaction with universities, research institutions, and the private sector to give a fuller picture of the factors shaping entrepreneurial innovation in Albania.

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From Informal Sprawl to Gated Communities

Evaluating Spatial and Functional Integration in Southeastern Tirana

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MSc. Alba GORA
ORCID 0009-0009-3066-4311
Faculty of Planning, Environment and Urban Management, POLIS University, Albania,
alba_gora@universitetipolis.edu.al

Abstract

This study examines urban sprawl in southeastern Tirana, focusing on post-2007 developments along the Outer Ring Road and the Tirana-Elbasan highway, areas dominated by newly formalized, gated residential communities. The aim is to assess whether these interventions contribute to a more functional and integrated urban structure or represent a continuation of previous uncoordinated expansion. The central hypothesis argues that recent formal developments do not mark a shift toward cohesive urban transformation but instead reproduce spatial fragmentation and monofunctionality in a different form. Methodologically, the research integrates GIS-based spatial analysis with functional assessment, using structural indicators (Patch Density, Compactness Index, Built-up Area Ratio) and evaluating service accessibility through a 15-minute walking threshold. Findings show that these new developments remain disconnected from both the urban core and surrounding informal settlements, offer limited access to basic services, and lack functional diversity. While older informal areas show relatively better connectivity due to their proximity to central networks, they too lack integration and are not functionally sustainable. Overall, the study concludes that urban sprawl in southeastern Tirana has not been resolved but reshaped through formalization, reinforcing existing spatial inequalities and calling for a more coordinated and inclusive urban planning approach.

Keywords

Formal development, gated communities, informal settlements, service accessibility, spatial fragmentation, urban sprawl

1. Introduction

Urban development in Tirana has been shaped by complex and dynamic processes, influenced by historical, economic, and social factors. As Albania's main political and economic center, the city has expanded far beyond its original urban limits, driven by steady demographic and territorial growth (Aliaj et al., 2003). A central element in this transformation is urban sprawl, which has defined much of Tirana's spatial growth over the last three decades.

The post-communist period marked a turning point in territorial governance. The shift from centralized planning to rapid and often unregulated urbanization led to profound changes in land use, social relations, and environmental conditions (Dhamo et al., 2016). In the 1990s, sprawl was mainly shaped by low-income households, who relied on informal housing development as a response to the lack of affordable options near the city center (Dhamo, 2021). Over time, many of these communities adapted gradually, improving their economic and social conditions.

More recently, sprawl has taken a new form: formal gated communities in the city's periphery. These are usually developed by higher-income groups seeking private and isolated environments (Dhamo, 2021). While more regulated than informal settlements, they exhibit similar patterns of fragmentation and mono-functionality, resulting in sharp contrasts between different parts of the city.

In Tirana, urban growth is not only a physical expansion but also a reflection of structural challenges: internal migration, changing land ownership, weak planning regulations, and uneven infrastructure provision. These conditions have allowed both informal and formal developments to spread in a fragmented and uncoordinated way.

The southeastern part of Tirana, which is the focus of this research, illustrates this dual reality. It contains both long-standing informal neighborhoods and new gated communities. Despite their differences, both forms of development remain poorly integrated with each other and with the wider urban fabric. This has produced a city that is divided, spatially fragmented, and dependent on the central core, raising key challenges for sustainable urban planning.

1.1. Aim of the research

The study aims to assess whether recent formal developments in southeastern Tirana (2012–2024) represent a step toward functional and sustainable urban growth, or whether they continue the same fragmented logic of post-1990s sprawl.

Hypothesis

The new gated communities built along the Tirana Ring Road and the Tirana–Elbasan highway do not represent a true functional or integrated transformation. Instead, they replicate earlier patterns of urban sprawl, maintaining a fragmented and mono-functional spatial structure.

Objectives

- To identify the main forms and typologies of urban sprawl in southeastern Tirana between 1990 and 2024.

- To evaluate the spatial structure of new developments using indicators such as build-up density, land-use patterns, and urban form.
- To analyze accessibility and functional integration, particularly in relation to services and infrastructure.
- To assess whether recent formal developments contribute to a more connected and sustainable urban territory, or whether they reinforce fragmentation.

2. Literature review

Urban sprawl is widely discussed in the planning literature as a multidimensional phenomenon. Galster et al. (2001) highlight that sprawl cannot be reduced to low-density housing alone but also includes spatial fragmentation, scattered development, and the lack of functional integration. He et al. (2017) expand this by proposing composite indicators that measure sprawl through several dimensions such as density, continuity, and accessibility, showing that the form of sprawl depends on local economic and institutional conditions. In transition contexts, weak governance often makes these processes more visible (Lv et al., 2010).

A central theme in the literature is the relationship between infrastructure and unplanned growth. Sutton (2003) emphasizes how highways and major roads encourage linear sprawl, creating continuous stretches of development but without proper urban cohesion. Similarly, Kepe et al. (2015) demonstrate how insufficient land-use regulation often produces scattered, uncoordinated settlements. The OECD (2018) captures these patterns through three key features: low density, fragmented land use, and dependence on private vehicles. These dimensions are frequently linked with higher costs for public services, inefficient land consumption, and reduced accessibility.

Sprawl has important social and environmental consequences. Cho et al. (2010) show that dispersed urban forms reduce walkability and are associated with public health risks such as obesity and sedentary lifestyles. Burchell et al. (1998) and Carruthers & Úlfarsson (2003) underline that leapfrog development generates high infrastructure costs and intensifies social segregation. In many cases, sprawl reinforces inequalities, as wealthier households isolate themselves in suburban enclaves, while low-income groups remain in less serviced informal areas.

The literature distinguishes several spatial models of sprawl. Radial growth refers to the expansion outward from the city core; linear sprawl follows transportation corridors; and leapfrog development appears in isolated pockets separated from the urban fabric (Lopez & Hynes, 2003). Polycentric development, in contrast, is presented as a more sustainable alternative (Hall, 2009; OECD, 2012). Yet, it requires long-term planning and strong institutional coordination, which are often weak in post-socialist or fast-developing countries.

In the last two decades, special attention has been given to gated communities as a new form of sprawl. Scholars such as Low (2003) and Bagaeen & Uduku (2010) describe them as privatized and controlled residential spaces that reproduce social division in the urban periphery. While gated communities are usually associated with safety and exclusivity, they also reinforce spatial segregation, reduce accessibility, and limit the development of inclusive public spaces. In many cities of the Global South and Eastern Europe, they have emerged as symbols of economic

inequality and weak urban governance. Instead of integrating with existing neighborhoods, they often stand apart as isolated islands of formality within otherwise fragmented urban fabrics.

Classical theories of the monocentric city (Alonso, 1964; Brueckner, 1987) explain urban expansion as a balance between land prices and commuting costs. These models help to understand why households and developers choose peripheral locations. However, they are less able to capture the fragmented and uneven development patterns found in post-socialist cities, where institutional weaknesses, informal land markets, and speculative investment play a decisive role.

In the case of Tirana, these theoretical debates are directly relevant. The city remains largely monocentric, with strong dependence on its historical center, but its expansion has followed both informal and formal patterns. Informal settlements grew rapidly after the 1990s due to housing shortages and limited regulation, while more recently, gated communities have emerged along new infrastructure corridors.

2.1. Contextual background

The study area in southeastern Tirana illustrates overlapping phases of urban growth. Early informal settlements emerged after the 1990s in areas like Farka, Sauk, Mjull-Bathore, Lundër, and Petrelë, characterized by irregular housing, limited infrastructure, and weak connectivity to the city. Historically, during the communist era, this area was largely agricultural, with state farms and centrally managed land (Dhamo, 2021).

From 2012, the construction of the Tirana–Elbasan highway and Eastern Ring Road triggered a new development phase. Gated communities appeared along the corridor, with investor-built infrastructure and controlled access, representing a shift from informal to formal urbanization. These developments, while technically improved, often function as isolated enclaves, disconnected from the city's functional network.

Tirana itself remains a monocentric city, with a concentration of institutions, services, and public spaces in the center. Post-1990s, rapid peripheral expansion was driven by:

- Population growth and housing demand from internal migration.
- Lower land costs in the periphery, converting former agricultural land into residential areas.
- Preference for larger living spaces, leading to gated communities with private infrastructure.
- Weak planning frameworks, causing urban fragmentation and limited access to services.

These factors show that southeastern Tirana reflects both informal and formal development patterns, highlighting challenges for spatial cohesion and functional integration in a still-monocentric city.

3. Methodology

This study combines theoretical and empirical analysis to examine urban sprawl in the southeastern part of Tirana, with a focus on the corridor influenced by the Tirana–Elbasan highway. The study area was defined based on existing road infrastructure and the potential impact of this new axis.

The research is both exploratory and analytical: exploratory, because it looks at a relatively new and understudied area; and analytical, because it applies measurable indicators to assess spatial structure and urban function. The analysis focuses on the distinction between informal development that emerged after the 1990s and formal development that followed the highway construction, mainly during 2012-2024. For practical reasons, the study separates developments into two phases: before and after 2007.

The methodology is structured around two main dimensions:

1. Spatial and structural characteristics of the built environment.
2. Accessibility to public services.

By combining these two dimensions, the study evaluates the degree of multifunctionality and functional integration of the territory.

Three research tools were applied:

- Desk research, used to build the theoretical framework and interpret building typologies, including gated communities and contemporary development models.
- Buffer analysis, used to study radial and linear sprawl patterns, as well as service coverage in line with national standards.
- Analytical grid (500×500 m), used as the unit of analysis to balance spatial accuracy and comparability. Within the 7.76 km² study area, 49 active grid cells were identified and analyzed.

The diagram (Figure 1) presents the stages of the research methodology and the instruments used.

For the spatial structure, three indicators were calculated:

- Patch Density (PD) – number of building fragments per km², showing fragmentation.
- Compactness Index (CI) – relation between building shape and an ideal compact form.
- Built-up Area Ratio (BAR) – percentage of built-up surface within each grid cell.

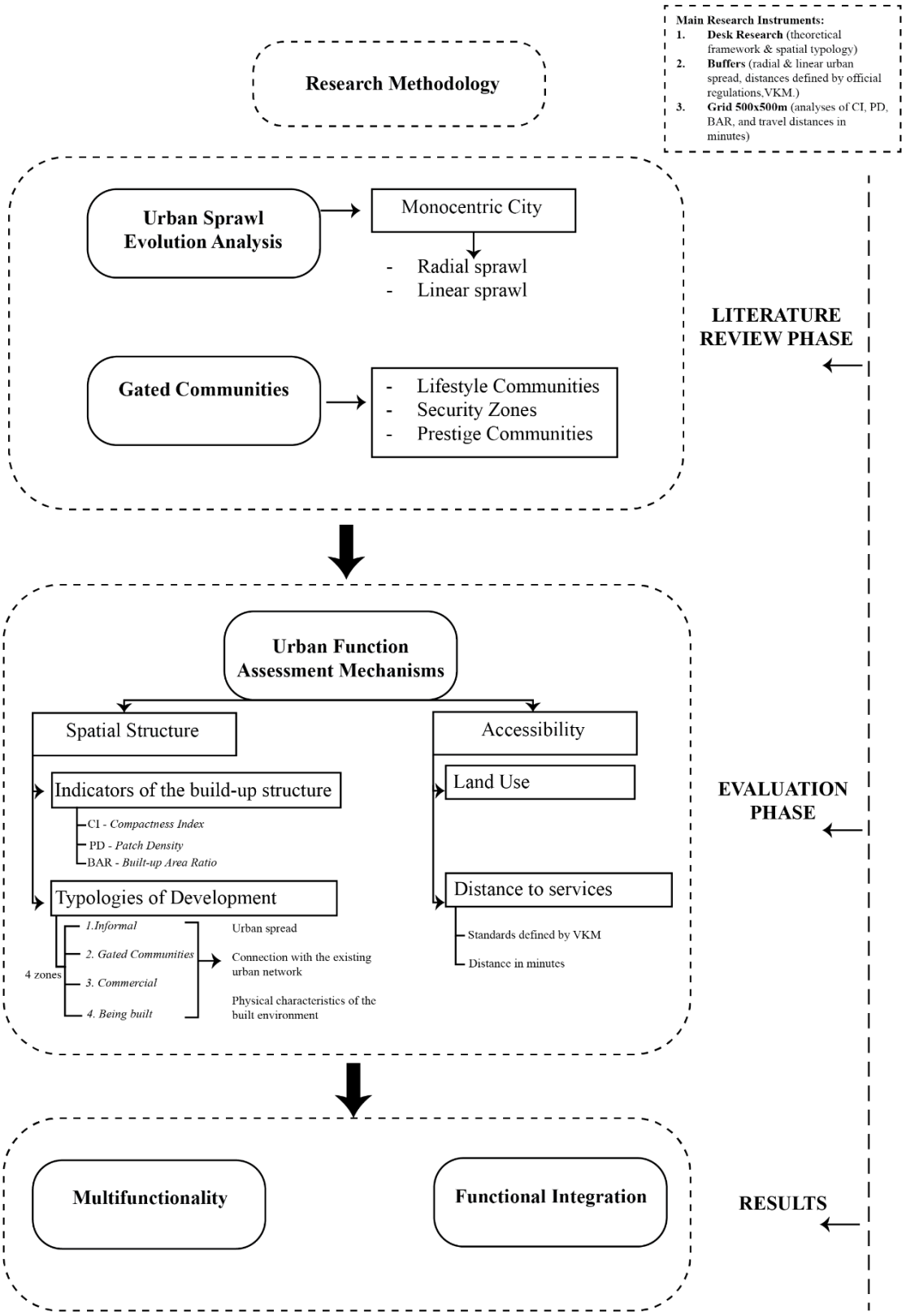


Figure 1. *Research methodology diagram.*

Indicator	Formula	Calculation method	Tool used
Patch Density (PD)	PD=N/A *N*: number of patches *A*: area in hectares	Number of building polygons in each grid cell divided by the total area	QGIS (manual)
Compactness Index (CI)	CI=4πA/P2 *A*: area *P*: perimeter	For each building polygon in a grid cell, the area and perimeter were measured, then CI was calculated	QGIS (manual)
Built-up Area Ratio (BAR)	BAR=Ab/At *Ab*: built-up area *At*: grid cell area	The total built-up area within each grid cell was divided by the cell area (500 × 500 m)	QGIS, Zonal Statistics

Table 1. *Urban structure indicators, measurement method, theoretical source, and tool used.*

Building typologies were classified into four categories: informal settlements, gated communities, commercial/economic areas, and emerging development zones.

For accessibility, two approaches were applied:

- Land use analysis, to identify functional diversity or dominance of single uses.
- Service accessibility analysis, using QGIS and the QNEAT3 plugin to calculate walking distances to education, health, economic, recreational, and commercial services. A 15-minute walking threshold (5 km/h speed) was used, with reference to official national service standards.

Finally, results from these analyses were synthesized to assess whether the area provides a compact, multifunctional, and integrated urban environment, or whether it remains fragmented, monofunctional, and weakly connected.

The table below presents a summary of all analyses, grouped by category, including the relevant indicators for each and their data sources.

Category	Indicator	*Description*	*Data source*
Spatial/Physical	Territorial fragmentation	Degree of landscape fragmentation caused by uncontrolled development	ASIG orthophotos 2007, PPV 2030, author's processing in QGIS
	Compactness	Compactness of urban development within the study area	Author's processing in QGIS
	Building typology	Villas, single-family houses, apartment blocks	PPV 2030, author's processing in QGIS
	Form of development	Linear, radial, Leapfrog development, compact	Copernicus.eu, author's processing in QGIS
Accessibility	Land use	Categories of land use in the study area	PPV 2030, Tirana; author's processing in GIS
	Distance to services	Measured according to coverage standards and walking time thresholds (15 minutes) Educational institutions Service radius: Kindergarten – 350 m; Primary school – 600 m; Secondary school – 1500 m Health center Service radius: – 1000m Public transport Service radius: – 800m Recreation Areas Commercial services	Municipality of Tirana, VKM No. 671, OpenStreetMap, author's processing in QGIS

Table 2. *Indicators for measuring urban function, description, and data source.*

4. Results and discussion

4.1. Spatial structure and sprawl patterns

The analysis of built-up areas shows a clear transition in the spatial logic of urban growth. Until 2006, Tirana expanded radially from the center outward, following the classic monocentric model. Densities were higher in the inner rings (1-3 km from Skanderbeg Square), while peripheral areas grew through scattered informal housing.

After 2012, development followed a more linear pattern along the new highway corridor. Housing projects clustered close to the road axis, indicating that infrastructure reshaped the spatial direction of expansion. This shift highlights how urban growth in Tirana has moved from radial concentricity to fragmented, corridor-based sprawl.

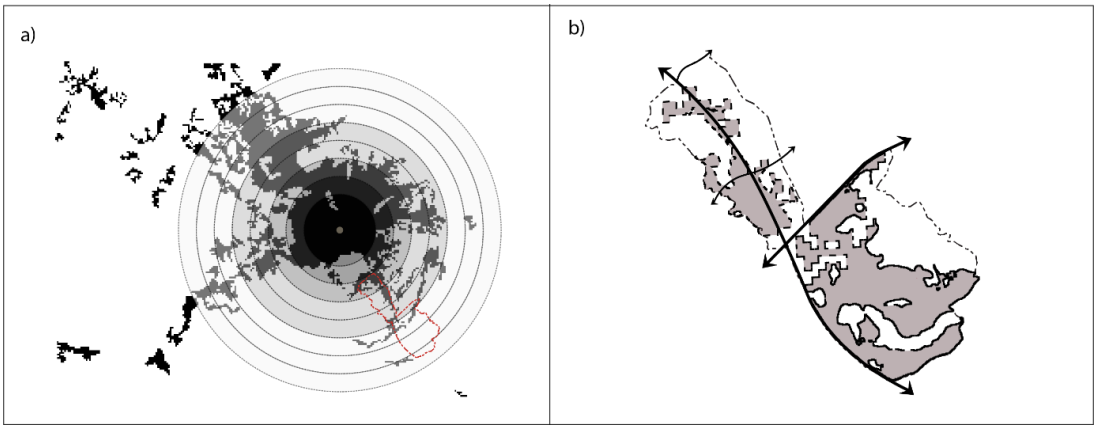


Figure 2. *Urban sprawl models for the area: (a) radial model, (b) linear model.*

4.2. Typologies of development

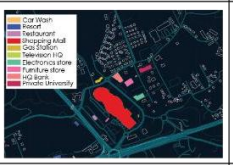
		CHANGE OVER THE YEARS		SPATIAL STRUCTURE	
Zone / Number		2025	2007	Typology	Description
INFORMAL	1.				• Individual dwelling • Irregular form • Unconsolidated roads • Lack of shared/open spaces
COMMUNITIES GATED	2.1				• Individual dwelling / Villa • Closed form • Paved / Consolidated roads • Common spaces
	2.2				• Mixed villas • + Apartments • Closed form • Common spaces • Paved / Consolidated roads
COMMERCIAL	3.				• Along the main road axis • Commercial services • Closer to formal development / gated communities
Built Being	4.				• Apartments • Direct connection to the road network • Closed form

Figure 3. *Building & spatial typologies by category: 1. informal, 2. gated, 3. commercial, 4. developing.*

Four main typologies can be identified in the study area:

Informal settlements: The first row of the figure shows an informal area, mostly developed after the 1990s, without organized street layouts or clear functional divisions. Buildings are low-rise (1-3 floors) and irregularly spaced, with limited road access and public spaces. This pattern reflects spontaneous urban sprawl driven by housing needs rather than formal planning.

Gated communities: Gated communities in Tirana exhibit consolidated street layouts, compact building forms, and shared spaces such as internal roads and landscaped courtyards. Zone 2.1 represents “prestige” communities with exclusive access, while Zone 2.2 is a “lifestyle community” combining villas and apartments, focusing on both security and quality of life. These developments create physical and symbolic barriers that fragment the urban fabric, isolating residents and limiting public accessibility. They act as “islands of autonomy,” with private management often disconnecting infrastructure from the wider city, reinforcing spatial and social segregation. Gated communities exacerbate social divisions by excluding marginalized groups through high costs and controlled access, creating a split between residents inside the walls, who enjoy security and

services, and those outside, who face insecurity and limited access. They often emerge in the absence of integrated urban planning, reflecting a dual city where privileged areas coexist with underserved zones, undermining equitable access to urban resources (Graham & Marvin, 2001).

Commercial and economic clusters: The third row of the figure highlights areas primarily for economic or commercial use, with medium-rise buildings including warehouses, offices, retail, restaurants, and private universities. The layout is more open, with larger plots and better road infrastructure compared to informal settlements. These areas are usually located along main roads, functioning more as transit zones than integrated urban spaces.

New Development Areas: The last row of the figure shows areas under development, with medium- to high-rise buildings at different stages of construction or planning, often near the Outer Ring Road, providing some physical accessibility. Buildings are fragmented, not fully respecting street alignment, and lack integration with the existing urban morphology. Public transport and supporting services are largely absent, limiting full functional integration.

4.3. Quantitative indicators

The analysis of built-up structure indicators over three periods (up to 2007, 2007–2024, and current) allows observation of both spatial evolution and the nature of urban development.

Up to 2007 (Figure 4), a relatively high Patch Density (PD up to 11) indicates dispersed small units typical of spontaneous development, while a high Compactness Index (CI 0.6–0.8) suggests intensive building within plots despite limited overall cohesion. Low Build-Up Area Ratio (BAR 0–0.16) reflects low overall construction intensity relative to the grid area.

From 2007 to 2024 (Figure 5), PD decreases (max 6), showing more clustered development in formal zones. CI remains similar or slightly lower (0.4–0.8), indicating that new constructions are not necessarily more compact, while BAR increases (up to 0.25), pointing to higher building intensity but not necessarily functional integration.

Currently (Figure 6), PD remains moderately high (1–10), CI stable (0.5–0.8), and BAR at 0.25, suggesting structural stability but persistent fragmentation.

Key insights include: stable CI across phases implies little change in building form; PD patterns raise questions about integration with existing networks; and increasing BAR without corresponding compactness signals that higher intensity does not automatically translate into functional urban integration.

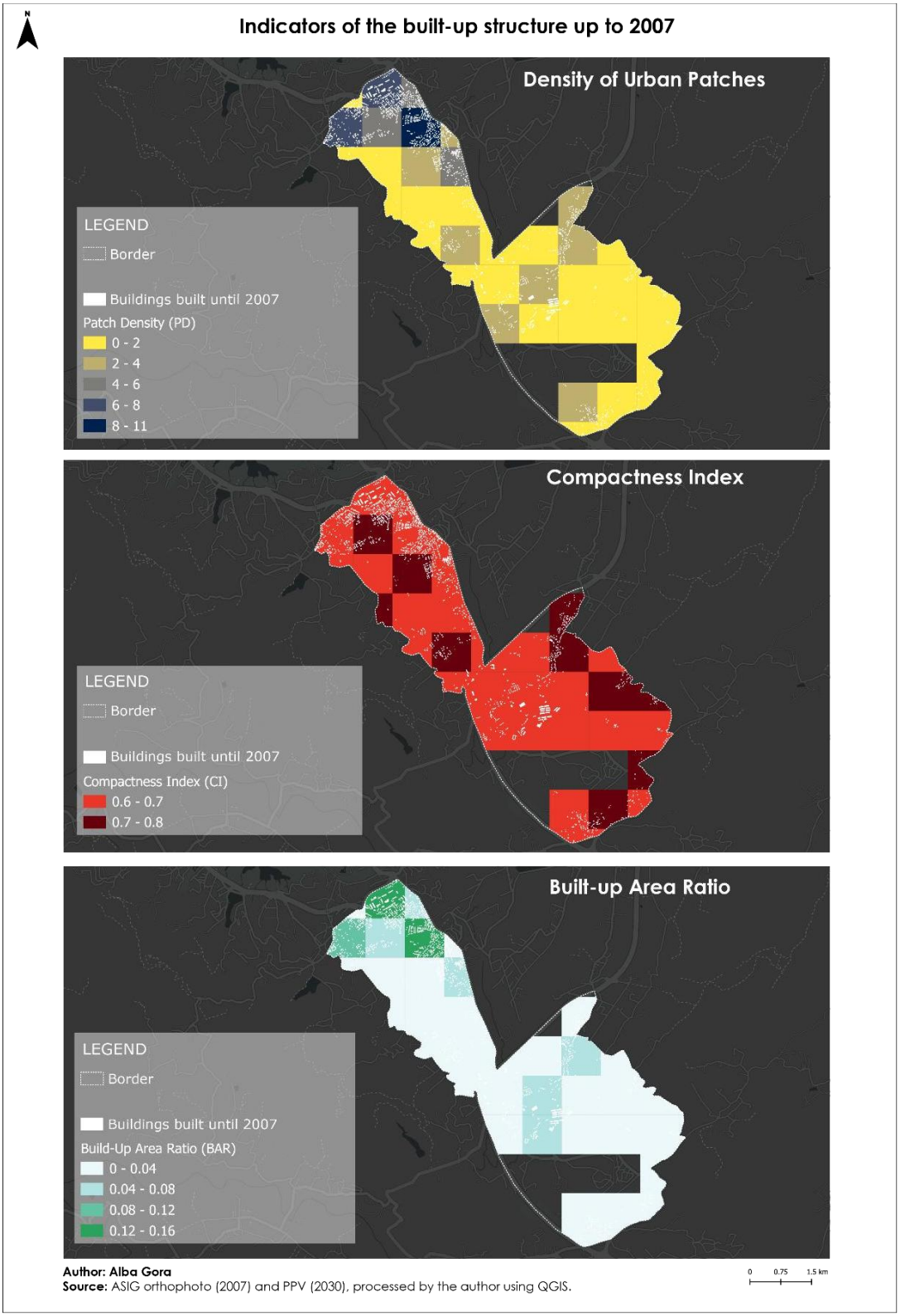


Figure 4. *Built-up structure indicators up to 2007.*

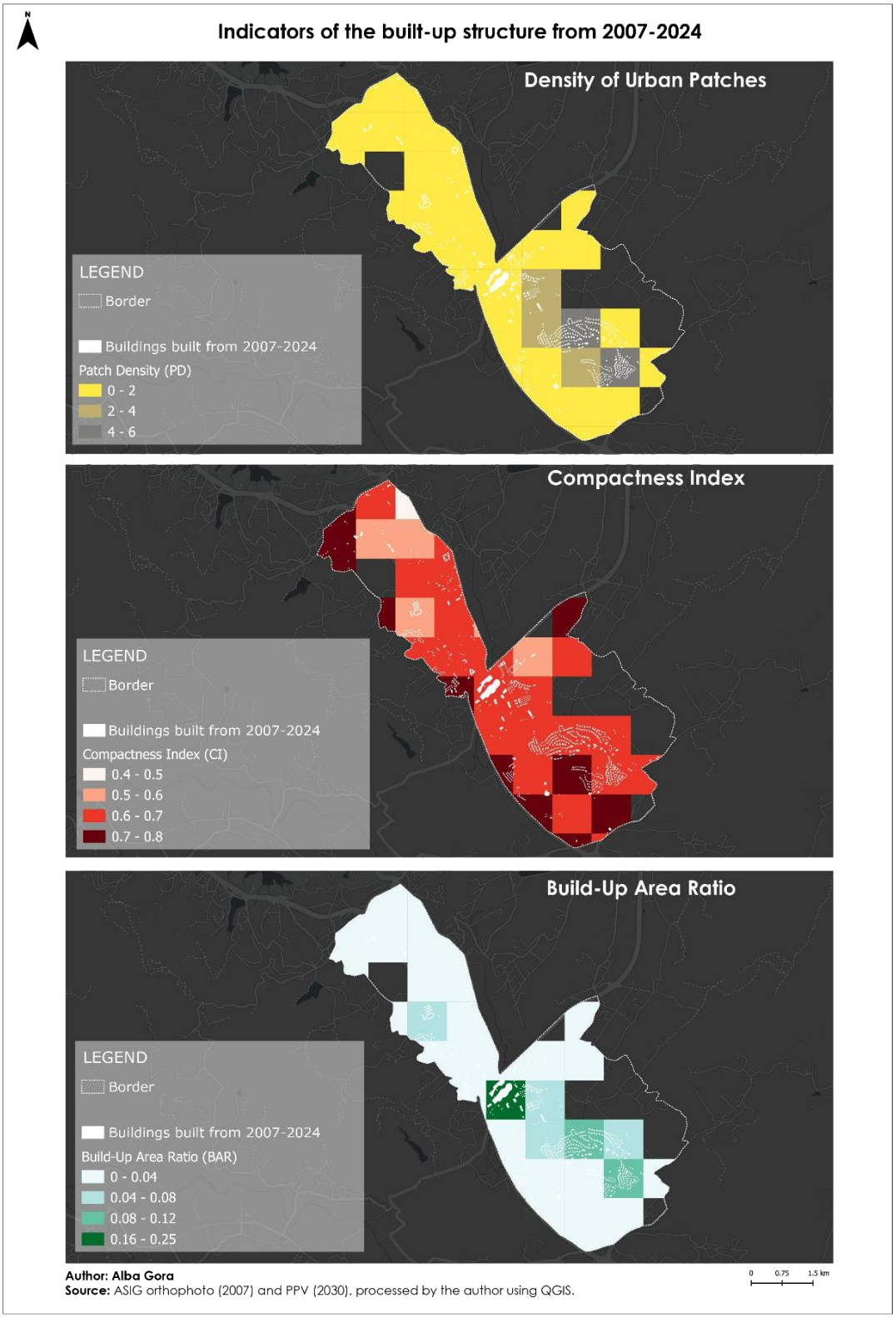


Figure 5. *Built-up structure indicators from 2007-2024.*

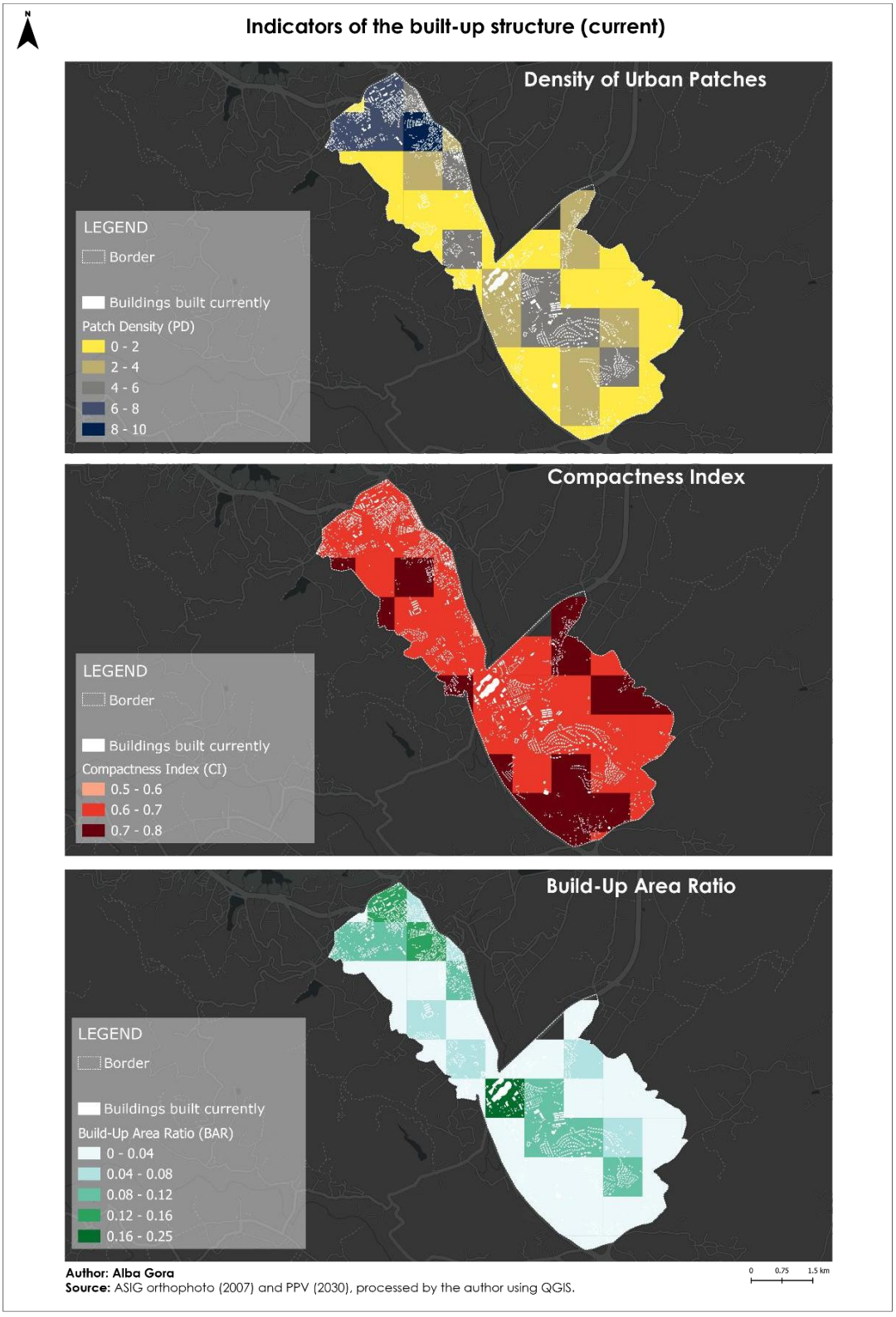


Figure 6. *Built-up structure indicators currently.*

4.4. Land use and functional integration

Land use distribution confirms the dominance of monofunctional development. Housing occupies around 40% of the study area, while almost 45% remains under agricultural land that is largely inactive. Public services and economic activities represent less than 3%. The absence of mixed-use planning reinforces dependency on the city center and weakens local self-sufficiency.

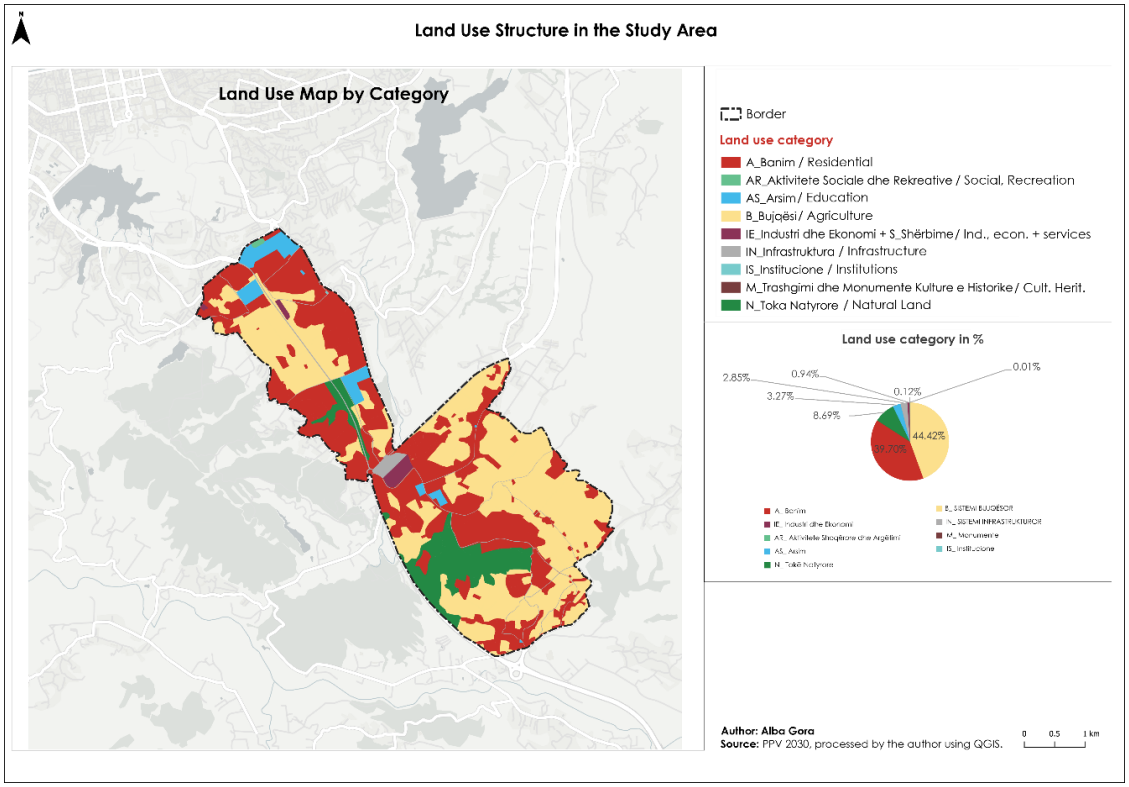


Figure 7. *Study area land use: map and category percentages.*

4.5. Accessibility to services

Accessibility analysis highlights unequal conditions between different typologies:

1. Educational facilities (Figure 8):
   - Kindergarten (350 m radius): almost absent.
   - Primary schools: partial coverage in informal areas, new developments uncovered.
   - High schools (1500 m radius): nearly no coverage.
2. Health centers (Figure 9), (1000 m radius): minimal coverage, most of the area classified as inaccessible.
3. Public transport stations (Figure 10), (800 m radius): coverage standard met, but gated communities and new developments lack effective access.

4. Recreational areas (Figure 11): almost no accessibility within 15 minutes, except for limited parts of the informal zone closer to the urban core.
5. Commercial services (Figure 12): assessed by walking distance; better accessibility in informal areas and near mixed-use/economic zones, while gated communities and areas under construction mostly remain without access.

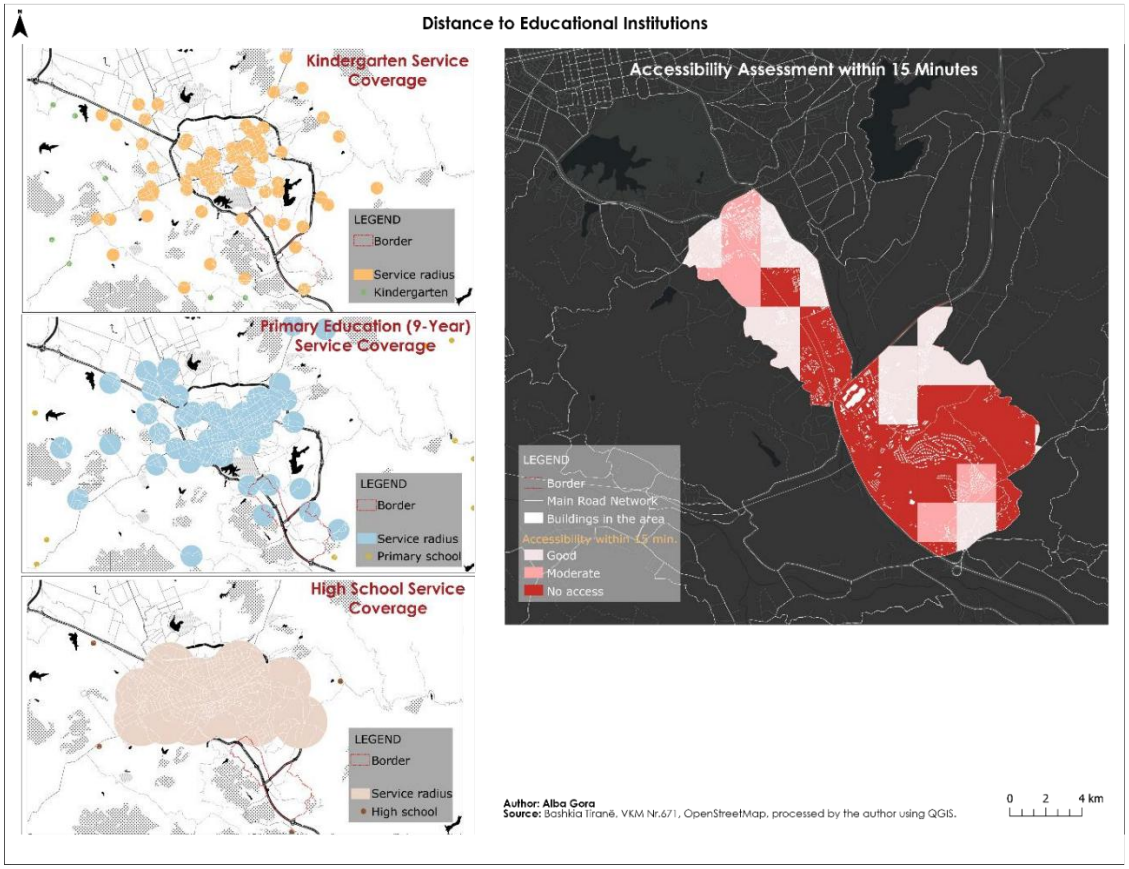


Figure 8. *Assessment of service provision and accessibility for educational institutions.*

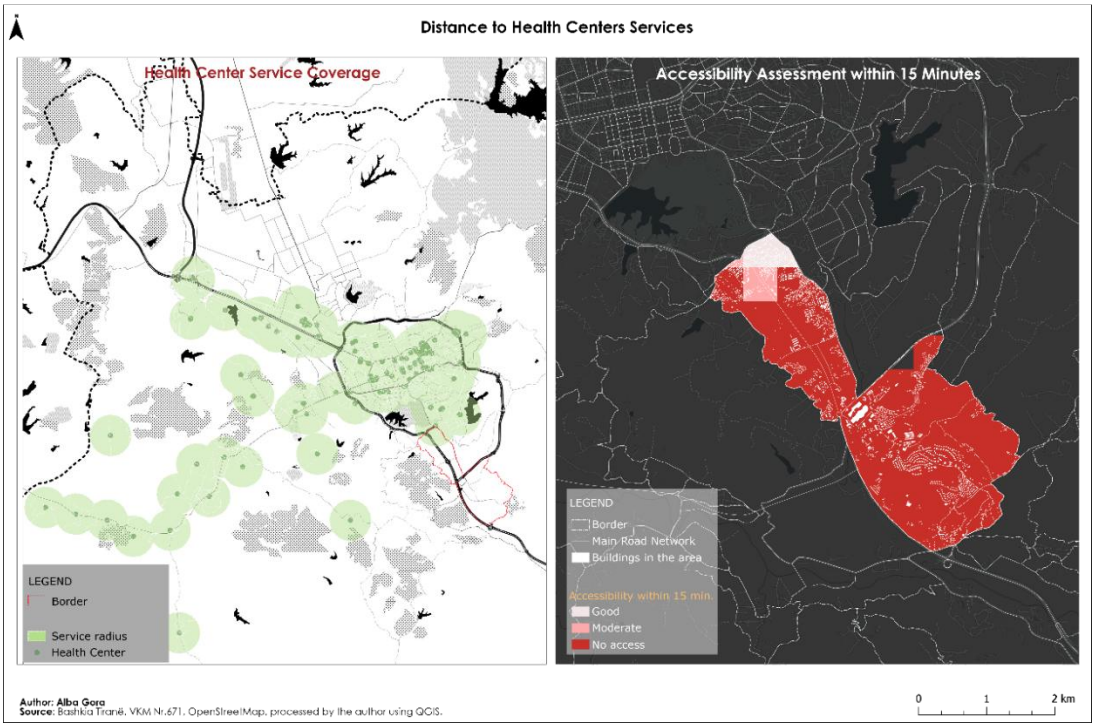


Figure 9. *Assessment of service provision and accessibility for health centers.*

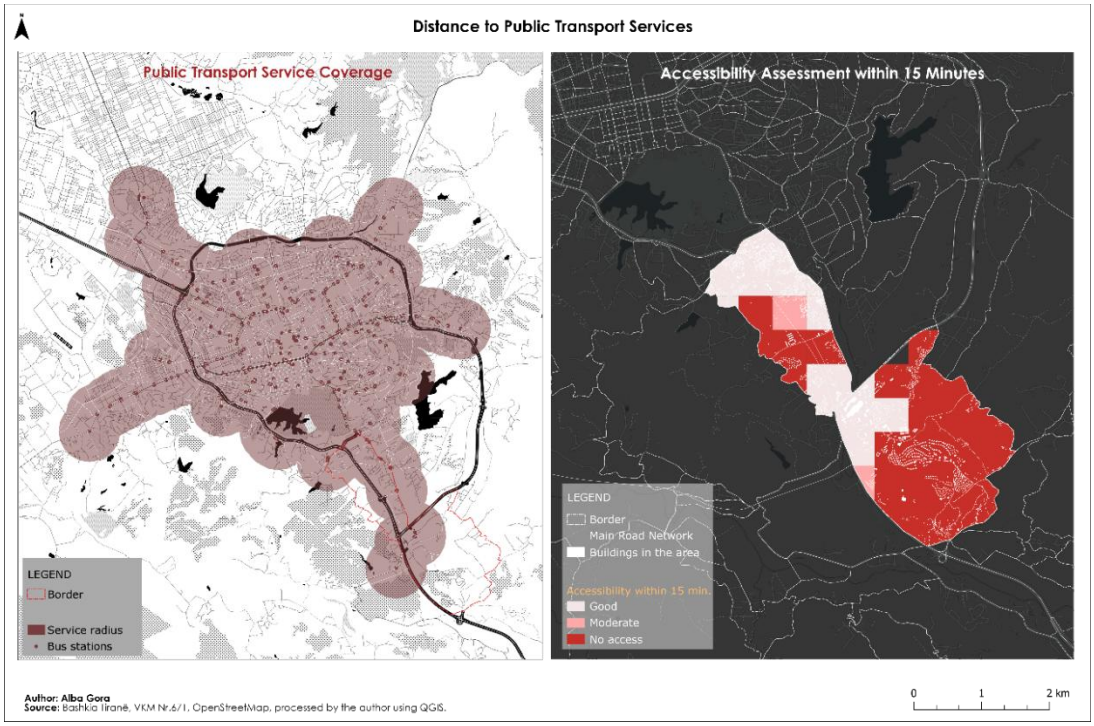


Figure 10. *Assessment of service provision and accessibility for public transport.*

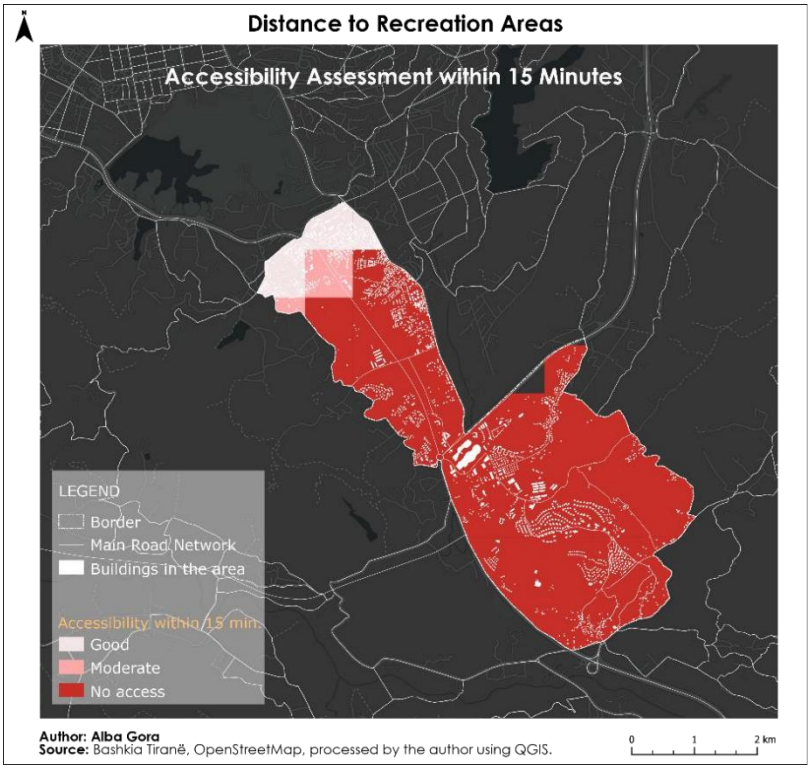


Figure 11. *Assessment of accessibility for recreational areas.*

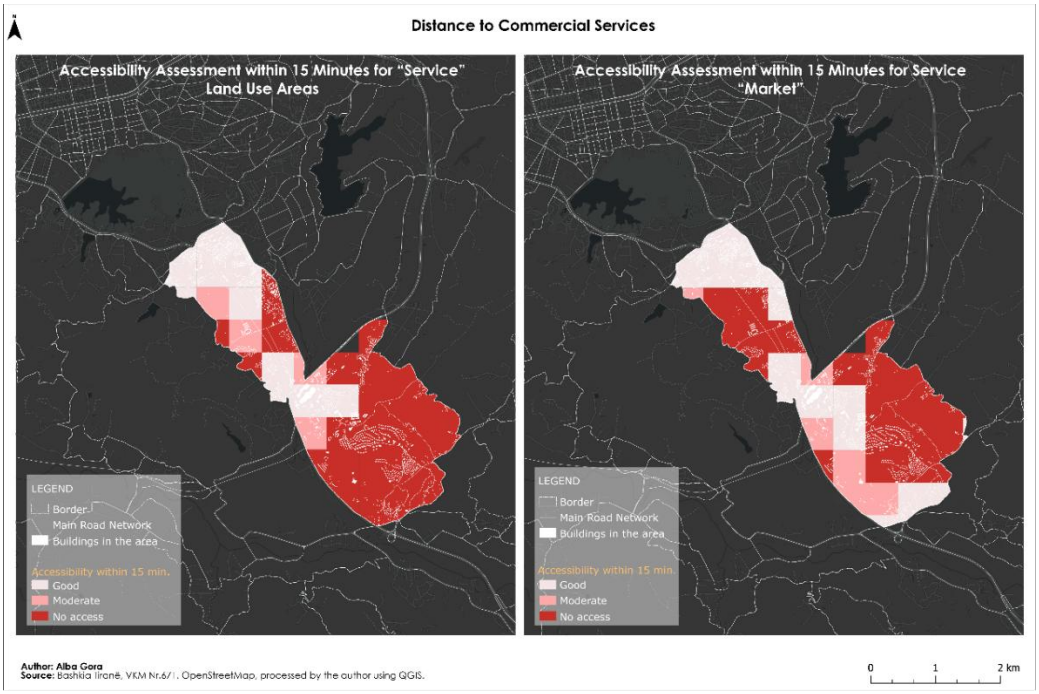


Figure 12. *Assessment of accessibility for commercial services.*

The evidence indicates that southeastern Tirana has evolved from unregulated informal sprawl to formal gated developments, yet both patterns reinforce urban fragmentation. Informal areas, despite their irregularity, remain more socially and spatially integrated with the city, whereas gated communities function as self-contained enclaves with limited connections. Access to education, health, commerce, and recreational services is generally poor, making the area heavily dependent on central Tirana. These findings support the hypothesis that recent formal developments do not represent sustainable or integrated urban growth but rather continue the trend of fragmented urban expansion in a new, more formalized form.

5. Conclusions and recommendations

5.1. Conclusion

Post-2007 developments do not significantly differ in spatial form from earlier informal areas. Despite exhibiting higher levels of building intensity, as measured through BAR, these areas fail to demonstrate improved internal cohesion or stronger spatial integration (CI), indicating that increased density alone has not translated into more functional or connected urban environments. Land-use patterns remain largely residential, while recreational, educational, economic, and institutional functions occupy only a small portions of the urban fabric. This pronounced imbalance reinforces a condition of strong monofunctionality, limiting everyday accessibility and reducing the capacity of these areas to function as complete urban neighborhoods. Accessibility to public services further reflects this structural weakness: while pre-2007 areas retain partial and uneven access due to their gradual integration over time, newer developments, including formally planned gated communities, are disconnected from the broader urban system. Overall, post-2007 urban development has not improved spatial or functional cohesion. Instead, it represents a continuation of urban sprawl, now taking on a more formalized but still poorly integrated form. Rather than filling existing gaps, they have increased fragmentation and functional isolation.

5.2. Recommendations

Based on the spatial and functional analysis of southeastern Tirana, the following measures are suggested to improve territorial integration, urban function, and social balance:

1. Enhance functional transport access: Extend pedestrian pathways, secondary streets, and new public transport stations to connect emerging developments and reduce reliance on private vehicles.
2. Promote functional integration in new communities: Encourage developers to include public or semi-public spaces, local services, and elements that connect with the surrounding area. Coordination with service providers (roads, utilities, education, community facilities) is essential to prevent isolated enclaves.
3. Careful management of underutilized land: Agricultural or vacant lands should be treated as controlled development potential, supporting mixed-use functions with green spaces and connecting streets, while preserving active rural areas.
4. Create buffer zones to reduce spatial fragmentation: Open spaces around gated communities, such as parks or squares, should act as functional transition areas rather than barriers,

enhancing interaction with surrounding neighborhoods and strengthening social and spatial cohesion.

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IV. Demography and Economy: Demographic challenges and models in Albania and beyond

Territorial governance and systematic management / Cities as sustainable service systems / Smart city management / Social enterprises as drivers of territorial development / City-verse and new cybernetics: AI, VR, AR, and the Metaverse.

Circular and regenerative economy practices in the Western Balkans / Implementation of the Green Agenda for the Western Balkans: challenges and opportunities for resilient communities.

Urban Planning in the Polycrises Era as "The Substance of Things Hoped For"

Research, Teaching, and Spatial Design at POLIS University, Albania

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Assoc. Prof. Dr. Llazar KUMARAKU
ORCID 0000-0002-0414-1578
Department of Planning and Environment, POLIS University, Albania,
llazar_kumaraku@universitetipolis.edu.al

Abstract

This study considers urban planning not only as a technical exercise, but also as a collective act of hope. The paper, inspired by Edoardo Persico's idea of architecture as "the substance of things hoped for", analizes how universities, especially Polis University, can serve as active platforms for shaping the urban future. The research analizes teaching, city design / urban planning strategies, concluding with an analysis of the methodology of scientific research carried out at Polis University. The discussion is based on experiences from the PhD program in Architecture and Urban Planning that Polis organizes in collaboration with the University of Ferrara in Italy, where scientific research, teaching practice and spatial design are intertwined. The research also focuses on the analysis of how Polis and its research staff have faced a series of crises such as earthquakes, sustainability, climate and social crises, which have been addressed in articles and publications over the last 10 years. The analysis highlights the concrete contributions of Polis University to urban studies, pedagogical innovation and research, treating each as a distinct but interconnected form of knowledge. The paper argues that urban space should not be seen simply as a product of projects, but is a dynamic field of action where education, research and cooperation with non-academic institutions enhance spatial quality and nurture a shared hope for better living environments. In conclusion, this paper aims to start a dialogue on the transformative role of higher education and urban planning in an era of overlapping crises such as war, climate change, social tensions and migration, which shape the cities of today and tomorrow.

Keywords

POLIS University, polycrises, resilience, research, teaching, urban planning

1. Introduction

In the period we are living is clear a panorama of overlapping crises, starting from geopolitical conflicts and climate change to social fragmentation and migratory pressures. In this situation of *polycrisis* urban planning is not simply a technical discipline, but a cultural and ethical response to uncertainties. "Immersed" in this condition, academic institutions that deal with architecture, spatial design and urban planning must provide a framework through which hope can be reimagined as a practical force that guides collective action in times of instability.

The research question that structures this paper is "*How teaching practices, scientific research and spatial experimentation in universities can contribute to shaping an urban future that is sustainable, inclusive and based on hope, especially in an era defined by overlapping crises?".* We seek to answer this research question through a methodological analysis of how Polis University has addressed the topic of teaching and reearch in the field of urban design and planning.

The analysis focuses on the international, interdisciplinary and intersectoral strategies of Polis University, showing how its doctoral program, pedagogical methods and spatial planning form a productive synthesis of knowledge. The paper seeks to reconceptualize urban planning as an act of collective hope by combining theoretical reflection with institutional practice.

The projects and research analysed span a ten-year period at Polis University, covering the timeframe from 2015 to 2024. During this decade, Albania has faced a series of overlapping crises that have profoundly impacted the practice of urban planning and design. We begin with an analysis of planning pedagogy, starting from the case of the "*100+ Villages Academy*" and conclude with the most relevant research projects and scientific contributions carried out by the Polis University staff up to 2024.

In 2018, the staff of Polis was engaged in a program called "*Academia 100+ Villages*"[17] and for this reason this opportunity was used to discuss some aspects of the teaching experience and of urban planning or settlement design in these villages. The specific conditions of the project had to be addressed from different perspectives and at different scales at the same time. The treatment of development projects for more than 40 villages covering a large number of rural areas involves a range of skills, from agricultural studies to economics, culture, and offers an excellent opportunity to test teaching methods in practice. For this reason, were created eight interdisciplinary research and design groups led by eight[18] tenure researchers that collaborated with other experts and

[17] Academia 100+ Villages, launched in 2018 by the National Territorial Planning Agency (AKPT) and Atelier Albania (AA), is an initiative for sustainable rural development in Albania. It aims to create development models for 100 villages through academic collaboration, participatory planning, and the promotion of cultural heritage. POLIS University is the designer of the projects for around 40 villages across the territory of Albania.

[18] According to the rural development document prepared by AKPT (2018), the villages studied by Polis University are grouped by lots:
LOT 01 includes the villages Shishtavec, Shtiqën, Cahan, Valbonë, / LOT 02 includes Lëpushë, Razëm, Vrith, Theth, Drisht, Zogaj, led; / LOT 03 includes Ishull, Lezhë, Fishtë, Kukël, Mjed, Qelëz, Kryezi, / LOT 04 includes Lurë, Orosh, Bushkash, Skuraj, Katund i Vjetër, / LOT 05 includes Rabdisht, Radomë, Zerqan, Guri i Bardhë, / LOT 15 includes Goricaj, Krutje, Libofsh, Ardenic, Pojan, / LOT 16 includes Cakran, Siqec, Luar, Hekal, Kaliva, / LOT 20 includes Zvernec, Kaninë, Drashovicë, Tragjas, Pllo.
These lots were prepared within the course of Urban Planning Theory and Studio led by Besnik Aliaj, Sotir Dhamo and Llazar Kumaraku.

students from *Planning and Urban Management* Master and A*rchitecture and Urban Design* Master.

However, first we would like to mention some of the key concepts of this approach. "*Space*" is not understood here in the simple Newtonian sense that classifies this concept in absolute terms. The word "*space*" is here understood as a context where spatial forms are intertwined with the relevant activities, tradition, culture and identity of the areas where the intervention is being carried out. Secondly, we state that the goal of specialists who study or intervene in the space is the improvement of quality of life. The work would be meaningless in the absence of this goal. In 1935, one year before his death, Edoardo Persico, an architectural critic, stated at the end of a lecture entitled Profezia dell'architettura: "*And it doesn't matter if this prejudice is denied by those who should most defend it, or banished by those who most vaguely fear it: it will remain, all the same, the secret faith of the age. The substance of things hoped for."*[19] In these words we can find the effort toward modernity, toward the transformation of global crises into aesthetic and ethical values. With this belief in mind, Polis teach students that when they design, they will not only work with space, but will also need to incorporate the expectations of the inhabitants of that space.

At this point, it is important to understand the general context in which this intervention was adapted. After the fall of the communist system in the early 1990s, Albania underwent major economic and social changes that were reflected in a serious urban crisis. As Aliaj, Dhamo and Shutina emphasize in *Between Energy and Vacuum*,[20] during this period Albania struggled between a great amount of energy directed toward rebuilding the country and the lack of institutional and legal frameworks. This gap caused an informal and chaotic urbanization of the territory. Today, in the face of the consequences of this kind of reality, rural development models must act as a general framework that allows the energy of the inhabitants to be channelled in the best way toward a sustainable and systemic approach. Starting from this situation, we had to apply a methodology that takes into account a context of urban and rural crisis, where a series of overlapping crises have caused the fragmentation of the territory and the form of settlements. The methodology used is analysed below and considers the settlement through a holistic approach in which various aspects and areas of expertise are interwoven.

2. Teaching methodology in urban design and planning

The main objective of teaching practice at Polis is to facilitate the development of critical thinking to face the challenges of planning, landscape, or urban design. However, the linear analytical process is deliberately overturned at certain decisive moments, thus enabling creative steps and new discoveries. The analytical method used is structured according to the following steps:

[19] Persico, E, 1935. *Profezia dell'architettura*. Skira. The original text in Italian: «*E non conta che questa sua pregiudiziale sia rinnegata da coloro che piu dovrebbero difenderla, o bandita da chi piu, vagamente, la tema: essa restera, lo stesso, la fede segreta dell'epoca. Sostanza di case sperate*»

[20] Aliaj, B., Dhamo, S., & Shutina, D. (2010). *Midis energjisë dhe vakumit*. Co, PLAN.

2.1. Analysis

When analize the territory, Polis students consider three important aspects related to space. The first is the society that lives in that space and all the derived aspects related to it. The second is the environment built by society, such as infrastructure, population groups, services, etc. The third aspect is the environment in which the first two aspects develop. The first group of analyses, or more precisely, social research and social activities in space, is divided into several niches of analysis that seek to achieve a comprehensive view of the social potential and its activity in space. Among them, we can mention: Social Analyses (demography, education, unemployment, gender distribution in relation to education, etc.); Historical Analysis (City History, Historical Development of Population Clusters, Historical Layers of Population Clusters, etc.); Cultural Analyses (Channelling of cultural strengths, such as events, traditions, city specifics, etc.). The second group of analyses investigates the entire space built by society and is based on the various infrastructures built by human beings, population clusters, and services: Infrastructure Analysis (railways, roads and other transport infrastructures, and pipelines); City Morphology Analysis in relation to population clusters and settlements; Service Analysis (government services, administration, health, education, culture, commerce, economy, tourism, entertainment, etc.). The third group of analyses deals with the interaction between the environment and human beings, focusing on the following: Land Cover Analysis (channelling of flora as spontaneous or cultivated, parks, etc.); Hydrographic Analysis (rivers, streams, natural or artificial lakes, underground waters, etc.); Agricultural Analysis (agricultural crops, shrubs, cultivated forests, etc.) Undoubtedly, these analyses are not an absolute and complete representation of reality; however, combined with each other, they allow a comprehensive understanding of human activity in the territory and its interactions with the ecosystem.

2.2. Results from the analyses

The objective of these analyses is to understand the space and to draw specific conclusions for the context in which this space develops. It is very important to emphasize that the moment of analysis is not conceptually separated from the design phase. It is at this point that the first traces of the vision or future project begin to appear, emphasizing the fact that there is an interaction between analysis and the creation of a vision and a project. The first ideas of the vision materialized in relation to the analysis phase will certainly change and mature over time and, at the same time, the findings from the analysis will evolve and intensify as a result of the development of the project. Some elements of the analysis may play a more dominant role, while others may fade since the analytical structure itself is a simplification of the complex reality of ecosystems; the conclusions drawn from these analyses must always consider the intricate relationships between the analysed elements. Fragmented and discontinuous conclusions for each subgroup or for the larger set of analyses are meaningless if the urban planner does not formulate a critical judgment when giving importance to fragments of reality.

2.3. Proposals based on conclusions

During the development of the project, we often see that students' proposals are partially disconnected from the analysis phase and its conclusion. Our goal is always to have an overlapping continuity of phases and, in such cases, students are asked to step back and consider the analysis of the existing situation. Proposals for creating a development strategy are entirely based on the analyses and the conclusions drawn from them. In some cases, this may seem insignificant, but examples of this type are numerous in current planning and design practices. We can find architectural projects that do not take into account the context in which they are being built, or even urban plans and visions that are the same in very different parts of the planet.[21]

2.4. Creation of a Development Strategy

After the phase of analysis, conclusions, and proposals based on them, students undertake the creation of a development strategy based on a vision for the future. To achieve this vision, several strategic projects and actions are proposed. In a later phase, strategic projects may be implemented through a series of smaller physical projects that affect specific areas of the territory or city.

2.5. The Project as Implementation of the Strategy

The final phase of the process that we aim to achieve in teaching and building the vision at the scale of urban planning or design is the elaboration of the architectural project based on the strategic development model. These projects are designed by defining, within the territory itself, the spatial importance that each project will have in space. In this phase, the minimum requirement is the definition of this spatial belonging, which often can develop several dimensions of space in its physical sense. During these phases, what Franco Purini (2000), in his book *Comporre l'architettura*, describes as the overlapping of the analysis phase and the design phase occurs, in which the project is born during the analytical phase. Therefore, we can say that the final drawings of the project must clearly reflect the initial analysis; however, it often happens that, through these drawings, aspects of the analysis that were not previously considered gain a new understanding.

3. Research on urban planning in the polycrisies era

Nowadays we live on the cusp of interesting times. However, according to Žižek "*if you really hate someone, you curse them like this: 'May you live in interesting times!'*"[22] It seems we are under a sort of curse and we must rise to the challenge.

[21] Stefano Boeri proposes the "vertical forest" project both in Milan and in Tirana, and has even suggested the same idea for cities in the Arabian Peninsula. This stance is not exclusive to Boeri. Unfortunately, many contemporary architectural offices do not take into account the context in which they intervene, and the phase of analysis and the extraction of results are completely nonexistent.

[22] Žižek, S. (2011*). Living in the end times*. Verso.

Over the past five years, it appears that the world has been spiralling into increasingly dire circumstances. This observation extends beyond the context of Albania and encompasses global events. Multiple crises have converged, leading us down an unprecedented path. Some of these significant events are: 1) Earthquake of November 26, 2019. This seismic event struck Albania, causing widespread destruction and loss of life. Two months earlier, on September 21, 2019, another earthquake had occurred; 2) The Pandemic situation where the entire world faced the COVID-19 pandemic, affecting every aspect of life. As we approached 2022, there was hope that the pandemic would disappear, but events took an unexpected turn; 3) The Russian invasion of Ukraine (February 24, 2022) escalated global tensions and disrupted stability in the world. The conflict had far-reaching consequences, affecting not only Ukraine, but also international relations.; 4) The Hamas-Israel conflict (October 7, 2023) witnessed heavy clashes between Hamas and Israel, resulting in destruction and loss of life. Israel's response led to significant casualties in Palestine, with an estimated 40,000 Palestinians killed. This war caused wider regional conflicts in this area, such as Hezbollah, the Houthi rebels in the Red Sea and Iran; 5) The decline of international rights as in the case of the seizure of the president of Venezuela and the division of the world not into the northern and southern hemispheres but into the eastern and western hemispheres. 5) Economic Adaptation to War Conditions where the European Council emphasized the need to adapt economies to the realities of war. In this panorama not only Europe but also transforms the economy into a war economy but also the Russia, USA and China. In this period the "driving" engine of the world is focused on war activity. The overlap of these crises is reshaping the world, challenging our resilience and adaptability to these disturbing realities. It seems as if the world is teetering on the brink of chaos, with the imminent threat of a global war involving nuclear weapons. However, as if the above points were not enough, our reality includes more than just pandemics and armed conflicts. Since 1971, we have also been faced with crises related to climate, environment and energy.

When these crises intersect and overlap, we are dealing with a *polycrisis*. The uniqueness of a *polycrisis* lies in its impact, which exceeds the simple sum of the effects of each individual crisis. In other words, the consequences are not simply the sum of all the consequences of the overlapping crises but go beyond the result. Morin and Kern (1999) define a polycrisis as *"a period of disagreements, confusion, and suffering caused by the overlay of various crises. The intertwining of these crises results in consequences greater than the sum of all the crises taken individually."*

The concept of a polycrisis highlights the interconnectedness of multiple challenges. It is essential to acknowledge that the situation may worsen further. Janzwood and Homer, Dixon (2022) argue that a global polycrisis can be even more severe than a simple local polycrisis. According to them, the difference between a polycrisis and a global polycrisis lies in the scale, magnitude and reversibility of the outcomes. We are currently facing a series of global challenges such as economic crisis, migration, environmental issues, climate change and armed conflict. According to Janzwood and Homer, Dixon (2022), when at least three of these crises overlap, we find ourselves facing a "global polycrisis".

In Polis, guided by the 2005 High-Level Expert Group report (HLEG. 2005) is practiced "frontier research". This approach emphasizes international and interdisciplinary collaboration, linking academia and industry in what is called the "third mission". Since its founding in 2006, Polis

University has positioned itself at the avantgarde of architecture and urban planning disciplines. In its facilities, not only the spatial dimensions of these disciplines are explored, but also their intersections with other fields such as engineering, economics, law, art, design and medicine. For example, biologists have investigated bacteria in relation to hospital materials, aiming to reduce contamination by using bacteriophobic materials. This innovation improves the technology of building materials in hospital buildings.

The research approach prioritizes the frontier of each discipline instead of its centre. This deliberate choice is consistent with our holistic approach to urban and territorial spatial challenges. To address urban problems, are brought together interdisciplinary teams who intersect with the urban dimension as architects, urban planners, environmental engineers, lawyers, economists, and other professionals. While modern architecture once considered architects and urban planners as saviours, Polis has come to understand that the issue is not only one of purpose, but also of methodology how you will achive that purpose. Everyone in our field seeks to improve the quality of people's lives, but how do we achieve this practically is the real problem.

3.1. Urban sustainability and earthquake

After the tragic November 2019 earthquake in Albania, Polis University quickly organized an international symposium. Within ten days of the event, experts from all over the world gathered to discuss the consequences of the earthquake. The results of the symposium were documented in a technical bulletin published by the Department of Architecture and Engineering.

The earthquake brought great destruction but also served as a catalyst for positive change. Urban planners and engineers used the opportunity to reshape their studies and propose solutions. Their focus was on improving the structural quality of buildings and the overall urban space. The researchers applied to international journals with publications related to structural studies. In particular, Professor Merita Guri and her team, consisting of Aguljeln Marku, Blerim Nika, Ilda Rusi, Nikolla Vesho and others, contributed significantly to this topic. They published a series of research papers that address the topic of sustainability and resilience in the urban context.[23]

The earthquake forced researchers to confront urban sustainability and resilience. Researchers such as Rudina Toto, Merita Toska or Skender Luarasi and Llazar Kumaraku approached these challenges from different perspectives. Toto emphasized environmental sustainability, while Luarasi and Kumaraku (2023) focused on the formal aspects of settlements. Different perspectives allow for integration, not in a dialectical way, but through dialogic communication, guided by Mikhail Bakhtin's dialogic principles.

[23] This research group has maintained a prolific activity, publishing the following material that serves as the foundation for the seismic sustainibility: Guri, M., Vesho, N., & Marku, N. (2020); Koka, P., Vesho, N., & Shehu, F. (2021); Vesho, N., Rusi, I., & Sulaj, E. (2021); Guri, M., Brzev, S., & Lluka, D. (2022); Nika, B., Vesho, N., & Marku, A. (2022). Together, these publications establish a specialized framework for understanding the seismic vulnerability and rehabilitation potential of the regional building stock.

3.2. Sotir Dhamo's urban research

Sotir Dhamo has left an indelible mark on Albanian and international urban studies. His scholarly articles and monographs published nationally and internationally stand as important contributions. *Tirana: Qyteti i Munguar*[24] and *Saranda: Qyteti i Munguar*[25] follows a Foucaultian archaeological approach. Dhamo does not consider the city simply as a product of physical constructions. He also explores the imagined but unrealized potential of the city. Dhamo's research aligns with Michel Foucault's archaeological method. In these monographs, he delves into the history of ideas, uncovering the fundamental rules and structures that shape our cities. By applying this approach to urban development, Dhamo pioneers a new way of analyzing and conceptualizing the city. "What could the city have become?" This question goes beyond missed opportunities; it reveals untapped possibilities. Just as Le Corbusier's "Void of the Future" at the Cannaregio Hospital inspired Eisenman's provocative proposals, Dhamo's work challenges us to explore uncharted urban directions.

His third book, *Understanding Emergent Urbanism: The Case of Tirana, Albania*,[26] published by Springer, reveals the hidden rules that define urban form. He connects conventional planning with the complexities of everyday life, self-organization, quantum theory, and fractals as key aspects that lie at the core of contemporary design and planning where current crises overlap.

In this journey, like Piranesi and Eisenman, Dhamo navigates the interplay of lost elements, shaping a future where cities are shaped not only by the presence of existing ones, but also by the absence of a lost potential.

3.3. PhD programs in Albania: A complex landscape

Doctoral programs in Albania have been truncated over the past decade. They were closed by a Decision of the Council of Ministers (VKM) in 2015. Among the programs that remain open these years was a Polis collaboration with the University of Ferrara in Italy, which brings the PhD program in "Architecture and Urban Planning". As a result, there will be a large gap in academic titles for associate and full professors over the next ten years. This situation will be created in different fields. The only discipline that will be covered by researchers will be that of architecture and urban planning. Polis has played a crucial role in ensuring the continuity of research and academic titles in these two disciplines. Over the past decade, 45 doctors have successfully graduated from this program and approximately 20 candidates are currently pursuing their doctoral studies. The doctoral program at Polis is more than just academic, it is international, interdisciplinary and intersectoral Phd. Polis aims for frontier research, pushing boundaries and exploring uncharted territories.

In conclusion, the Polis doctoral program stands as a beacon of sustainability, filling gaps and nurturing the next generation of researchers. Some of the publications resulting from the doctoral studies are: Durana (2014), Albanian Riviera (2015), When a River Flows (2016), Projecting Shkodra

[24]Dhamo, S., Thomai, G., & Aliaj, B. (2016). Tirana: Qyteti i munguar. Polis Press.
[25] Dhamo, S., Thomai, G., & Aliaj, B. (2022). Saranda: Qyteti i munguar. Polis Press.
[26] Dhamo, S. (2021). Understanding emergent urbanism: The case of Tirana, Albania. Springer

(2017), Prishtina: The New Image of the City (2018), RURBAN SEQUENCES: Inquiries on Dropull's States of Liminality (2019), and RETHINKING GJIROKASTRA: Can Architecture and City Planning Stimulate Hope and Growth for Shrinking Cities? (2020). Spatial Proposals for The Post, Pandemic City: The Case of Lezha (2022), Re-Inventing Phoeniciae (Finiq): New Intersections of Tradition, Innovation, Landscapes and Tourism. (2023) Intersecting Landscapes: Finding New Spatial Visions for the Cross, Border Region of Prespa Lakes and the case of Pustec Municipality , Albania. (2024)

All these publications have addressed the themes and challenges presented by the territorial and urban reality in the Albanian context. From this perspective, these challenges are as contextual as they are international. For this reason, their contribution transcends national borders.

As part of the research on sustainability and resilience is included the organization of the Tirana Planning Week, held on 22-26 April 2024, by the Faculty of Planning, Environment and Urban Management. At this conference, with 8 international guests as keynote speakers and over 50 presentations in research workshops, the challenges of resilient and sustainable planning were discussed. At this conference, sustainability and resilience were analysed from 5 main aspects: formal, environmental, economic, social and institutional. The results of the conference were published in the corresponding Book of Proceedings and Book of Abstracts, and the most selected papers were published in the 29th issue of Forum AP.

4. Conclusions

Unlike more consolidated urban realities in which the attention of the urban planner is focused on the analysis phase, the Albanian reality requires rapid interventions in which the design phase is combined with the analytical phase. Considering these conditions, the proposed methodology is results-oriented, and strives to consistently combine the analytical approach with strategic thinking and design solutions. It is important to emphasize that, in the Polis approach, analysis and design are two interactive actions and, given this, design begins with analysis, and, consequently, the analysis ends with the completion of the project. In this way, there is a simultaneity of analysis with the project and with the construction phase. In this way, the project is not a "*closed object*" but a process that is intertwined with the realization phase which supplies it with ideas and from which it is influenced with results.

The most important part of facing the overlapping crises is the international, interdisciplinary and intersectoral approach that Polis follows in the research developed within the institution. This approach synthesized in the 3I approach (international, interdisciplinary and intersectoral) guarantees a holistic coverage of the research methodology at Polis.

Such an approach that covers the international scale, the different disciplines and guarantees collaboration with the economic sector is able to face the overlapping crises that are increasingly present in the period in which we live. For this reason, in a world that tends to close borders and divide into territorialized sectors, a 3I approach to research appears as a solution to the problems created by overlapping crises.

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Land Distribution and Control in Urban Areas

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Dr. Diana BARDHI
ORCID 0009-0002-6958-7770
Tirana Metropolitan University, Albania, dbardhi@umt.edu.al

Dr. Emre CECEN
ORCID 0000-0003-0330-4715
Tirana Metropolitan University, Albania, ececen@umt.edu.al

Abstract

The distribution and control of land in urban areas remains an ongoing challenge in the spatial development of Albanian cities, particularly in the metropolitan area of Tirana. This study addresses the dynamics of land use in the capital city, analyzing the interplay between property ownership structures, informal urban development, and efforts toward integrated planning. Tirana, as the largest urban center in Albania, has experienced rapid urban growth since the 1990s, accompanied by high property fragmentation, uncontrolled construction, and difficulties in implementing urban plans (Toto & Allkja, 2019).

The research highlights challenges associated with the lack of coordination between local authorities and private landowners, informal property registration, and the absence of effective mechanisms for land readjustment or control. Through the analysis of planning documents and case studies in Tirana's urban periphery, the article argues that sustainable land control requires institutional reforms, digitization of the cadastral system, involvement of local communities, and policies balancing public interest with private property rights (Felstehausen, 1999; Stanfield et al., 1998). This study contributes to the literature on Albanian urban geography, emphasizing the need for a flexible, data-driven, and participatory approach to land management in urban areas.

Keywords

Property fragmentation, urban land management, land distribution, urban planning, informal development

1. Historical overview

The planning system in Albania has undergone major transformations since the 1990s, shifting toward a comprehensive and integrated approach (Toto & Allkja, 2019). Land reforms, initiated by Law No. 8053 (1995), granted legal ownership of former state enterprise lands to previous workers, but failed to fully resolve property rights ambiguities. Three categories of landholders emerged: (a) legal owners recognized under Laws No. 7501, 8053, and 7698; (b) informal or illegal buyers without certified ownership; and (c) illegal occupants of state or private land (Felstehausen, 1999).

The resulting legal ambiguity hindered the land market, fostering conflicts among former owners, new legal owners, and informal occupants. Land fragmentation became severe, with approximately 1.8 million small plots averaging 0.2-0.55 ha per parcel, often scattered 1-6 km apart. The extensive legal framework (Laws No. 7501-111/2019) has improved regulation but land control remains insufficient and enforcement weak (Felstehausen, 1999; Lovelace, 1965).

The planning system in Albania has paradigmatically changed since the end of the totalitarian regime in Albania opened the path for significant transformations after the 1990s, and even more so in the last decade, with a shift from the urbanism approach to a comprehensive and integrated system. Land reforms in Albania, initiated with Law No. 8053 (1995), granted legal ownership of former state enterprise lands to their previous workers. However, these reforms failed to resolve deep uncertainties surrounding property rights, as contradictions between ownership and land use persisted. As a result, many de facto landholders remained without legal titles, especially within informal settlements. Three main categories of landholders emerged: (a) legal owners recognized under Laws No. 7501, 8053, and 7698, including those compensated after natural disasters or public projects; (b) informal or illegal buyers lacking certified ownership documents; and (c) illegal occupants who seized state or private land.

This legal ambiguity has hindered the development of a functional land market, fostering conflicts between former legitimate owners, new legal owners, and informal occupants. The resulting insecurity has discouraged investment, land development, and long-term planning. Moreover, the reforms led to severe land fragmentation – about 1.8 million small plots (4-6 parcels per owner), averaging 1.17 ha per family and 0.2-0.55 ha per parcel, often scattered 1-6 km apart from each other and from settlements. Such fragmentation, shaped by demographic shifts, privatization stages, inconsistent legal interpretations, and regional disparities, continues to undermine the efficient and sustainable use of land in Albania. During the history after 1990s there are a bunch or regulation for Land and Immovable Property Reform, Privatization, Restitution, and Legalization 1991-2006 – Legal Framework

New laws on urban planning were introduced, focusing predominantly on building regulations and spatial organization within urban areas, with the same ‘urbanist’ approach as the previous period (Toto & Allkja, 2019).

Law No. 7501, On Land, dated July 19, 1991; recognizes the right to private ownership of land and immovable property, and establishes a system for land classification.

Law No. 7652, On the Privatization of State Housing, dated December 23, 1992; provides for rights to sell, lease, and mortgage privatized properties.

Law No. 7693, On Urban Planning, dated April 6, 1993; regulates legal transfer of building sites.

Law No. 7698, For Restituting and Compensating Former Property Owners, dated April 15, 1993; recognizes property rights of former owners of private buildings and building sites, as well as of rural land that had changed to building sites (urban land).

Law No. 7843, On the Registration of Immovable Property, dated July 13, 1994; lays the groundwork for establishing a uniform system of immovable property registration.

Law No. 8405, On Urban Planning, dated September 17, 1998; replaces Law No. 7693. Law No. 8405/1998 (amended several times until 2009) "On Urban Planning" Although adopted earlier, this law remained the main regulatory framework until 2009.It introduced the first system of urban regulatory plans (PRTR, PPV, PPU, etc.) and construction permits procedures. Was considered fragmented and outdated, which led to the reform process after 2009

Law No. 9235, On Recognition, Restitution and Compensation of Property, dated July 29, 2004; replaces, inter alia, Law No. 7698 and Law No. 7699; regulates restitution/compensation of immovable property expropriated, nationalized, or confiscated since 1944.

Law No. 9304, On Legalization and Urban Planning of Informal Zones, dated October 28, 2004; aims at formalizing urban informal housing zones.

Decision No. 183, On the approval of the methodology on the valuation of immovable property that will be compensated and of the one to be used for compensation, dated April 28, 2005.

Law No. 9482, On Legalization, Urban Planning and Integration of Illegal Buildings, dated April 3, 2006; replaces, inter alia, Law No. 9304. Law No. 9482/2006 "On Legalization, Urbanization and Integration of Informal Areas", amended later by Law No. 33/2012 and subsequent acts.

Law No. 10119/2009, "On Territorial Planning" Marked the first major reform of the planning system after 1990.Replaced the old law of 1998. Introduced the National Territorial Plan, General Local Plans, and Local Detailed Plans. Created National Territorial Planning Agency (NTPA/AKPT). Aimed at decentralizing planning competences to municipalities and regions. Brought new instruments for development control and planning hierarchy (national → regional → local).

Law No. 107/2014, "On Territorial Planning and Development" is the current main law governing urban planning, land development, and construction permits. Merged planning and development control into a single system. Introduced the Integrated Territorial and Development Plans (PVRT), General Local Plans (PPV), and Detailed Local Plans (PPVZ). Established the National Territorial Council (KKT) as the highest approving body.

Created the Integrated Territorial Registry and Territorial Development Information System (TDIS) for digital permitting. Strongly linked planning to sustainable development principles. Required alignment of municipal plans with the National Territorial Plan (PKT). Before 2015, more than eight separate institutions were responsible for handling property titles in Albania. These bodies operated under different ministries and were governed by various, often uncoordinated, legal frameworks. Each institution followed its own procedures for property title registration, which frequently lacked coordination. Among them were:

- The Agency of Restitution and Compensation of Property for expropriated individuals

- The Immovable Property Registration Office
- ALUIZNI (the Agency for Legalization, Urbanization, and Integration of Informal Areas/Buildings)
- The Judicial Bailiff's Office for enforcing court decisions
- The State Advocacy, tasked with protecting state property interests and representing cases before the European Court of Human Rights
- The Agency for Inventory and Transfer of State-owned Immovable Properties
- The Land Governmental Commission on the Validity of Property Titles
- The National Housing Entity, responsible for social housing programs

Law No. 43/2015 "On Power Sector" (indirect, but influences spatial planning for infrastructure corridors).

Law No. 111/2019 "On Cadastre" – established the State Cadastre Agency (SCA), integrating property registration, legalization, and property restitution.

Law No. 20/2020 – Amendments to Law 107/2014 – Introduced improvements on permitting, planning instruments, and digitalization. Enhanced public participation procedures and clarified development rights and obligations of private owners. Strengthened enforcement mechanisms against informal construction.

Despite the extensive legal framework introduced to address land-related issues, land control in Albania remains insufficiently regulated and lacks effective enforcement mechanisms.

Year	Law No.	Title	Main Impact
2009	10119	On Territorial Planning	New planning hierarchy & institutions
2014	107	On Territorial Planning and Development	Unified planning & permitting
2020	20	Amendments to 107/2014	Digitalization, public participation
2018	111	On Cadastre	Unified property registry

Table 1. *The most impact laws for Planning.*
Source: Authors.

1.1. Fragmentation and informal claim-making

Informal claim-making and fragmentation have shaped Tirana's urban patterns. Rapid privatization generated formal and informal claims, contributing to city expansion and squatter settlements (Shinn, 1979). Studies sampling one-hectare grids catalogued land use, ownership, construction timelines, and documentation status. Findings show private, fragmented ownership complicates redevelopment and infrastructure deployment (UNECE, n.d.). The State Cadastre Agency (SCA),

established in 2019, consolidated functions of legalization, restitution, and registration to enhance transparency and integrate land use planning (World Bank, n.d.).

Informal areas like Lapraka show residential structures built without permits, poorly connected to infrastructure, and often on illegally claimed land. In Lapraka, for instance, about 8,000 legalization applications were submitted since 2016, with ongoing delays caused by infrastructure projects like the Great Ring Road (SCA data, 2024). Nationally, around 25% of urban residents live in informal settlements, with significant discrepancies between formal registration and actual land use (UNECE, n.d.; World Bank, n.d.).

Informal claim-making and land fragmentation have played a critical role in shaping Tirana's urban use patterns. The Urban Growth and Land Use Changes in Tirana report documents how rapid privatization created both formal and informal claims, leading to a fivefold city expansion and the proliferation of squatter settlements. In informal peripheral areas such as Bathore, original squatters transitioned into recognized, serviced homeowners. By the early 2000s, roughly 60% acquired their land from prior squatters, while others used a variety of informal and formal methods.

Sampling within urban grids reveals further insights into how property structures intersect with usage. Studies involving random one-hectare grid samples across Tirana's urban fabric – both within and beyond ring roads – systematically catalogued use types, ownership modes, construction timelines, and documentation status of urban parcels. The uneven landscape of property ownership amplifies obstacles to unified land use planning. Private, fragmented ownership complicates urban redevelopment and infrastructure deployment – negotiations are time-consuming and often contradictory. Additionally, the persistence of informal ownership and incomplete cadastral records undermine tenure security, inhibit investment, and limit public-sector leverage for reorganization. Informal claim-making and fragmentation have shaped Tirana's urban patterns. Rapid privatization generated formal and informal claims, contributing to city expansion and squatter settlements (Shinn, 1979). Studies sampling one-hectare grids catalogued land use, ownership, construction timelines, and documentation status. Findings show private, fragmented ownership complicates redevelopment and infrastructure deployment (UNECE, n.d). The State Cadastre Agency (ASHK), established in 2019, consolidated functions of legalization, restitution, and registration to enhance transparency and integrate land use planning (World Bank, n.d.).

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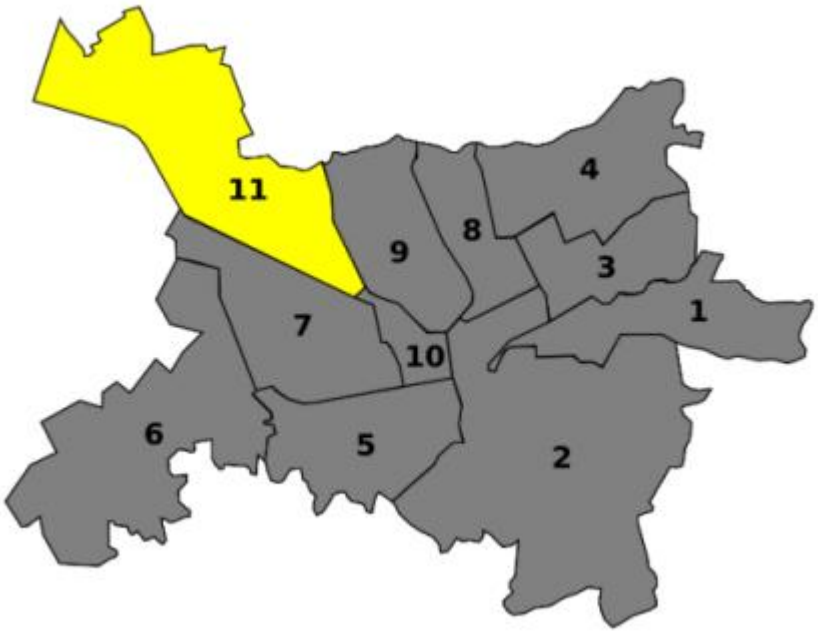

Figure 1. *Administrative Unit 11, Lapraka.*
Source: Author.

Most of the informal areas in Tirana are not connected to wastewater collectors, and the 1960's wastewater sewage system is insufficient to cope with the informal areas developed throughout the last decades. There are also issues with billed energy as there is a lack of functioning meters, theft, and insufficient receipts for billed energy. Illegal water-supply connections mainly come from informal areas, which, if compared to the total area where UKT (the Water Supply and Sewage Company) operates, account for over 26 per cent of connections. The Administrative Unit no. 11 otherwise known as "Lapraka" has long been known as one of the most problematic areas in the city concerning informal areas. Lapraka lies north-west of Tirana and is bordered by Administrative Unit no. 7 in the south-west, Administrative Unit No. 9 in the east, the Paskuqan Administrative Unit in the north-east, the Municipality of Kamza in the north, and Kashar Administrative Unit in the north-west. Lapraka is around 4km from the centre of Tirana and has an area of 5.2 km^2.

1.2. Typology of informal constructions

Lapraka became a favored destination for families migrating to Tirana, and the resulting high housing demand led to the chaotic and unregulated urban development seen today. Informal land use in the area generally falls into three categories: (1) construction on privately owned land without permits or exceeding approved parameters (such as additional floors or building area), (2) construction on state-owned land, and (3) construction on private land owned by others, including former owners or individuals who gained ownership during the post-1991 privatization.

Most informal housing is concentrated along the riverbank and consists of self-built, unplanned structures designed to meet the immediate needs of their occupants, with irregular forms and

dimensions. As a major urban corridor, Lapraka has been designated as one of five strategic poles in the *Tirana 2030* General Local Plan (approved in 2017) and is currently undergoing significant infrastructure development, especially in its southern and northern zones. The southwestern part is intersected by the new Great Ring Road, which links Tirana to the Tirana-Durrës highway. Since 2016, around 8,000 legalization applications have been submitted in Lapraka, with about 2,000 still pending. In 2019 alone, approximately 240 legalization permits were granted, reaching a total of about 1,100 permits over the last two years. However, in 2020, construction of the Great Ring Road affected more than 400-500 housing units that were awaiting or undergoing legalization, causing significant project delays, disputes, and protests from affected property owners.

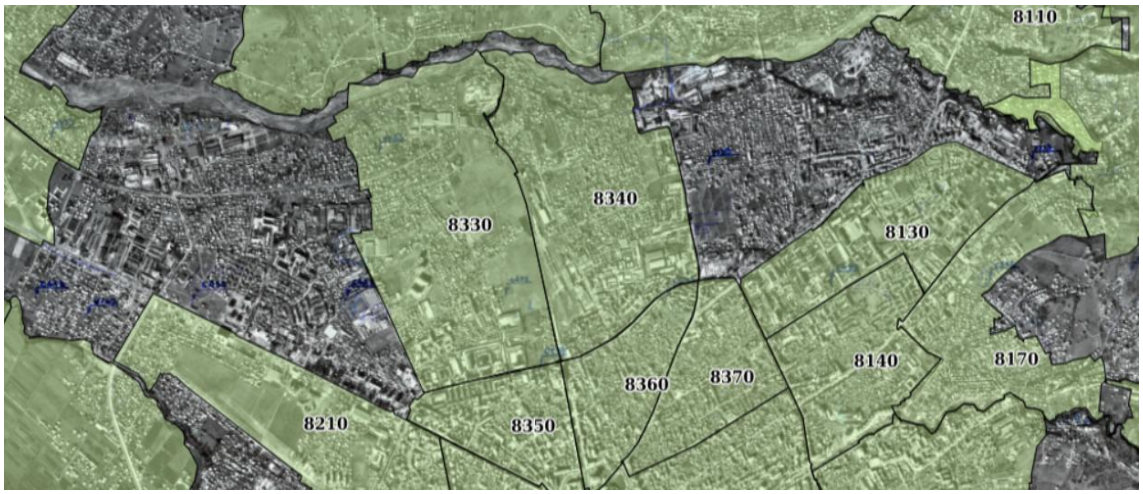

Figure 2. *Lapraka and Babrru Cadastral zone.*
Source: ASIG.

1.3. Formal registration: urban parcels

During the period January-September 2024, Available Statistics on Building Permits the Municipality of Tirana issued 174 building permits for new constructions, accounting for approximately 17% of the national total .In the same period, the approved floor area for new buildings amounted to approximately 926,250 m².For the first three quarters of 2024, a total of 1.58 million m² of building permits were approved in Tirana, marking an increase of 60% compared to the same period of the previous year.

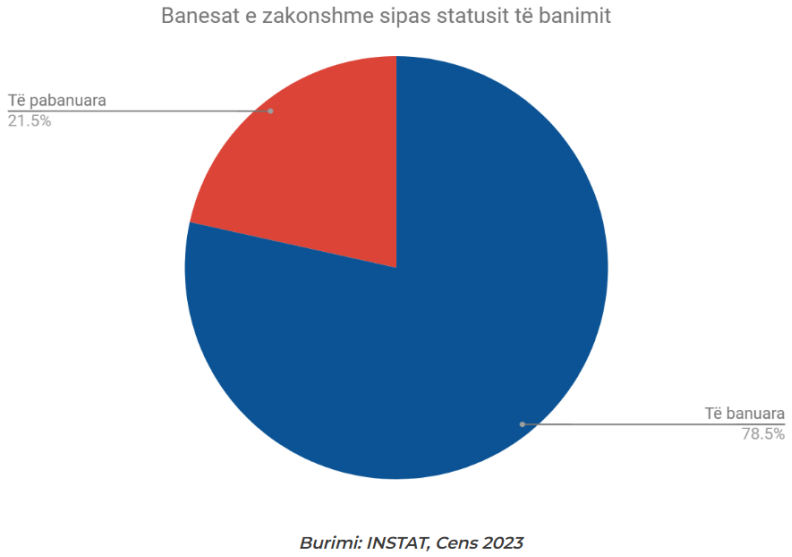

Figure 3. *Standard residential dwellings". Unoccupied dwelling 21.5% and Occupied 78.5%.*
Source: Albanian Institute of Statistics (INSTAT), Census 2023.

Tirana, as the largest and most informalized urban area in Albania, likely has a formal property registration rate at or below the national urban average of approximately 75% (UNECE). Informal settlements occupy about 41% of Tirana's residential area and house around 34% of its population (House Europe), indicating that a substantial share of urban parcels originated outside formal planning and registration frameworks. Nationally, UNECE reports registration coverage of about 75% in urban areas compared to 95% in rural areas, highlighting the significant urban-rural gap. Although Albania declared the completion of first property registration by the end of 2022 (U.S. State Department), persistent data-quality issues and delays have been noted in World Bank and technical reviews, particularly regarding ALBSReP uploads. This suggests that registered properties are not necessarily accurate or updated. While Albania's average property registration time (22 days) is shorter than in neighbouring countries, such as Kosovo and Bosnia, it contrasts with North Macedonia's near-universal coverage (99.5%), underscoring the continued need for legalization mechanisms to address Albania's large stock of legacy informal properties (UNECE).

Property registration in Albania faces significant data accuracy challenges, with EU reports estimating that around 80% of registered properties contain errors such as misplaced parcels, misaligned boundaries, and ownership inconsistencies, often resulting in overlapping claims. The People's Advocate has reported that cadastral maps frequently do not reflect actual field conditions, with multiple conflicting map versions – particularly in Tirana – intensifying the risk of parcel overlaps. The Venice Commission has also noted that such overlaps affect both private and state land, creating widespread legal uncertainty. To address these issues, Law No. 20/2020 requires the Cadastre to recognize only one valid title per property and to document unresolved overlaps, which must then be settled in court. Notably, about half of all civil court cases in Albania involve land-related disputes, including overlapping claims and boundary conflicts.

2. Methodology to assess overlapping/contested claims in Tirana

Official cadastral data collection, request parcel-level shapefiles or registry extracts from the State Cadastre Agency (SCA) for the administrative territory of Tirana. Make the verification of Municipal planning data approved on 2017 for Tirana Municipality using zoning/land maps and records of legalization of informal settlements (from Tirana Municipality).

2.1. Spatial analysis

Import parcel shapefiles into a GIS platform (e.g., QGIS or ArcGIS) and run topology checks to detect overlapping polygons, where two or more parcels claim the same space. Such overlaps are often observed in dense urban areas, where both informal and formal construction pressures have been high. In particular, many developments built with construction permits between 2004 and 2014 were executed in violation of their approved permits – extending building footprints beyond authorized limits, encroaching on adjacent parcels, rendering neighboring properties unusable, or restricting the space available for essential technical infrastructure such as roads *and other services*. Map areas of Tirana where informal settlements are concentrated vs. areas with fully registered land. Overlay urban plans with cadastral data to show mismatches.

2.2. Classification of claims

Categorize problematic parcels into overlaps (of parcles) or boundary misalignments adjacent parcels with mismatched borders. Contested ownership (multiple titles for one parcel in SCA system. Building permits growth vs. unresolved property documentation. Bathore settlement transition from informal land to serviced suburb, redevelopment projects in central Tirana delayed due to ownership disputes although all instrumnets legaly are approved.

2.3. Quantification

Compute % of parcels in Tirana with overlaps; % of parcels with contested ownership; % of parcels requiring re-measurement (quality indicator, using VBB reports as benchmark).

2.4. Compare analyses and validation

According to OECD findings based on data from the State Cadastre Agency (SCA), 100% of urban land parcels in Albania have completed first-time registration, representing full digitalization for urban areas as of February 2022. This reflects a significant achievement in property registration reform for urban zones. While urban parcels are technically fully registered, this does not necessarily reflect compliance in construction or formal land use rights. Informality persists in the form of illegal buildings and settlements. As of 2020, 25% of residents in Albanian cities (including Tirana) lived in informal settlements.

Up to one-third of all buildings in Albania are illegal, according to the World Bank, due to lack of proper title or building permit

Cross-check GIS results with field surveys in selected neighborhoods (e.g., informal areas like Bathore, Kombinat).

2.5. Uploading of properties in the ALBSReP system

Between 2007 and 2014, the World Bank funded the Land Administration and Management Project (LAMP), which developed the ISO-compliant, web-based ALBSReP system (Land Administration Domain Model). Archives from 11 major cities were scanned, and 125 priority cadastral zones were registered for the first time.

Data show a peak in properties uploaded to ALBSReP in 2016, followed by a sharp decline in 2020. Earlier uploads were high in quantity, but low in accuracy – about 80% required re-measurement – while 2020 uploads were fewer but more accurate, requiring no further adjustments. The table shows the trend of properties uploaded in the system.

Year	No. of Properties Uploaded into the System
Before 2014	227,445
2014	240,434
2015	24,590
2016	283,061
2017	237,906
2018	173,342
2019	197,905
2020	114,700

Table 2. *No. of Properties Uploaded into the System for registration.*
Source: ASHK.

Albania's legal framework for expropriation, land readjustment, and pooling demonstrates notable gaps compared to European best practices. Expropriation is regulated by Law No. 8561 (1999, amended 2016), allowing the state to acquire private property for public purposes with compensation. However, implementation challenges persist, particularly the non-enforcement of court decisions, as illustrated by Ramaj v. Albania, where property rights were left unresolved for over 26 years. Land readjustment and pooling mechanisms are also underdeveloped; while provisions for consolidation exist, they are rarely applied, and institutional capacity remains

limited, with the National Inspectorate for Territorial Protection overseeing land use and unauthorized constructions. In contrast, countries such as Italy, Germany, and France maintain robust frameworks. Italian law provides clear constitutional and civil code guidance for expropriation, ensuring transparency and judicial remedies. Germany and France employ structured land readjustment systems that reorganize parcels for urban development, relying on voluntary participation and strong institutional support to promote fair and efficient land use. Aligning Albania's framework with these European standards would require enhanced legal clarity, institutional strengthening, and effective enforcement to safeguard property rights and foster sustainable land management.

Currently, IKMT and municipal urban planning offices are the main actors controlling urban land distribution, supported by legal mechanisms like expropriation and zoning. However, Albania lacks a fully operational land readjustment/pooling system and robust judicial enforcement, which limits comprehensive control over urban land allocation.

3. Conclusion

The evolution of land distribution and control in Tirana illustrates the cumulative effects of post-socialist property restitution, fragmented ownership patterns, and prolonged informal urbanization on contemporary planning outcomes. Historical reforms enabled the rapid privatization of urban land but lacked complementary instruments for land readjustment, contributing to parcel fragmentation and costly redevelopment negotiations. Case studies such as Bathore and Lapraka demonstrate how informal claims emerged in peripheral zones where cadastral systems and enforcement capacity were weak, leading to urban expansion beyond planned boundaries.

Recent institutional reforms including cadastral consolidation and digitalization have improved documentation accuracy and strengthened administrative coordination; however, persistent overlaps, contested titles, and inconsistent boundary records continue to limit planning coherence. The interaction between formal registration milestones and persistent informal construction suggests that legal titling alone cannot ensure orderly urban growth. Instead, coordinated spatial governance, integrated digital cadastral platforms, and participatory land readjustment mechanisms are required to align private property rights with public planning objectives.

Overall, the findings confirm that fragmented ownership structures, legacy informality, and limitations in enforcement capacity remain central constraints on sustainable urban land management. Addressing these challenges requires ongoing institutional adaptation, strengthened inter-agency coordination, and the adoption of flexible planning tools capable of resolving competing land claims while enabling strategic urban redevelopment (World Bank, n.d.; OECD, n.d.).

3.1. Recommendations for improvement

- Enhance the capacity and coordination of institutions involved in land administration, such as the State Cadaster Agency and the National Inspectorate for Territorial Protection, to streamline land management processes.
- Accelerate the land registration process to resolve ownership disputes and provide legal certainty, facilitating better land control and distribution.
- Develop policies to legalize and integrate informal settlements into the formal urban framework, ensuring access to infrastructure and services.
- Engage communities in land planning and decision-making processes to ensure that land distribution meets the needs of all citizens and promotes social equity.

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Mapping the Invisible Boundaries

A Data-Driven Approach to City Delineation

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MSc. Andia VLLAMASI
ORCID 0009-0007-1730-4130
Department of Information Technology, POLIS University, Tirana, Albania,
andia_vllamasi@universitetipolis.edu.al

Prof. Dr. Tamara LUARASI
ORCID 0009-0002-7449-5491
Department of Information Technology, POLIS University, Tirana, Albania,
tamara_luarasi@universitetipolis.edu.al

Dr. Luca LEZZERINI
ORCID 0009-0003-7441-429X
Department of Research and Development, POLIS University, Tirana, Albania,
luca_lezzerini@universitetipolis.edu.al

Abstract

According to estimates, 67% of the world's population is expected to live in urban and sub-urban areas by 2040, primarily due to ongoing migration from rural areas. This pattern is also very noticeable in Albania, where a highly populated metropolis that frequently stretches beyond its administrative borders is the result of rapid urbanisation.

For a long time, researchers and policymakers have struggled to define urban areas. Some of the traditional methods rely on administrative borders, which often fail to capture the actual economic and spatial dynamics of cities. Others depend on urban morphology, missing the population behaviours and needs. To better understand and manage the urban dynamics, this research aims to try a different method for calculating Tirana's borders. This method will be based on population distribution, utilising a density-based clustering technique in conjunction with a digital representation of the urban form. In comparison to the original administrative boundaries, can a digital, data-driven, density-based algorithm provide a more functionally correct and policy-relevant delineation of metropolitan areas in a mid-sized city like Tirana? And how can we encode the urban morphology in a digitalised representation that can be both fed into an algorithm and understood by urban planners?

This project aims to develop a machine learning-based approach that clusters buildings into urban zones defined by metrics such as density, urban morphology, and geographic distribution. This approach will lead to the identification of a group of strongly interconnected urban clusters that better represent the physical environment and distribution of economic activity in Tirana. These groups will reflect the real functional extent of the city, taking into account its urban form, and excluding low-density, outlying zones. Additionally, we believe that the vertical land indicator will

provide fresh perspectives on Tirana's urban polycentricity and compactness, which will influence the design of spatial policies and infrastructure development.

These newly drawn lines will serve as a foundation for further study, enabling more accurate plans for sustainable development, more focused urban planning, quick detection and reaction to change, as well as novel opportunities for economic analysis and policymaking.

Keywords

Rapid urbanisation, clustering, urban, machine learning, density

1. Introduction

In the age of rapid urbanization, understanding the spatial limits of urban areas has become an essential task for both researchers and policy-makers. But how should a city boundary be defined?

Defining urban areas has long been a challenge in urban studies since traditional approaches often rely on administrative boundaries that do not adequately capture an accurate geographical and functional composition of cities. This paper addresses the challenge of defining Tirana's true urban extent through a data-driven delineation model that integrates building-level information and spatial clustering.

As cities from time to time transcend their formal boundaries, they result in continuous urban landscapes that are not adequately represented by administrative division. (Daniel Arribas-Bel) An alternative approach to address this issue is to define urban areas based on building density and land use characteristics.

Most of the available data is at the level of local political or administrative units and these statistics have proven problematic because of the uneven distribution of population and economic activity, as well as the differences in land size and land use within these units. Unfortunately, policy-making often occurs at the level of administrative zones, but, again, these areas generally fail to reflect functional reality and may even negatively affect subsequent policies (Daniel Arribas-Bel, 2021).

Instead of depending on administrative or municipality unit, this study uses building-level data to define urban zones in Tirana, Albania, utilizing a data-driven methodology. We use a density-based clustering algorithm to classify buildings into continuous urban zones according to a build-up intensity and spatial proximity. By removing the arbitrary divisions established by legal limits, this approach offers a more functional and organic image of the city. The study's objective is to develop and test a computational method capable of identifying functionally coherent urban zones based on density and morphology, compare the delineated boundaries with official administrative zones, and assess the potential of such digital delineations to inform sustainable planning and infrastructure policies.

Better urban planning and policy decisions may be supported by the findings, which provide a more accurate understanding of urban form, density distribution and economic activity patterns. This approach highlights developed areas, on which further analysis can be conducted, while at the

same time identifying underdeveloped areas, serving as a basis for designing policies aimed at their development.

Things to be considered:

- Can this methodology help in predicting urban growth?
- Since now the separation is been made by data-driven methodology is it easier to make comparisons based on some aspects between urban areas, also characterize land use changes?
- How can we encode the urban morphology in a digitalized representation that can be both fed into an algorithm and understood by urban planners?

This paper discusses the applied technique, the results and how this approach varies from standard administrative delineations. The study contributes to ongoing debates in spatial and smart-city governance, by highlighting these objectives explicitly, positioning Tirana as a representative case for mid-sized Mediterranean cities facing informal growth and blurred boundaries.

2. Literature review

2.1. The importance of delineating urban areas

Before examining specific algorithms used, it is needed to say that urban delineation techniques have evolved from morphological interpretations to computational and data-driven models. Early approaches relied on land-use or administrative boundaries, whereas current research increasingly employs machine learning and big-data sources to capture the functional reality of cities. This takes special significance in Albania due to the extensive development in recent decades, related to the change of the economic and political system after 1990.

Metropolitan areas like Tirana are investing in capital projects to improve their infrastructure and amenities, which has caused uneven urbanization and disproportionate population increase, ultimately compromising social and economic sustainability, mentioned by Arpita Bakshi (2023).

Urban administrative division always remains a problem especially for urban economist. According to Arribas-Bel et al., one of the main challenges faced by urban economists, along with the lack of data, is how to define a city (2021). Administrative areas are often used for policy-making purposes, and such areas usually do not reflect any functional reality and can even compromise the effectiveness of the resulting policies.

There are two main reasons that makes defining the boundaries of urban areas important.

First, existing administrative units, such as municipalities, generally do not constitute independent and functionally autonomous units. Second, improperly defined units can lead to a number of biases related to MAUP problem (Xi Li, 2021).

In their study on urban land use planning, Chaturvedi and de Vries (2021) noted that mapping the temporal and spatial changes of urban and rural land is very important to highlight the effects of human activity on the environment. Therefore, delineating urban areas remains a challenging task to support the daily practices and the spatial-temporal needs of planners and decision-makers.

Furthermore, the way how urban areas are defined, directly influences the statistics used in urban analysis, which in turn shapes the conclusions drawn regarding urban dynamics and development (Chenyu Fang, 2025).

Chinese researcher Yixing Zhou argues that the scientific definition of cities is essential in conducting urban scientific research and achieving sustainable development of cities and regions.

For planners and geographers, defining city borders is always an intriguing challenge. To effectively govern and manage cities (count populations, impose taxes, set up transportation systems, etc.), planners need to know where cities begin and end. Geographers also need to know the city limits in order to map urban growth, describe changes in land use, compare cities (in terms of area and population), etc.

2.2. Methodologies and algorithms used for delineating urban areas

- Arribas-Bel et al. (2021) - The authors contribute by developing a new methodology for determining urban areas. By relying on a unique database on the precise geolocation of all 12 million buildings in Spain, they design a density-based machine learning algorithm to group buildings within areas of sufficient density.
- Chenyu Fang (2025) - This paper aims to develop a methodological approach for data-driven cities that harnesses the power of OSM data to redefine urban areas. Specifically, the study aims to improve the accuracy of urban area definition by filtering and clustering relevant OSM data, explore the applicability of DBSCAN clustering in defining urban features and boundaries, and evaluate the performance of the proposed method through validation with external datasets, such as night-time light data and Zipf's law.
- Xiaomeng Sun (2023) - The study aims to define peri-urban areas using data from various sources and automatic learning, as well as including information regarding human movement. In particular, we use datasets of land use and land cover (LULC) maps, night light images, points of interest (POI), the road network, and taxi trajectories.
- Dabove, Daud, & Olivotto (2024) - The footprints of buildings are essential in urban planning. In the context of urban planning, they provide valuable insights into the distribution of buildings, facilitating the efficient use of land and development strategies. The paper proposes a new method to address the challenges of segmenting building footprints in urban environments.
- Hanoon et al. (2023) - Land use optimization approaches are a powerful strategy to maximize the advantages in urban land use planning. This study aims to bring a simple technique that can predict urban sprawl over the long term, while easily integrating with land use optimization techniques to make appropriate decisions. It presents urban growth boundaries (UGB) as a simple tool to manage urban sprawl.
- Ghaffarishahri (2022) - The definition of the boundaries of Historic Urban Areas is considered an important part of urban planning. However, for a long time, the official demarcation of the boundaries of Historic The study aims to develop a digital and semi-automated approach for the rapid definition of the boundaries of historic urban areas. To

achieve this goal, a data-driven and structured method for the characterization of urban areas is required, based on Graph Theory and Graph Neural Networks.

- Moreno-Monroy et al. (2021) - The paper presents a new method to define metropolitan areas - or functional urban areas (FUAs) - worldwide and assesses their population trends. This paper contributes by proposing a method to uniquely identify commuting areas around urban centers. The commuting areas around each urban center are approximated based on the estimated probability that grid cells of one km2 outside urban centers belong to a metropolitan area.

Overall, all the studies mentioned above demonstrate the variety of methods utilized to define urban and suburban areas, each providing special benefits and solutions for urban planning and research.

3. Methodology

The process of grouping a given collection of data objects into clearly separate sets or groups is known as cluster analysis or clustering. All the items in a set are similar with each other; as a result, items in various sets are not the same. A sparse zone with "relatively few" data separates clusters, which can be thought of as dense areas in the data space. Assuming this, a cluster may have an "arbitrary" or "regular" shape (Rupanka Bhuyan, 2013).

Spatial clustering is a grouping technique of points based on geographic proximity, which is also the objective of this study. The literature suggests DBSCAN (Density-Based Spatial Clustering of Applications with Noise) as an adapted method for this purpose (Martin Ester, 1996) and the following indicators are provided to support this suggestion. Clusters can have different irregular shapes, and points that are not included in them, which make up what is called noise, are treated separately. These are elements that correspond to the specific situations of this study.

Therefore, DBSCAN clustering technique is used in this paper, and uses the density-based concept of clusters to find clusters of any shape.

3.1. Data

Since access to cadastral and census data was limited, the primary data source for this application is OpenStreetMap, retrieved and processed using GIS tools.

Due to the increasing affordability of their hardware and the ease of use of their software, GIS tools have grown in popularity. By offering a single source of up-to-date and historical data and maps, GIS can make a map more current and relevant. This lowers the cost of data storage and improves the effectiveness of thematic mapping. With a single data storage and management system, GIS facilitates better collaboration and makes it simple to store, arrange, and retrieve data from several sources (Xuejing Xie, 2019).

With easier access to more current and important geographic data, strategic decision-making will receive better support and help. Consequently, planners are able to plan more efficiently and make

well-informed decisions. They can also investigate a greater variety of what-if scenarios, which leads to more dependable, strong, and effective long-term plans.

Datasets available at various levels of spatial aggregation are typically used in GIS projects and these include also census data by area or block and data related to a specific site or parcel.

The attribute data, or indexed data that are generated by GIS tools, are composed of ***j*** attributes (features) in columns that specify ***n*** items (records and samples) in rows. Each row represents an item, while the columns carry the entity' features (characteristics).

Using simple statistical tools or learning algorithms, this attribute data models are easier to be analyzed due to their higher accuracy (Stéphane C. K. Tékouabou, 2022). However, they have the disadvantage of being expensive or challenging to get over a large geographic area.

The dataset of buildings used in this study is exported from OpenStreetMap (OSM) and using a QGIS, an open-source Geographic Information Systems (GIS) tool converting them into csv file for further analysis. Since OSM in an open-source mapping platform where anyone can edit and contribute with information about roads, buildings and businesses, sometimes is not accurate enough. To ensure the accuracy of our data we have done a comparison with the data shared by ASIG (State Authority for Geospatial Information), that is government institution responsible for monitoring spatial planning, maintaining of topographic and cadastral maps and geospatial data management in Albania and also with data from PPV (General Local Plan) that is strategic urban planning document. Based on these comparisions, which took into account the number of buildings, number of floors and separation of land use, to obtain more accurate results some data have been added or digitized using the latest orthophoto.

The dataset contains accurate information on:

- The building's exact location (latitude and longitude)
- The total built surface (above ground)
- The year of construction
- The building's function (residential / non-residential)
- The building's altitude (number of floors above ground)
- The building's footprint (squared meters)

The groundwork for calculating urban density is provided by these factors. To guarantee accuracy, buildings lacking key features were eliminated and the data was cleansed to eliminate inconsistencies.

3.2. Implementation

We use building-level data in this study to define urban regions in Tirana using a density-based clustering technique. Our method, which incorporates both horizontal and vertical indicators of urban growth, identifies urban regions based on the spatial distribution and density of buildings, in contrast to previous methods that rely on administrative boundaries. This enables to find urban areas that are functionally coherent and represents more accurately the actual urban fabric. Methodology is going to be separated in some steps, as following:

a. Data preparation

The dataset contains accurate information on the number of floors, footprint area, building location (latitude and longitude) and the function of building (residental/non-residental).

b. Measuring urban density

To quantify urban density, we consider two complementary dimensions (key indicators):

- Horizontal density (footprint area)

Horizontal density is a measure of built-up land coverage that represents the entire area occupied by building footprints with a specific cluster. This adds in determining the amount of land that has been developed, but it does not take into consideration differences in building height.

- Vertical density (number of floors)

Because cities expand upward as well as outward, we take building heights into account to obtain a more accurate indicator of urban intensity. Vertical density is a measure of the total built-up volume in an area that is computed by multiplying the footprint of each structure by the number of floors.

The reason why we measure the vertical density as number of floors and not the shape length is because number of floors are directly linked to occupant potential.

We distinguish between low-density expansion and high-density city centers by combining both horizontal and vertical density, which gives our approach a more nuanced depiction of metropolitan areas.

c. Clustering urban zones

To define urban areas based on density we employ DBSCAN, a widely used machine learning algorithm that groups data points (in this case, buildings) based on their spatial proximity.

- Key parameters of DBSCAN:
    - Epsilon(Ɛ): the maximum distance between two buildings for them to be considered part of the same cluster. Cities with comparable global densities may have various thresholds, which are specific to each area under study and determined a posteriori. We tested different values to optimize results.
    - MinPts (Minimum buildings per Cluster): the minimum number of buildings required for a group to be classified as an urban area.
    - Density Criteria: The clustering is based on both footprint coverage and vertical expansion, ensuring that areas with high-rise buildings are accurately represented.
- Benefits of DBSCAN:
    - It can identify clusters of any shape.
    - There is no need to know previously how many clusters there are.
    - There is a concept of noise (items that don't belong to any cluster).

- MinPts and ε are the only two 2 input parameters, and they are mostly unaffected by the database's point ordering.

- Drawbacks of DBSCAN
    - It is challenging to accurately determine the values of the parameters ε and MinPts.
    - The computational complexity for n data objects is O(n2) in the absence of any specific structure or spatial indexing.

DBSCAN works by selecting a building at random and drawing a search radius (Ɛ). This threshold in some studies is defined by commuting patterns (Ying Long, 2015), because population mobility plays a crucial role in the life of individual and also in economic system's performance. But since Albania is a developing country, no accurate data is available for this commuting patterns. Therefore, it has been used the threshold of 5.88km. This because it is the mean average of commuting distance in Tirana based on different types of commuting. After trying it, this distance does not give good results of clustering.

Some different values were tried to optimize results and checked for each value if in radius are enough buildings (MinPts), expanding clusters where the density is sufficient and excluding outlier buildings that do not belong to any urban area.

This algorithm has some disadvantages, like becoming quite inefficient for big datasets, because its computational complexity without any spatial structure or indexing is $O(n^2)$ for n data objects, that is relatively high compared to other clustering methods.

Considering this and based on previous works (Daniel Arribas-Bel, 2021; Dina Nur Amalina, 2024), some extensions of DBSCAN like ADBSCAN and HDBSCAN have been tried to apply to increase stability and lower mistakes from outliers.

Since these approaches do not make assumptions about predetermined shapes or bounds, it is very helpful for urban study. Instead, it naturally adjusts to the organic spread of structures, capturing both outer urban extensions and dense metropolitan cores.

After defining the clusters, the alpha shape algorithm is used to draw boundaries around this clusters. Rather than just generating a basic outside boundary, the Alpha Shape algorithm is an innovative way of outlining a collection of points by shaping them to represent their actual form. Imagine it as a flexible version of the convex hull that adjusts according to a parameter called α rather than wrapping points in a tight rubber band. While a greater α smoothes things out and makes the shape more rounded, a smaller α clings the points closely, capturing intricate curves and concavities. Because cities don't often follow exact geometric patterns, this makes it incredibly helpful when mapping metropolitan regions. For instance, Alpha Shapes assist in creating realistic city boundaries that honor the natural flow of structures after buildings have been clustered using an algorithm such as DBSCAN. It's particularly useful when working with irregular shapes, ensuring that intricate city layouts are not forced into simplistic outlines.

d. Locating employment centers

The approach mentioned above can also be used to identify employment centers inside cities in addition to defining urban areas. Using the same clustering approach, we can only look at non-

residential structures (commercial, office, and industrial areas) because economic activity is frequently concentrated in particular districts.

Because of the variety of businesses and the wide range of workforce sizes, it is difficult to pinpoint the precise average number of employees per non-residential unit in Tirana, Albania. Nonetheless, the information at hand offers some insights: In Albania, small businesses – defined as those with one to four employees – make up about 85.9% of the market. Even though they are common, they account for 20.2% of yearly turnover and 22.6% of employment. On the other hand, although they only make up 1.6% of all businesses, larger companies with 50 or more employees employ half of the nation's workforce and account for 45.3% of annual revenue.

Since the data available at the moment are not so precise, in further works we also tend to define a density threshold of non-residential unit per km² that can be used to define employment clusters and try to define a detailed map of economic hubs within Tirana, highlighting areas of intense business activity.

4. Results

Based on the methodology explain above, some results generated by the algorithms are shown. These results are the combination of different parameters that these algorithms take into consideration for the clustering.

- Application of DBSCAN in our dataset

After trying different combinations of parameters (MinPts and ε), based on the images generated and the clusters that were created, below are the clearest delineation of the urban zones.

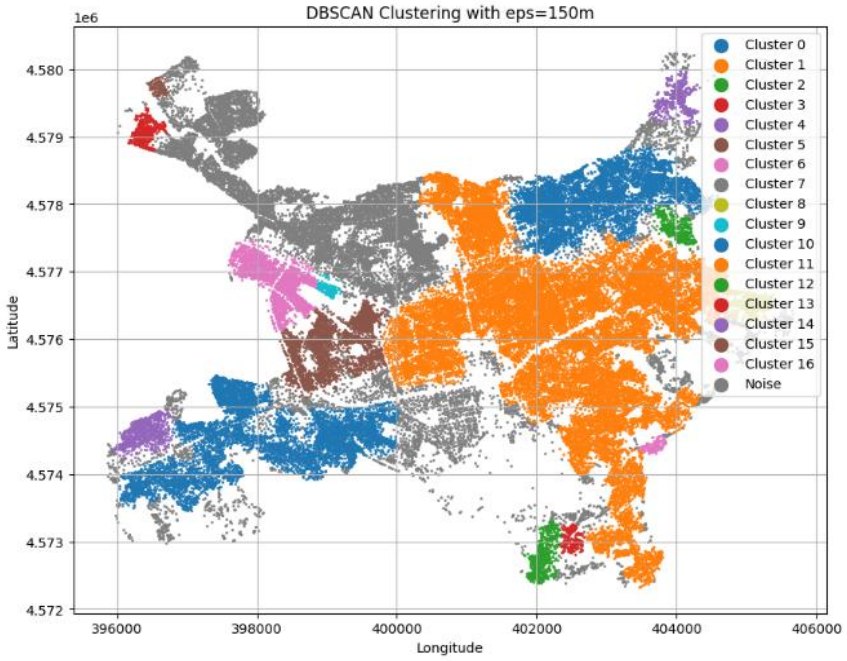

Figure 1. *DBSCAN Clustering with parameters epsilon = 150, minimum samples = 90.*

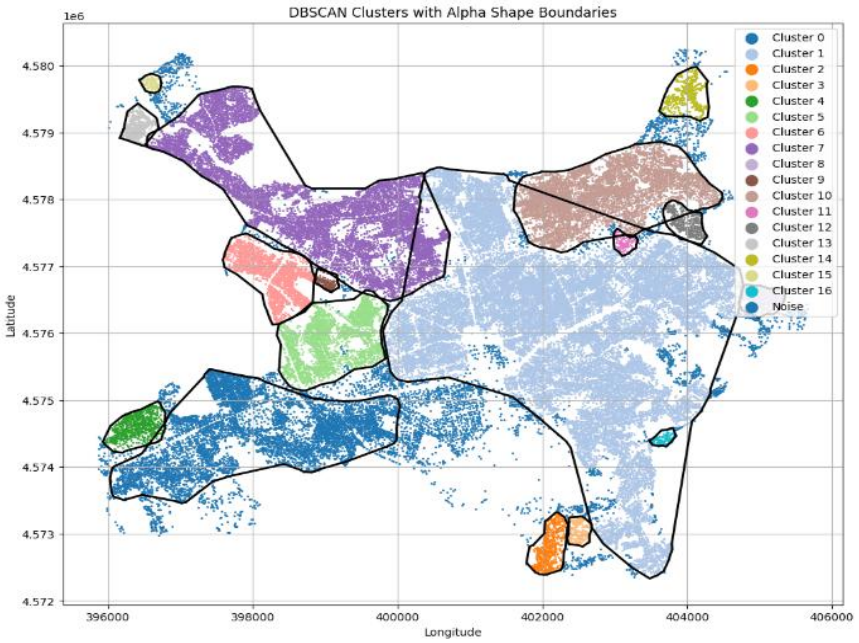

Figure 2. *Alpha shape boundaries.*

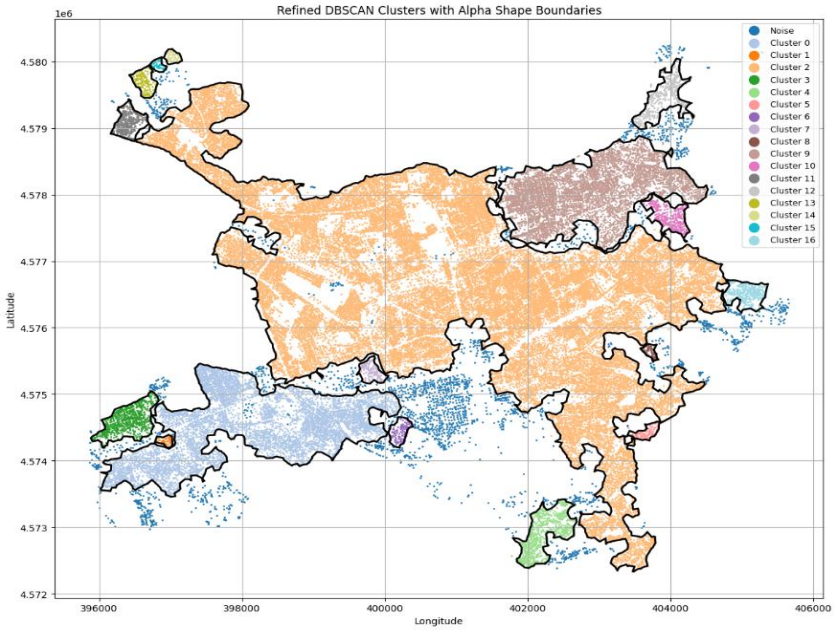

Figure 3. *Refined DBSCAN, eps 130, minimum samples 60, noise removed*.

- Application of A-DBSCAN algorithm

We have used these parameters: eps = 150, min_samples = 90 to avoid small, noisy clusters. To keep stability n_iterations = 200 and sample_fraction = 0.7. It is recommended to use 70% of data per iteration for better cluster consistency.

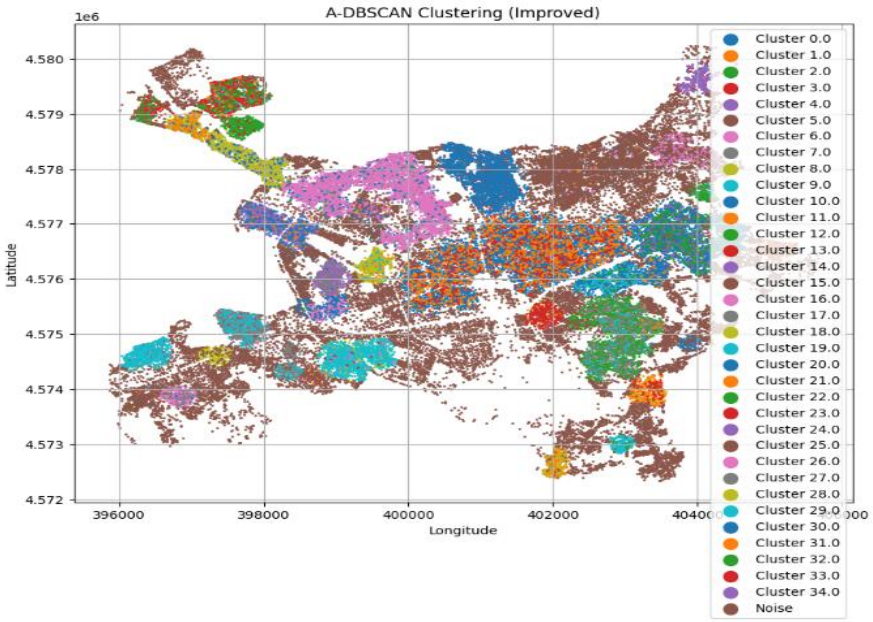

Figure 4. *First A-DBSCAN application.*

Here is an improved A-DBSCAN where parameters are updates:

- eps = 150 -> Keep the best found DBSCAN distance
- min_samples = 70 -> Lower min_samples to reduce noise
- n_iterations = 300 -> Increase iterations for better stability
- sample_fraction = 0.7 -> Use 70% of data per iteration

Despite our attempts to improve the generation through different combinations of parameters, the result continues to remain unclear and alpha shape algorithm cannot be applied.

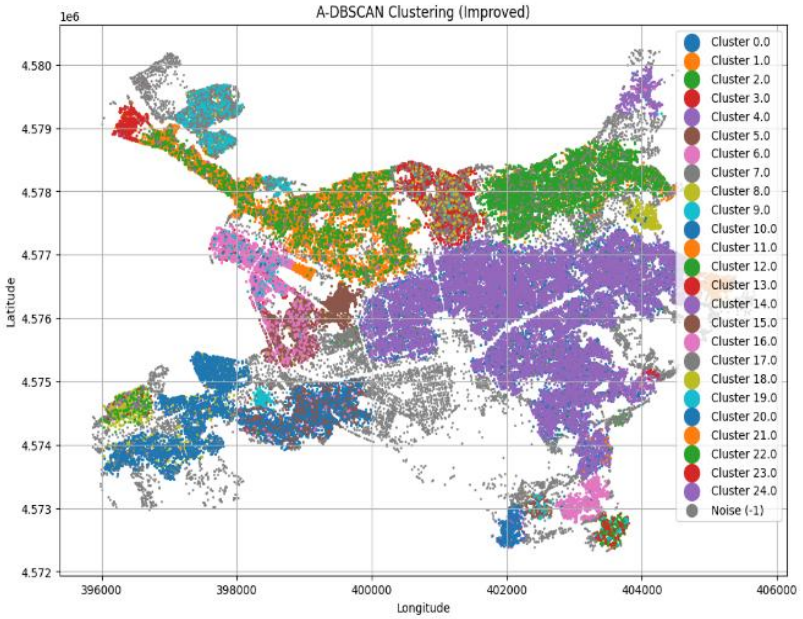

Figure 5. *ADBSCAN Improved version.*

- Application of HDBSCAN

Since our dataset represents areas with varying spatial densities (e.g., urban core versus suburb), we also applied HDBSCAN, which builds a density hierarchy through mutual reachability distance and selects the most stable classes from the condensed tree. This approach reduces the sensitivity to the global parameterization of ε of DBSCAN and improves the identification of classes with non-convex shapes and different densities, providing a stronger filter for noise/outliers and useful metrics such as membership strength. In practice, HDBSCAN requires fewer parameter adjustments (mainly min_cluster_size) and produces more robust and reproducible results on large spatio-urban datasets.

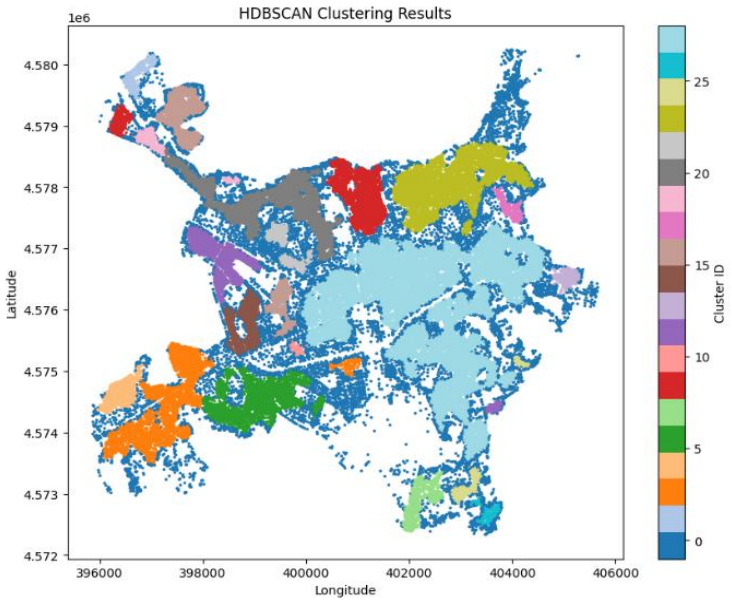

Figure 6. *HDBSCAN clustering results for the best paramter combination.*

An actual overview of the urban areas of Tirana has been provided below, showing a map created by ASIG and approved by the National Council of Territoriality (KKT), which provides an overview, based on VKM no. 5, dated 29.12.2014 "On the identification of urbanized areas throughout the territory of the Republic of Albania and the approval of maps where interventions can be made in the function of urban development". However, the question arises: What is exactly this overview showing?

What can be distinguished with the naked eye from the map is a large polygon in the center, with an aerial radius of 3.3 km, which classified all of Tirana as a massive urban area, accompanied by several other secondary polygons such as: Mëzezi, Yzberisht, Farkë, Paskuqan, Shish Tufinë etc. But why was this classification done in this way and where do these urban areas (clusters) come from? According to the current VKM, these areas have been identified as buildable areas, based on the actual condition of existing buildings, where new construction can be added within the framework of urban development. In principle, it makes sense, since for an urban area, the main indicators would be the number of buildings and their density. But why exactly this type of division, these

polygons? The VKM cannot answer this, and the map does not provide any concrete evidence, unless we consider them divisions with an administrative function.

Figure 7. *Map created by ASIG.*

Considering the current administrative division and comparing the results of various algorithms used for the urban division of Tirana, it is evidenced that the DBSCAN algorithm provides the most consistent division based on three major factors: the first and most important is the presence of buildings, followed by the horizontal and vertical density, which are the indicators that define an urban area (figure 2).

But does this method take into consideration the morphological aspects? How can we encode the urban morphology in a digitalized representation that can be both fed into an algorithm and understood by urban planners?

Although the suggested delineation method provides a reliable, data-driven solution for locating urban areas according to building-level density and distance, it does not specifically take into account the built environment's morphological features. The spatial form or structure of urban agglomerations is irrelevant to this density-based logic, which does not assess spatial coherence, fragmentation, shape, or proximity. Therefore, even if they lack morphological coherence, linear formations along transportation corridors or dispersed peri-urban developments may be included in the same urban cluster.

To address this limitation, we tend to introduce a complementary morphological analysis. In particular, we will employ tools like MorphoLim to add morphological criteria, like boundary smoothing, continuity, and compactness. By capturing not just functional closeness but also the physical and spatial coherence of urban form, this allows us to fine-tune the delineation of urban extents in Tirana. We hope to develop a border that is both statistically sound and morphologically

significant by integrating the two approaches, particularly in a city like Tirana where complex spatial patterns are created by irregular urban expansion and informal settlements.

5. Conclusion

The findings demonstrate that density-based clustering captures a more realistic functional footprint of Tirana than administrative polygons. Beyond its analytical value, this approach has direct implications for urban governance: it supports the identification of service gaps, informs land-use zoning, and assists in prioritizing infrastructure investment within high-density clusters. Moreover, the delineated employment centers can guide transport-planning and resilience strategies by linking spatial form with economic performance.

In a broader perspective, adopting data-driven delineations encourages transparency and evidence-based policymaking, aligning with Albania's objectives for Europe integration.

Over the past few years, a number of techniques have been developed to define urban regions using growing amounts of data. To better understand and manage the urban dynamics, in this research we presented a method for calculating Tirana's urban zones and borders that relies on individual buildings, which are the most fundamental elements of cities.

Our delineation based on a data-driven algorithm, DBSCAN, is better than those produced by traditional methods that rely on administrative borders. We think that these defined urban areas more accurately represent the concept of an urban agglomeration based on a high concentration of people and businesses since they are spatially continuous groupings of buildings rather than exogenous aggregations like grid cells or administrative boundaries.

Even though this approach significantly improves the accuracy of urban area delineation, these findings have applications that go well beyond scholarly curiosity. This method can be an effective tool for urban planners and policy-makers in a number of important sectors, leaving room for further analysis of different urban factors.

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V. Urban and Natural Environment: Environmental Problems, Climate Issues and Other Environmental Challenges

Sustainability and resilience in the natural environment / Adaptive planning / Complexity in territorial development.

Air, water, and soil pollution / Ecosystem services for protected and urban areas / Strategic environmental assessments / Nature-based solutions / Urban biodiversity assessment.

Economic, Social, Environmental, and Landscape Values of Urban Agriculture and its Contribution to the Sustainability of Cities

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Emeritus. Prof. Dr. Sherif LUSHAJ
Faculty of Planning, Environment and Urban Management, POLIS University,
sherif_lushaj@universitetipolis.edu.al

Abstract

Urban agriculture plays a significant role in the sustainability of cities by contributing to food production, employment, and income generation through the cultivation of urban and peri-urban land, as well as family gardens. The opportunities in this sector are substantial, with rural family gardens also contributing significantly to large-scale agricultural and livestock production. Before 1990, rural family yards classified as "family gardens" covered an estimated surface area of 30,000 hectares, accounting for 27-35% of national fruit production, 47% of grape production, 23% of the total number of fruit trees, and 74% of pergolas (high grapevines). Until 2014, Albania was divided into 373 municipalities and communes. However, the adoption of Law No. 115/2014, "On the Administrative-Territorial Division of Local Government Units in the Republic of Albania," reorganized the country into 61 municipalities. This new administrative division has increased the availability of agricultural land in urban and peri-urban zones and fostered new urban-rural relations that encourage the development of urban agriculture. It is estimated that the surface area cultivated in family gardens within rural and peri-urban areas has doubled since 1990, particularly in peri-urban zones. This article analyzes the available land resources for the development of urban agriculture in Albania's urban and peri-urban areas, highlighting its potential, opportunities, and importance from economic, social, environmental, and landscape perspectives. It also emphasizes the need for program development, the integration of urban agriculture in urban planning, and assessment of food safety risks arising from industrial pollution to ensure sustainable urban growth.

Keywords

Urban agriculture, peri-urban areas*, agricultural products, food safety, environmental risks*

1. Introduction

According to FAO (2022), urban agriculture involves the cultivation of crops and livestock production, processing, and distribution within urban and peri-urban areas to supply food to urban residents. Urban agriculture has developed alongside the growth of cities, driven by factors such as population growth, demographic shifts, and increasing demand for services. During times of food scarcity, such as World War I, urban areas became focal points for food production. President Thomas Woodrow Wilson of the United States (1913-1921) encouraged citizens to utilize any available space for agricultural purposes to offset the loss of imported food from Europe. This initiative led to the implementation of the national “Victory Gardens” program during World War II, which aimed to establish functional agriculture within cities. As a result, approximately 44% of the total annual fruit and vegetable production in the United States was achieved through these efforts. Similarly, urban gardens emerged in Germany during the early 19th century in response to poverty and food insecurity, followed by initiatives in Canada, the United Kingdom, and other nations. Globally, millions of individuals are engaged in urban agriculture, with an estimated 800 million people involved worldwide, and 200 million producing for the market (Armar-Klemesu, 2000).

The concentration of the population in cities both in Albania and other countries highlights the need to use land resources in urban and peri-urban areas for food production, environmental enhancement, landscape improvement, and urban sustainability. From this perspective, urban agriculture remains a viable strategy for sustainable urban development, providing agricultural and livestock products from urban and peri-urban land resources. Globally, urban agriculture is constantly expanding. For example, in the United States, urban areas have nearly tripled over the last 50 years, facilitating the growth of urban farming initiatives.

In Albania, under the centralized agricultural economy, household urban gardens provided on average 13-15% of the country’s agricultural production until 1980, and around 10.1% by 1990 (State Planning Commission of Albania, 1990). After land privatization (1991) and increased urbanization, urban land, peri-urban, and urban gardens in rural areas are expected to be grow about twice time. The opportunities remain great, as family gardens in rural areas provide large-scale agricultural and livestock products.

In Albania, although agricultural activities are carried out in urban gardens and residential centers in rural zone, the term "urban agriculture" is not mentioned or is not officially recognized. It is not part of development programs, strategies and general local plans of Municipalities or even at the national level. There are no data for production indicators, cultivated areas, distribution, or development dynamics, and studies assessing the current situation and future prospects are missing, even though unused urban land resources and inherited practical experience exist. Studies in the field of urban agriculture in Albania are lacking and this activity not included in the planning process.

Urban agriculture has historically been a fundamental element in the rise of early cities (Lohrberg, 2016). It is a multidimensional activity that includes open-field cultivation, greenhouse farming, vertical urban agriculture, community gardens, and the leasing of municipal land to students, workers, and civil society organizations to support food production for vulnerable populations.

In this study, several research questions are addressed, such as: Is urban agriculture considered an important source of food products, landscape and environmental value, and a contributor to city sustainability? Should it be included in the urban planning process? The main objective of this work is to study urban agriculture in several large cities of the country, focusing on urban lands and gardens, as well as urban gardens in residential centers. The scope of the study includes land resources, agricultural production, problems, and findings.

2. Literature review

The dimensions and diversity of urban and peri-urban agriculture are shaped by a wide range of factors, including political and economic systems, crisis situations, demographic shifts, land use changes, and governance models. Historically, in pre-industrial cities, residents engaged in small-scale farming, urban gardening, and animal husbandry. It is widely acknowledged that urban agriculture was fundamental to the emergence of most early cities (Vejre et al., 2015).

It is important to emphasize that urban agriculture extends beyond merely providing food during times of scarcity. Rather, it is integrated into the urban economy and ecology, contributing to the overall sustainability of cities, shaping urban landscapes, enhancing recreational opportunities, and providing significant environmental and social benefits. Moreover, it improves living conditions, facilitates the marketing of locally produced goods, establishes recreational green spaces, and encourages the engagement of multiple stakeholders.

From an economic perspective, urban and peri-urban agriculture plays a crucial role in broadening the economic base and promoting the sustainability of cities. As highlighted in the literature, urban agriculture provides opportunities to enhance food supply, improve public health, strengthen local economies, foster social cohesion, and promote environmental sustainability worldwide (Orsini et al., 2013). Several authors suggest that urban agriculture (UA) can serve as a key strategy to increase a city's food self-sufficiency and resilience against disruptions in national or global food supply chains, particularly in the face of extreme weather events and political crises associated with climate change (Altieri et al., 1999; Grewal & Grewal, 2012; Barthel & Isendahl, 2013; Hamilton et al., 2014; Barthel et al., 2015).

To encourage the creation of landscaped green areas, it is essential to promote the cultivation of leased land and the direct marketing of products, either on-site or through local farm shops and markets. A wide range of studies provide insights into the development, importance, potential, country-specific experiences, cultivation techniques, and limiting factors of urban agriculture. Guna Pala et al. (2025) note that "vertical farming allows for year-round food production that is not dependent on weather conditions and reduces the need for traditional agricultural chemicals." Similarly, in its 2017 resolution, the European Parliament called on Member States to provide incentives for the development of urban farming and to respond to the growing interest in urban and peri-urban agriculture (Margaras et al., 2025).

According to Borges et al. (2024), urban agriculture offers pathways to achieving broader environmental, social, and economic outcomes that cities urgently require. In Shanghai, China, for

instance, about 50% of the city's vegetable demand is met through production within its administrative boundaries (Lang & Miao, 2013; Kanard, 2024).

The relationship between cities and agriculture has a long historical background. The agricultural landscapes surrounding cities have traditionally served as spaces for both food production and recreation. Vegetables, fruits, cereals, and animal products were commonly sold in markets located in the main squares of cities (Lohrberg, 2016).

Earlier research emphasized that extreme heat and temperature fluctuations directly affect public health and urban livability (Kucaj & Gjoni, 2020). These findings are consistent with long-term analyses of agricultural vulnerability to climate variability, particularly drought and rainfall reduction (Kucaj et al., 2024).

3. Methodology

The paper aims to assess the prevalence and scope of urban agriculture in urban and peri-urban areas across selected local administrative units. The methodology adopted in this research employed a comprehensive, mixed-method approach to evaluate the current status and potential of urban agriculture in Albania's urban and peri-urban zones, as well as in urban gardens located within rural settlements. Direct fieldwork was carried out in the municipalities of Tirana, Vlora, Elbasan, and Orikum, and was further supported by field observations conducted in additional areas. The primary focus was on identifying both family-owned and business-operated gardens situated in urban and peri-urban public lands, as well as traditional family gardens in rural areas.

Through consultations with residents and local government representatives, multiple dimensions of urban agriculture were examined including land resource availability, types of cultivated products, levels of governance, and the functionality of marketing chains. The analysis of collected data and indicators provided the basis for developing recommendations aimed at strengthening the evaluation of urban agriculture opportunities and improving governance mechanisms. These efforts are essential to ensure the economic, social, and environmental sustainability of cities and to promote the integration of urban agriculture into development plans, programs, and strategies.

4. Results

Development of urban agriculture in Albania

4.1. Land resources

Based on research conducted in the municipalities of Vlora, Tirana, Elbasan, and Orikum, as well as observations made in Korça and other locations, it is evident that urban agriculture in both urban and peri-urban areas primarily revolves around the tradition of family urban gardens. The transformation of former state agricultural farms in 1992 enabled city residents, many of whom had previously worked on these farms, to obtain land for cultivation. However, despite these

developments, urban agriculture remains largely unstructured, lacking strategic planning and coherent action frameworks across governance levels.

Before 2014, the Municipality of Vlora included only the city itself, with a population of 79,513 inhabitants and a total area of 10.5 km². Since 2015, following the implementation of Law No. 115/2014, the municipality expanded to incorporate five administrative units (both urban and rural), covering a total area of 610.3 km², of which 18,775 hectares are designated as agricultural land (Table 1).

No	Surface area Hectare	Agricultural System	Available and Undivided agricultural land	Urban System
1	Surface area	18,775	**1430**	2770

Table 1. *Surface area distribution across territorial systems in the Municipality of Vlora (in Hectars).*
Source: General Local Plan, Vlora Municipality (2018).

The analysis of territorial systems reveals the presence of land resources suitable for urban agriculture development in the urban and peri-urban zones of Vlora.

Specifically:

(i) there are 1,176 hectares of agricultural land previously used by workers of former state farms who currently reside in the city. Similar situations regarding available land resources exist across the country, particularly in municipalities such as Tirana, Fier, Durrës, and Shkodra, where large portions of agricultural land within city boundaries remain underutilized. In the Municipality of Tirana, for instance, peri-urban areas such as Selitë-Farkë, Paskuqan, Kashar, and Vaqarr encompass approximately 1,200 hectares of land that had been cultivated with orchards and olive groves prior to 1990. Following land privatization, informal urbanization, and the construction of villas, these zones have gradually transformed into residential areas with urban gardens that continue to produce olives, grapes (pergolas), vegetables, and fruit trees. In the city of Korça, about 500 hectares of agricultural land remain suitable for urban agriculture development.

(ii) Another important source of potential lies in the agricultural land that remains undivided from the former state agricultural enterprises and cooperatives situated on the outskirts of major cities within urban and peri-urban areas. For example, in the Municipality of Vlora, such land accounts for approximately 1,430 hectares. In the absence of cultivation, these lands are prone to degradation or conversion to alternative uses. Comparable areas exist in other municipalities as well. Despite their potential, the leasing of such land by municipalities to citizens, students, or civil society organizations for agricultural purposes remains underdeveloped.

(iii) Additionally, public urban lands represent another important resource for agricultural and livestock production. Recognizing the critical role of urban agriculture in ensuring food security and nutrition, particularly in developing countries, underscores the importance of its promotion.

As towns and cities continue to expand rapidly alongside ongoing rural-to-urban migration the relevance of urban agriculture is expected to increase further in future policy discussions and urban planning frameworks (Orsini et al., 2013).

(iv) Family-owned gardens in cities, residential centers, and villages represent a significant reserve for both agricultural and livestock production. The classification of Albania's territory into six groups according to the National Spatial Plan extends beyond primary and secondary urban centers, allowing for a broader analysis of urban gardens that includes areas categorized as "tertiary urban centers" or newly established municipal centers following the administrative reform. It also encompasses the fifth category of "local centers," referring to inhabited rural and suburban areas, as well as the sixth category "united rural centers" where suitable land resources for urban agriculture are also found.

Urban gardens in Albania's urban and rural zones display rich biodiversity and offer opportunities for expansion in public spaces, contributing to the diversification of urban landscapes. Urban agriculture supports public health, stress reduction, recreation, urban climate mitigation, reduced urban heat island effects, noise and CO_2 reduction, erosion control, and the preservation of water and native vegetation. Monitoring in Tirana has shown that urban gardens during summer are 4-6°C cooler than the surrounding built-up areas.

4.2. Urban agriculture in urban garden

The development of urban agriculture in Albania remains largely disconnected from planning and governance processes. The dynamics of urban agriculture, as well as the types of cultivated products, vary significantly depending on the area, climate, tradition, and garden size. A study examining 50 urban dwellings in the city of Vlora found that each garden typically included pergolas, 4-6 citrus trees, and 3-7 olive trees (Lushaj & Haskocelaj, 2024).

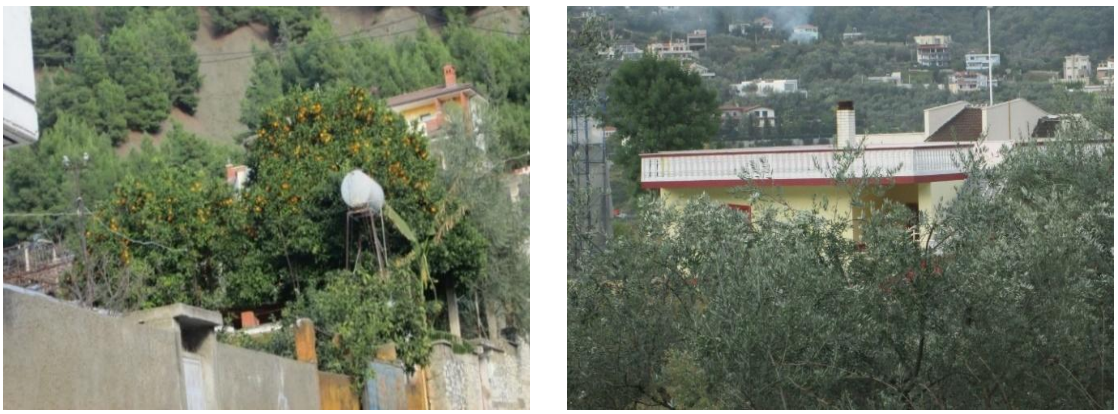

Figure 1. *Urban landscape of family gardens in Vlora City and urban agriculture (UA) in Tirana City.*
Source: Author.

In Vlora, along "Ahmet Lepenica" Street, family gardens in apartment blocks constructed mainly after 1990 generally feature 5-12 mature olive trees inherited from former agricultural enterprises, yielding an average of 90-120 kg of olives per tree. Similarly, observations conducted in 46 dwellings in Tirana (without detailed monitoring of the number and types of plants) revealed that 36 had gardens cultivated with fruit trees, pergolas, a limited number of citrus and olive trees, and small vegetable patches.

In Elbasan City, among ten urban family gardens inspected, perennial citrus trees were the dominant crop, yielding 10-20 quintals per household. Larger areas with fruit trees, pergolas, and olive groves were found in suburban zones (Lushaj & Xhemollari, 2018).

Figure 2. *Citrus family gardens in Elbasan City.*
Source: Author.

In the administrative unit of Orikum (including Orikum city and surrounding villages), urban agriculture has developed significantly within family gardens. Out of 3,680 dwellings, approximately 65% of one- and two-storey houses cultivate citrus, olives, and pergolas in their yards. A study monitoring 50 such dwellings in Orikum City found that each garden typically cultivates 6-12 citrus, 1-3 pergola, and 3-7 olive trees.

Within this administrative unit, an olive-processing factory handled around 1,000 tons of olives annually, producing approximately 140,000 liters of olive oil. In ten monitored family gardens in the village of Radhimë, households maintain 30-150 olive trees each, producing 300-2,000 kg of olives or 50-250 liters of oil, along with citrus, fruit trees, and cultivated vegetables covering an area of 80-180 m² (Lushaj & Gjimara, 2020, 2023).

Monitoring of 15 family gardens in the village of Tragjas, part of the Orikum administrative unit, revealed that households primarily cultivate olives, citrus, pergolas (grapes), orchard trees, and vegetables. Olive yields ranged from 0.32 to 3.2 tons per garden, with an average production of 40-370 litres of oil per family (Table 2) (Lushaj & Haskocelaj, 2024).

House hold	Olive Trees			Citrus Trees		Orchard Trees		Pergola (grapes)	
	No. of roots	Produc-tion (kg)	Oil Liter	No. of roots	Produc-tion (kg)	No. of roots	Produc-tion (kg)	No. of roots	Produc-tion (kg)
1	120	1800	240	6	90	24	275	9	170
2	55	1300	210	6	180	8	240	4	65

3	20	320	40	-	-	-	-	-	-
6	25	460	70	2	-	-	-	8	120
7	30	430	80	-	-	5	45	-	-
8	150	1500	210						-
9	40	560	90					7	140
10	150	2300	370	10	300	13	220	5	110
11	300	750	110	-	-	-	-	-	-
12	250	3200	260	-	-	-	-	-	-
13	130	2000	250	-	-	-	-	-	-
14	75	1105	185	-	-	-	-	4	60
15	30	900	110	-	-	-	-	3	40

Table 2. *Number of roots and production of fruit trees, olives, citrus, Pergola (grapes), Tragjas.*
Source: Author's study.

4.3. Urban agriculture in commercial land-uses

Urban agriculture is prevalent in areas surrounding commercial establishments across urban, peri-urban, and rural regions. A study conducted by the author in the administrative unit of Orikum, as well as in the municipalities of Tirana and Lushnja, revealed that various crops and plants are cultivated in public spaces adjacent to bars, businesses, schools, kindergartens, hotels, gas stations, car service areas, institutional courtyards, sidewalks, and between public and private buildings.

Figure 3, 4, 5. *Urban agriculture in the territory of the "Argel" Hotel, Orikum.*
Source: Author's survey.

This vegetation serves multiple functions, including generating economic benefits, providing environmental services, enhancing the urban landscape, offering shading, and creating recreational spaces (Table 3).

Activity	Olive Trees			Citrus Trees		Fruit Trees		Grape	
	No. of roots	Production (kg)	Oil Liter	No. of roots	Production (kg)	No. of roots	Production (kg)	No. of roots	Production (kg)
Car repair shop - Orikum	35	450	85	20	300	4	60	-	-
Olive factory – Orikum	18	320	65	10	180	6	90	2	40
"Argel" Hotel – Orikum	28	400	75	80	1560	6	45	-	-
"Arifi" Hotel – Radhimë	30	2200	290	5	100	4	40	-	-
"Alba-Beach" Hotel – Radhimë	40	2800	370	15	300	6	90	-	-
"Pashai" Hotel – Radhimë	25	1500	300	14	390	5	80	-	-
"Stela" Hotel – Radhimë	15	900	170	5	100	6	120	-	-
Hotel "Paradais" – Radhimë	5	50	-	30	250	-	-	-	-
Hotel "P.Lala" – Lushnja	3	80	-	50	700	20	310		40
Bar "*Liqeni Thatë*", Tirana	23	new	-	6	95	6	70		10
"*Këndi lojrave*" L. Thatë	18	260	-			12	190		
Bar-restaurant by the lake	7	210	-	6	150	9	185		5
Bar "Ermiri" by the lake	32	140	-	14	new	8	60		-

Table 3. *Urban agriculture in commercial areas of Orikum City and around Tirana Lake.*
Source: Author's survey.

4.4. Summary of findings

Urban and peri-urban agriculture in Albania primarily originates from community initiatives and traditional practices of home gardening, as well as small-scale cultivation within business premises and public spaces. However, despite the presence of suitable land resources, urban agriculture remains largely unstructured and underdeveloped. There are no comprehensive initiatives to fully realize its multifunctional potential in terms of economic, social, environmental, and health benefits, or its role in enhancing urban sustainability.

The study identified significant unused land resources within large cities and their surrounding peri-urban areas - highlighting both cases of active urban agriculture development and the general lack of understanding regarding its importance and potential.

Globally, urban agriculture contributes between 5-20% of total agricultural production, and Albania possesses the terrestrial resources necessary to develop this sector further.

Urban agriculture can serve multiple functions:

- Socio-economic, by generating income and providing employment opportunities, especially for disadvantaged communities (UNDP, 1996);
- Cultural and educational, by engaging young people and fostering community participation (PUVEP, 2011);
- Ecological, by maintaining biodiversity, improving the urban microclimate, and revitalizing abandoned or degraded spaces (Orsini & Kahane, 2013).

Despite its contributions to urban sustainability, urban agriculture in Albania is still not recognized as a strategic component within the urban planning process. There is a lack of national and local strategies, development programs, legislative frameworks, and dedicated initiatives to activate urban public spaces for food production or to support vulnerable communities.

Urban agriculture remains absent from development plans, landscape strategies, statistical indicators, and government agendas. Its current status is largely undocumented, and its future potential remains overlooked. Consequently, it is often marginalized or perceived merely as a traditional practice rather than as a dynamic urban resource capable of strengthening sustainability and improving urban well-being.

4.5. Environmental and food safety risks

Urban agriculture is an important economic activity for hundreds of millions of people worldwide. However, alongside its numerous benefits, it also poses environmental and food safety risks that must be carefully anticipated. These risks stem from factors such as the excessive use of pesticides and chemical fertilizers, soil contamination by heavy metals, industrial discharges, irrigation with polluted water, improper waste management, chemical pollution, and soil salinization.

Cofie et al. (2006) highlight the serious threat that pollution in rapidly expanding cities poses to public health. Integrating waste management with urban agriculture can help maintain a clean urban environment while simultaneously enhancing the production of fresh food (Buechler et al., 2006; Orsini et al., 2009).

In Albania, monitoring efforts have revealed significant soil pollution from heavy metals in areas surrounding mineral extraction and processing industries, as well as industrial zones. Soil monitoring around the former metallurgical plant in Elbasan has shown concentrations of nickel, chromium, cobalt, and lead that exceed EU standards by two to three times (Lushaj et al., 2005). Given these findings, there is a strong need for land rehabilitation programs and continuous monitoring of both soil and agricultural products.

5. Conclusion and recommendations

Urban agriculture must be conceptualized and promoted as a multifaceted opportunity that contributes to urban sustainability, food security, employment generation, the supply of fresh products, urban greenery, recreation, biodiversity conservation, human health, environmental education, and climate change mitigation. It also plays a role in improving air quality, reducing temperature and CO_2 concentrations, and enhancing overall environmental quality.

Urban agriculture should be integrated into urban planning processes, including general local plans, urban landscape plans, and statistical frameworks making it a clear governmental responsibility. It should not remain merely a traditional practice of small-scale gardening but should be organized and institutionalized across all levels of governance.

Albania possesses highly suitable conditions and sufficient land resources for the development of multifunctional urban agriculture across urban and peri-urban lands, public spaces, non-privatized plots, and business areas. Municipalities can play a key role by leasing public land to communities in need, associations, students, and low-income families' practices that currently remain underdeveloped.
Urban agriculture can include the cultivation of vegetables, fruits, citrus, olives, grapes, mushrooms, greenhouse crops, medicinal and aromatic plants, as well as flower and fruit seedling production. It can also encompass livestock breeding, urban forestry, and agroforestry, all of which generate considerable economic and environmental benefits.

Expanding urban agriculture requires the incorporation of diverse methods such as hydroponic systems, vertical farming, green roofs, community and school gardens, organic farming, and improved livestock management, supported by a robust data system to monitor growth and performance indicators.

To effectively promote urban agriculture, central and local authorities should develop and implement strategic action plans that ensure its integration within economic, social, and environmental systems. It should also be reflected in national and local spatial plans, landscape plans, and statistical systems, becoming part of Albania's broader development agenda.

The drafting and approval of appropriate legislation and regulatory frameworks are essential to guide urban agriculture practices and align them with sustainable development goals. Establishing a statistical database will facilitate the assessment of urban agriculture dynamics and the identification of potential land resources. Municipalities should manage public spaces efficiently, enabling the leasing of land for agricultural use, while institutions with technical expertise should build capacity and raise awareness among local governments, NGOs, and businesses.

The Ministry of Agriculture and Rural Development, together with relevant agencies, should draft regulations and strengthen management capacities to support urban agriculture. Both central and local governments need to back this sector through comprehensive programs focusing on livestock production, food production, forestry, and data management.

Finally, the development of urban agriculture should directly address social, economic, and environmental challenges through effective planning, policy-making, and institutional collaboration. The current lack of strategic planning and coordination across governance levels continues to limit the sector's full potential.

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Environmental Challenges from Constitutional Perspective, Albanian Case

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Dr. Elsa TOSKA
ORCID 0009-0001-9042-7627
Department of Planning and Environment, POLIS University, Albania,
elsa_toska@universitetipolis.edu.al

Dr. Blerta MJEDA
Department of Management and Business, POLIS University, Albania,
blerta_mjeda@universitetipolis.edu.al

Abstract

Environmental and Climate Constitutionalism emerges as an immediate necessity to be at the center of societal focus, as it is, firstly, directly linked to the quality of life and life itself – the most fundamental human value and secondly, as a global challenge that, if not tackled on local, national, regional, and global levels, cannot be overcome by any society.

The Constitution of Albania (1998) provides, in two articles – specifically Article 56, the right to information regarding environmental protection, and Article 59, letters "d" and "dh" – the right to a healthy and ecologically suitable environment for present and future generations, as well as the rational use of forests, waters, pastures, and other natural resources based on the principle of sustainable development. These are defined as social objectives to be realized within the possibilities of the state and are not subject to judicial protection (Article 59/2).

The confrontation with these constitutional provisions raises the need for an analysis of whether the right to a healthy environment is sufficiently guaranteed in the Albanian Constitution and whether the judiciary faces normative obstacles in enforcing environmental standards.

This paper aims to draw conclusions regarding the national standards required for the right to a healthy, clean and sustainable environment, as well as the need for the Albanian judiciary to assess and recognize violations of environmental rights (biodiversity, ecosystems, nature). Furthermore, it concludes on the necessity for environmental constitutional amendments, given that the current Constitution does not adequately address contemporary international developments from the perspective of environmental protection.

Keywords

Reform, environment, court, rights, constitution, environmental assessments

1. Introduction

Environmental and Climate Constitutionalism emerges as an immediate necessity to be at the center of focus of society, as it is, firstly, directly linked to the quality of life and life itself – the most fundamental human value – and secondly, as a global challenge that, if not tackled on local, national, regional, and global levels, cannot be overcome by any society.

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The confrontation with these constitutional provisions raises the need for an analysis of whether the right to a healthy, clean and sustainable environment is sufficiently guaranteed in the Albanian Constitution and whether the judiciary faces normative obstacles in enforcing environmental standards.

This paper aims to draw conclusions regarding the national standards required for the right to a healthy environment, as well as the need for the Albanian judiciary to assess and recognize violations of environmental rights (biodiversity, ecosystems, nature, etc). Furthermore, it concludes on the necessity for environmental constitutional amendments, given that the current Constitution does not adequately address contemporary international developments from the perspective of environmental protection.

2. The right to environmental human rights according to the constitution and Albanian judicial practice

The urgency of including comprehensive environmental safeguards in a state's supreme law is heightened by the interconnected crises of climate change, pollution and biodiversity loss. These crises critically endanger natural environments and wildlife, and the human societies that rely on them. Climate change especially is recognized as a social, economic and political 'threat multiplier', disproportionately harming the poorest and most marginalized people in society (Ahmadnia et al., 2022, as cited in International IDEA, 2025, p. 8). In the coming years, states will have to face the impacts of increasing floods, storms, heatwaves and droughts that can destabilize societies and lead to violent conflict from forced displacement and struggles over scarce resources. The resulting loss of life, social opportunities and marginalization of vulnerable groups may create conditions enabling the rise of non-state armed groups and increase state fragility (Sweijs, Haan and van Manen 2022). Even in stable democracies, growing poverty and inequality, migration, and food and resource insecurity can fuel extreme political movements and authoritarianism (Lindvall, 2021, p. 17, as cited in International IDEA, 2025, p. 8).

The Constitution of Albania guarantees the procedural right to be informed about the environment, but it does not guarantee the substantive right to a healthy, and clean environment for current and

future generations. Moreover, in its preamble and Article 3 – where the fundamental values of the governance system are outlined – there are no provisions regarding the environment or climate change.

As a post-communist Constitution, it has naturally prioritized guarantees for private property, economic freedom, the free market, the restitution and compensation process of former owners' properties, and economic development. Over the past decades, due to past lost time, the short-term legitimate interests of entrepreneurship and economic development have often overshadowed or ignored the interest in environmental protection and the safeguarding of natural resources. Environmental constitutionalism creates stronger guarantees than other legal mechanisms and sets a framework where environmental protection policies, biodiversity, and the interests of future generations must be harmonized with economic development and challenges (Berberi, 2024).

The Albanian Constitution, as the main national legal mechanism, does not address the current global issues related to climate change, biodiversity loss, and pollution.

Currently, Article 56 of the Constitution stipulates that everyone has the right to be informed about the state of the environment and its protection. Alongside the right to be informed about the environmental situation, this constitutional provision also includes the right to be informed about the protection of the environment, in terms of measures undertaken or to be undertaken for this purpose. Transparency from public authorities plays a special role in guaranteeing this constitutional right, through ensuring public access to information and involving the public in processes and activities that have an environmental impact.

This right is of particular importance due to the need to prevent irreversible damage in the context of environmental protection, as the right to be informed about the state of the environment serves as a precautionary measure for its protection.

Albania has ratified the Aarhus Convention, known as the "environmental democracy" agreement. According to this convention, member states are obliged to ensure, within an appropriate timeframe and while intervention alternatives with environmental impact are still open, the effective participation of the public during the preparation by public authorities of executive regulations and other general and binding legal rules that may significantly affect the environment. To this end, it requires that public participation take place in the early stages of preparing these regulations and/or general legal and normative instruments, through steps such as: setting sufficient deadlines for effective participation; publishing or making available to the public the draft regulations and legal rules; providing the public the opportunity to comment directly or through representative advisory bodies; and taking the results of public participation into account as much as possible (CEJ Convergence Project, 2024, art. 8).

Regarding the guarantee of the right to a healthy environment in Albanian legislation, the Law on Environmental Protection – which has been fully harmonized with Directive 2004/35/EC of the European Parliament and Council dated 21.04.2014 "On environmental liability, prevention and remedy of environmental damage" – defines the principle of the right to information and public participation in environmental matters as one of its key principles (Article 13). Meanwhile, the Law on Notification and Public Consultation regulates the process of public notification and

consultation for draft laws, national and local strategic documents, and policies of high public interest, by setting procedural rules to ensure transparency and public participation in policymaking and decision-making processes by public bodies. Among other things, it establishes the obligation of public authorities to take necessary measures to enable public and stakeholder participation in the notification and consultation process and to organize direct consultations or public meetings with stakeholders (Article 6).

Constitutional judicial practice offers only one case related to Article 56 of the Constitution, where associations challenged the constitutionality of the law on the construction of the "Skavica" hydropower plant. Although the issue was raised in the context of substantive environmental rights, such as the right to a healthy, clean and sustainable environment, the Constitutional Court did not analyze it from this perspective, arguing that, substantively, this right must be assessed in light of international laws ratified by the Albanian state (Constitutional Court of the Republic of Albania, 2024, Decision No. 3). In other words, the Constitutional Court did not accept the analysis based on this right as a constitutional right but only in connection with international conventions and instruments that Albania has ratified, which rank below the Constitution in the legal hierarchy (Article 116).

Nevertheless, claims concerning environmental rights and protection, as well as the principle of proportionality – seeking a balance between economic development interests and environmental interests – have been analyzed by ordinary courts, specifically the High Court. In a case challenging a Decision of the Council of Ministers (DCM) on the expansion of Mount Tomorr as a national park (protected area), the court stated: "…Ensuring and preserving the ecosystems and natural habitats of the existing protected area of Mount Tomorr National Park on one hand, and on the other, the expansion of this area's surface with the aim of rehabilitating and restoring them in the extended surface, justifies the aim of the Council of Ministers in approving DCM no. 611, dated 11.09.2019 'On the expansion of the Mount Tomorr National Park area.' DCM No. 611 is in accordance with Law no. 81/2017 'On Protected Areas', which aims to ensure special protection of environmental protected areas and key components of biodiversity and nature within them. This law provides special protection for forests, pastures, monitoring of flora and wild fauna, afforestation projects, improvements, erosion control, trails in protected areas, habitat and landscape rehabilitation, removal and management of invasive alien species, fire prevention and protection, erosion prevention and control, pest and disease control, breeding, feeding, and living condition assurance for wildlife, as well as the prohibition of private activities within protected areas that directly affect these essential environmental elements, which are mandatory to be protected."[1]

From the above, it can be concluded that judicial practice is moving in the right direction. However, the implementation of environmental legislation still faces many challenges, and courts are the last line of defense for environmental protection.[2] Albanian Courts have the duty to interpret access in environmental cases, to interpret and balance competing values in environmental matters – such

[1] Decision no. 00-2025-2020 (116), dated 12.03.2025 of the Supreme Court.
[2] Baseline study of legislation, policy, and judicial practice on human rights and environment on south Europe, Council of Europe, 2025. https://www.coe.int/en/web/implementation/-/presentation-of-a-baseline-study-on-human-rights-and-the-environment-in-pristina-and-tirana, p.32.

as environmental protection versus economic development – and to balance intergenerational restrictions on environmental issues between present and future generations.[3]

Despite the very limited jurisprudence relevant to the implementation of the environmental legislation, the domestic courts of Albania must play an important role in the integration process of Albania in EU through the interpretation of the environmental acquis (Muharremaj, 2018). As countries increase their efforts to tackle environmental degradation, pollution and climate change, environmental justice is more relevant than ever as it can shed light on how to ensure fairness in the processes and outcomes of environmental policymaking.[4]

At its core, as affirmed by several authoritative international documents, economic development must serve the needs of the current generation without compromising the needs of future generations. Sustainable development has three pillars: social, economic, and environmental sustainability. It entails promoting economic growth that meets the needs of the present without compromising the environment or the ability of future generations to meet their own needs. (UN World Commission on Environment and Development, 1987; International IDEA, 2025).

On the other hand, although Albania is not yet a member of the EU, the standards set by the EU are respected by Albanian courts in the context of the country's EU integration process and the alignment of domestic legislation with the *acquis communautaire*. In this perspective, the Charter of Fundamental Rights of the European Union, although not part of domestic legislation, in Article 37 provides for the obligation to integrate a high level of environmental protection and improvement of environmental quality into EU policies, in accordance with the principle of sustainable development.[5]

Finally, in May 2025, the Convention on the Protection of the Environment through Criminal Law was adopted and is currently awaiting ratification by states before it enters into force (Climate Rights International, 2025).

Although the right to a healthy environment and to be informed about its condition is not directly provided for in the European Convention on Human Rights (ECHR), the European Court of Human Rights (ECtHR) has emphasized in its jurisprudence that, in addition to the obligation to adopt necessary legislation for environmental protection (see *Hatton v. United Kingdom*, 02.10.2001; *Jugheli and Others v. Georgia*, No. 38342/05, 13.07.2017, § 75), states have a procedural obligation to provide the public with necessary information before implementing projects that may have environmental consequences. This information must be true, reliable, accurate, and sufficient (see *Association Burestop et al. v. France*, 01.07.2021, No. 56176/18, § 108). Likewise, states must allow

[3] The German Federal Constitutional Court, (2021), has elaborated the jurisprudential principle of "excessive burden on future generations" (excessive burden on future generations), according to which public authorities and all environmental actors must act in a progressive manner, undertaking permanent and continuous measures to protect against the discharge of pollutants into the atmosphere, so that future generations are not limited in a way tougher constitutional rights, constitutionalizing the right of future generations to a healthy environment. (Neubauer et al. v. Germany 2021).

[4] OECD (2024), Environmental Justice: Context, Challenges and National Approaches, OECD Publishing, Paris, https://doi.org/10.1787/57616eb4-en, page 3.

[5] Article 37: A high level of environmental protection and the improvement of the quality of the environment must be integrated into the policies of the Union and ensured in accordance with the principle of sustainable development.

affected populations to participate in permit procedures and to submit objections (see *Giacomelli v. Italy*, No. 59909/00, 02.11.2006, § 94; *Tătar v. Romania*, No. 67021/01, 27.01.2009, § 114).

Recently, ECtHR has established a precedent linking the right to life (Article 2 of the ECHR) to environmental protection, particularly regarding pollution. Specifically, in the Cannavacciuolo and Others v. Italy, (30 January 2025), the Court ruled that states have a duty to protect citizens from the risk of serious illness and death linked to widespread environmental pollution, like in the "Land of Fires" area of Southern Italy. This decision recognized that prolonged exposure to pollutants released into the environment could violate Article 2 of ECHR, the right to life.

In the meantime, ECHR has made evolution regarding *locus standi* in the climatic change complains. The case Verein KlimaSeniorinnen Schweiz and Others v. Switzerland concerned a complaint by four women and a Swiss association, *Verein KlimaSeniorinnen Schweiz*, whose members are concerned about the consequences of global warming on their living conditions and health. They consider that the Swiss authorities are not taking sufficient action to mitigate the effects of climate change. The Court found that the Convention encompasses a right to effective protection by the State authorities from the serious adverse effects of climate change on lives, health, well-being and quality of life. However, it held that the four individual applicants did not fulfil the victim-status criteria under Article 34 of the Convention and declared their complaints inadmissible. The applicant association, in contrast, had the right to bring a complaint. The Court held that there had been a violation of the right to respect for private and family life of the Convention and that there had been a violation of the right to access to the court. The Court found that the Swiss Confederation had failed to comply with its duties (“positive obligations”) under the Convention concerning climate change (European Court of Human Rights, 2024).

As a result, since the European Convention on Human Rights (ECHR) is part of our domestic legislation – ranking below the Constitution in the legal hierarchy but, in terms of limitations, standing at the same level as the Constitution (Article 17) – it serves as a sufficient legal base for substantive claims by individuals or organizations in ordinary or constitutional judicial proceedings for violations of the right to a healthy environment.

Moreover, our country has ratified a series of environmental and climate-focused conventions, particularly the Aarhus Convention, and the ongoing alignment of environmental legislation with the *acquis communautaire* has created a favorable legal climate for the constitutionalization of the right to a healthy clean and sustainable environment at the national level, as well as the "greening" of various constitutional rights (Articles 11, 21, 23, 42, 44, 46, 47, 48, and 56).

Although the Albanian Constitution includes the right to environmental protection within the broader framework of human rights, it is only expressed as a procedural right, specifically the right to information about environmental protection (Article 56). However, in substantive terms, the right to a healthy, clean and sustainable environment must be considered part of the constitutional package of human rights, because:

1. It is directly linked to the right to life and the right to family life, and is interdependent with these rights;

2. The European Court of Human Rights – even though the Convention does not explicitly recognize the right to a healthy, clean and sustainable environment – has developed a well-established case law treating this right in relation to:
    - Article 2 (Right to life),
    - Article 5 (Right to liberty and security),
    - Article 6 (Right to a fair trial),
    - Article 8 (Right to private and family life), and
    - Article 1, prot. 1 (Right to property).

3. Some conclusions

Our Constitution must reflect the planetary urgency regarding climate change and environmental issues. The Constitution serves as a bridge between the vision and actions of public or private actors, with the goal of building a safer future for the generations to come.

The Constitution should function not only as a legal document, but also as a political, social, and economic document, embodying the fundamental values of the state. At its core, the Constitution must respond to a long-term perspective and vision; therefore, climate change, environmental challenges, biodiversity loss, pollution, and atmospheric emissions should have a rightful place within it. Today's debates among environmental activists – which may seem futuristic – are increasingly oriented toward the need for constitutional recognition and declaration of elements such as a minimum percentage of forests that must remain untouched within a country's territory, or the rights of nature recognized as legal personhood rights (International IDEA, 2025, p. 15).

The right to a healthy, clean and sustainable environment is a fundamental constitutional right and should therefore be included among the core constitutional values – either in Article 3 of the Constitution or stated directly in its Preamble. The principle of proportionality, enshrined in Article 17 of the Constitution, requires that any restrictions on rights and freedoms regarding climate issues be proportionally distributed across time, between present and future generations. Above all, this right must be recognized as a fundamental constitutional right within the broader human rights framework and guaranteed accordingly.

The fact that the European Court of Human Rights treats environmental issues under the rigorous standards required by Article 2 (right to life) and Article 8 (right to private and family life) obliges Albanian courts to treat the right to a healthy, clean and sustainable environment as a fundamental right, not merely a social objective.

On the other hand, the fact that Albania adheres to a series of international environmental and climate conventions makes it necessary to reconceptualize Article 59 of the Constitution. This can be done by undertaking constitutional amendments that:

- Affirm the right to a healthy, clean and sustainable environment as a constitutional value, and
- Enshrine environmental rights, within the chapter on fundamental human rights and freedoms, such as:
    - the right to clean air,

- safe water and food, and
- the protection of nature.

Additionally, there is a need to introduce more binding provisions related to climate change, the green transition, protected areas, pollution and environmental risk, as well as the state's obligations to discourage unsustainable production and consumption.

In conclusion, this paper argues that beyond strengthening judicial protection through the evolution of court practices, the Constitution – through amendments to its Preamble, Article 3 (fundamental principles), or chapter II to IV on human rights – should respond to environmental and climate needs and challenges, by constitutionalizing the right to a healthy, clean and sustainable environment for both present and future generations through so-called "green amendments."

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Assessing the Impact of Urban Form on Air Quality

The Case Study of the Ish-Fusha e Aviacionit Neighborhood

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Dr. Gentjan HYKAJ
ORCID 0000-0002-1442-3595
Department of Planning and Environment, POLIS University, Albania,
gentjan_hykaj@universitetipolis.edu.al

MSc. Greta SHEHU
Co-PLAN, Institute for Habitat Development, Albania, greta_shehu@co-plan.org

Abstract

Air pollution is a leading environmental and public health concern, contributing to approximately 8.1 million premature deaths annually worldwide. Rapid and unplanned urbanization, particularly in densely populated areas, is a major factor influencing air quality. This study investigates the impact of urban morphology on air quality in the Ish-Fusha e Aviacionit neighbourhood in Tirana, Albania. The area, which has undergone significant development in recent years, presents a valuable case for analysing how urban form affects pollutant concentration and air circulation.

By combining air quality monitoring with spatial analysis using GIS tools, the study assesses key factors such as building density, road networks, population distribution, green spaces, and the availability of air corridors. Field measurements were conducted using the Aeroqual S500 device to monitor pollutants ($PM_{2.5}$, PM_{10}, NO_2, and CO_2), while urban temperature and CO_2 was recorded with a Testo-435. Vegetation coverage was analyzed using NDVI data from Sentinel-2 satellite imagery. The collected data were further processed through spatial interpolation in ArcGIS and statistically analyzed using SPSS to explore correlations between pollutant concentrations and temperature.

The results reveal that compact, high-density urban forms with limited vegetation and obstructed air corridors are associated with higher levels of air pollution. Subzones with closely spaced high-rise buildings exhibited the highest concentrations of $PM_{2.5}$ and NO_2, while CO_2 levels were elevated in areas dominated by vehicular traffic and poor ventilation. Furthermore, Pearson correlation analysis indicated a positive relationship between CO_2 concentrations and temperature, suggesting that areas with higher emissions also tend to retain more heat, likely due to restricted airflow and limited green cover. Conversely, subzones with lower building density, greater vegetative cover, and better spatial openness displayed significantly lower pollutant concentrations. Temperature measurements confirmed urban heat island effects, with denser and less vegetated areas retaining more heat. NDVI analysis demonstrated a strong inverse correlation between vegetation density and air pollution levels.

These findings demonstrate the strong interconnection between urban morphology, air quality and temperature, reinforcing the need for urban planning approaches that integrate nature-based solutions and prioritize spatial ventilation to promote healthier, more resilient urban environments.

Keywords

Urban morphology, air quality, urbanization

1. Introduction

Rapid and often unsustainable urbanization is among the most pressing challenges faced by modern cities, with direct environmental, social, and health implications. Air pollution, largely driven by motorized transport, residential heating, industrial processes, and the reduction of green spaces, poses a significant public health risk, with approximately 90% of the global population living in areas exceeding WHO air quality guidelines.

In Albania, accelerated urban growth over the past three decades – particularly in Tirana – has intensified infrastructure demand, reduced per capita green space, and increased private vehicle use, all contributing to deteriorating air quality. The Ish-Fusha e Aviacionit area exemplifies this transformation, shifting from low-density, green-yard housing to high-rise developments, reduced open space, and altered microclimatic conditions. Understanding how these changes affect air quality is essential for sustainable urban planning.

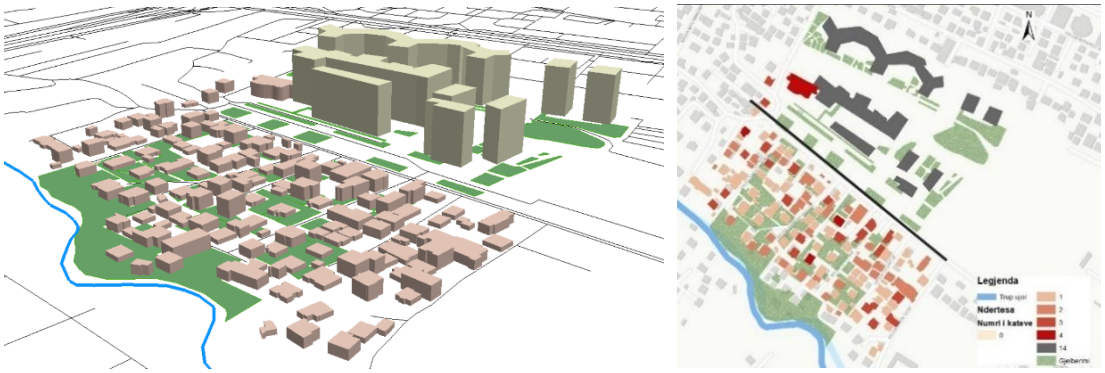


Figure 1. *Area under study.*
Source: Author.

1.1. Research question/hypothesis

This study investigates whether, and to what extent, changes in urban form and land use – particularly building density, loss of green space, and street network configuration – have influenced air quality in the Ish-Fusha e Aviacionit area of Tirana. The hypothesis is that higher building density, reduced vegetation cover, and altered spatial configuration hinder air circulation and contribute to the accumulation of air pollutants.

1.2. Objectives and scope of the study

The main objective is to assess the relationship between urban form, land-use patterns, and air quality in a rapidly developing neighbourhood. Specifically, the study aims to:

1. Analyse the spatial distribution of buildings and its impact on pollutant concentrations.
2. Evaluate the role of green spaces and air corridors in improving air quality and regulating urban temperature.
3. Propose evidence-based recommendations for urban planning policies that integrate nature-based solutions to mitigate air pollution.
4. The scope is limited to the Ish-Fusha e Aviacionit area, serving as a representative case study for other rapidly urbanizing neighborhoods in Albania and similar contexts in the region.

2. Literature review

Urbanization and the resulting changes in urban morphology have significant implications for air quality and microclimate regulation in cities. Previous studies have demonstrated that the configuration of buildings, street canyons, and urban density can strongly influence pollutant dispersion and accumulation. Liang and Gong (2020) highlighted that urban landscape patterns, including building height, density, and arrangement, affect air movement and pollutant distribution, emphasizing the importance of considering urban form in air quality management. Similarly, Xie, Zhang, and Wang (2019) reviewed the effects of urban morphology on air pollution dispersion, noting that densely built environments with poorly ventilated streets often experience higher pollutant concentrations.

Green infrastructure has been widely recognized as a mitigating factor for urban air pollution. Mori, Ferrini, and Saebo (2018) discussed how urban greening, including parks, street trees, and green roofs, can act as natural filters, reducing particulate matter and improving local air quality. Case studies from Medellín illustrate that green corridors and vegetated areas can significantly reduce urban heat and improve natural ventilation, thereby contributing to lower pollutant concentrations (PreventionWeb, 2021). Cárdenas Rodríguez, Dupont-Courtade, and Oueslati (2016) further demonstrated in European cities that linking green infrastructure with strategic urban planning can enhance pollutant dispersion and mitigate air pollution hotspots.

Meteorological parameters and seasonal variations also play an important role in urban air quality. Guo et al. (2022) highlighted that temperature, wind speed, and atmospheric stability significantly affect the occurrence of air pollution episodes, particularly in basins or densely built regions. This is complemented by studies showing that urban heat islands, exacerbated by low vegetation cover and high building density, can alter local microclimates and trap pollutants, leading to degraded air quality (Li et al., 2018; Liang et al., 2020).

Despite extensive research, several gaps remain. Most studies have focused on large metropolitan areas in Europe or Asia, leaving smaller urban neighborhoods in rapidly developing cities underexplored. Moreover, while the role of green spaces and ventilation corridors is acknowledged, few studies have integrated empirical air quality measurements, spatial analysis via GIS, and satellite-derived indices such as NDVI to assess microclimatic effects comprehensively. In the context of Albanian cities, including Tirana, there is a lack of localized, fine-scale studies linking urban form with pollutant dispersion, especially in newly urbanized areas like Ish-Fusha e Aviacionit (Shehu & Dhrami, 2025; Wang, Zhou & Sun, 2022).

This study addresses these gaps by adopting an integrated methodological approach that combines field monitoring of key air pollutants (PM2.5, PM10, NO2, CO2), urban morphology analysis using GIS shapefiles, and assessment of green spaces and air corridors through satellite imagery and NDVI indices. By linking urban configuration, vegetation, and natural ventilation patterns, the research aims to provide actionable insights for urban planning interventions that enhance air quality and improve the urban microclimate in high-density neighborhoods. Consequently, the study not only builds on existing theoretical frameworks but also contributes empirical evidence for sustainable urban management in rapidly urbanizing contexts.

3. Methodology

3.1. Research design and approach

This study adopts an integrated research approach combining theoretical concepts, case study analyses, field measurements, and air quality assessments to evaluate the relationships between urban form, greenery, and natural air corridors. The theoretical framework focuses on the impact of urban structure and design on air circulation and pollutant dispersion, including literature on building configuration, density, and orientation. Studies highlight the role of green spaces as natural filters for pollutants and as contributors to the reduction of urban heat island effects.

To contextualize these theoretical insights, comparative case studies were selected from cities facing similar challenges to the Ish-Fusha e Aviacionit area in Tirana. Medellín, Frankfurt, and Saint Petersburg provide complementary examples: Medellín emphasizes the creation of green networks in high-density areas, Frankfurt focuses on natural air corridor planning for optimal ventilation, and Saint Petersburg demonstrates the effects of urban form and building orientation on pollutant accumulation. The integrated analysis of these cases informs recommendations for urban planning aimed at improving air quality and microclimatic conditions.

3.2. Data collection and analysis methods

The empirical focus is the Ish-Fusha e Aviacionit neighborhood in Tirana, characterized by rapid urbanization and high building density. The study area comprises two subzones: a highly developed sector with dense high-rise buildings and a developing sector, allowing direct comparison of urbanization impacts on environmental conditions.

Air Quality: Air pollutants including $PM_{2.5}$, PM_{10}, NO_2, and CO_2 were monitored using the Aeroqual S500 device at multiple points within each subzone. Data were processed and visualized through ArcMap to produce pollutant distribution maps.

Urban Temperature: Urban temperatures were measured on-site using a Testo probe, complemented by satellite-derived NDVI indices to assess the impact of vegetation absence on local heat accumulation.

Urban Form and Building Configuration: Spatial analyses were conducted in ArcMap using vector (shapefiles) and raster datasets to evaluate building height, density, and orientation.

Green Spaces and Air Corridors: Satellite imagery and GIS analyses were used to identify green areas and natural air corridors and assess their contribution to urban ventilation.

Spatial Data Processing: Data on buildings, road networks, and water bodies were sourced from official TR030 plan shapefiles and the Albanian Cadastre Agency (AKPT). Processing included clip, merge, and buffer operations to limit analysis to the study area and evaluate road network impacts on pollutant dispersion. Heat maps were created using the Inverse Distance Weighting (IDW) method.

Statistical Analysis: Collected data were analyzed using SPSS to identify statistically significant relationships between spatial configuration, climatic parameters, and air pollution levels.

Indicator	Measurement Method	EU Standard	Notes
$PM_{2.5}$	Instrumental monitoring	10 µg/m³	Multiple points
PM_{10}	Instrumental monitoring	20 µg/m³	Multiple points
NO_2	Instrumental monitoring	40 µg/m³	Multiple points
CO_2	Instrumental monitoring	350 ppm	Multiple points
Temperature	On-site measurement & satellite	8°C (Feb), 19°C (May)	NDVI used for vegetation effect
Greenery	GIS mapping	–	Area in m²
Air corridors	GIS mapping	–	–

Table 1. *Environmental indicators and measurement methods.*

3.3. Ethical considerations

The study adheres to standard ethical practices for environmental research. All field measurements were non-invasive and conducted in public spaces, ensuring no risk to participants. Data collection and spatial analyses used publicly available datasets or author-generated data, maintaining confidentiality and compliance with local regulations. The methodology can be safely replicated in other urban contexts without ethical concerns.

4. Results

The field measurements and spatial analyses provided insights into the air quality and urban microclimate of Ish-Fusha e Aviacionit, focusing on two distinct subzones:

- Zone A, representing the newly developed area with multi-story buildings and modern infrastructure, and
- Zone B, which remains relatively undeveloped and retains traditional structures.

This comparative approach allowed the assessment of how urbanization influences pollutant concentrations and microclimatic conditions.

4.1. Air quality measurements

- PM2.5 and PM10: In Zone A, average concentrations reached 28 µg/m³ (PM2.5) and 35 µg/m³ (PM10), compared to 18 µg/m³ and 24 µg/m³ in Zone B.
  - First monitoring round values varied between 9–18 µg/m³ (PM2.5) and 1–22 µg/m³ (PM10). Several stations exceeded EU annual guidelines (10 µg/m³ for PM2.5; 20 µg/m³ for PM10).
  - In the second round, PM2.5 ranged from 9–23 µg/m³ and PM10 from 19–31 µg/m³, showing higher levels particularly in Zone A.

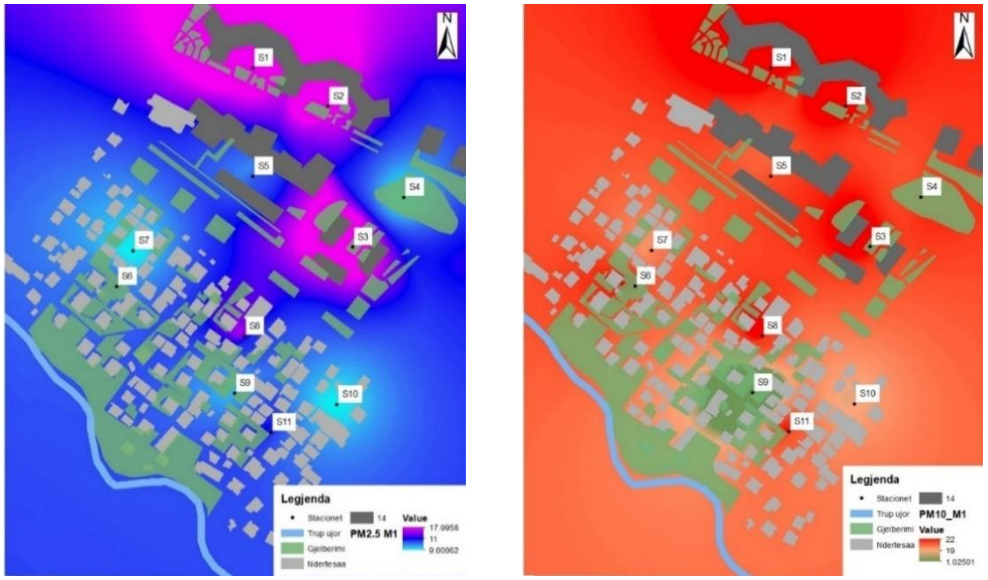


Figure 2. *Concentrations of $PM_{2.5}$ (left) and PM_{10} (right) during the first monitoring round.*
Source: Author.

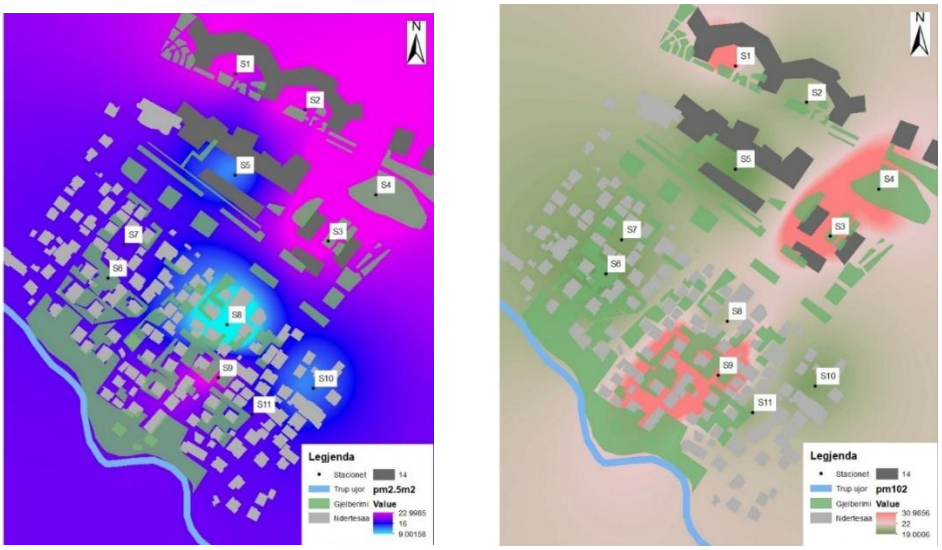


Figure 3. *Concentrations of $PM_{2.5}$ (left) and PM_{10} (right) during the second monitoring round.*
Source: Author.

- NO_2: Concentrations peaked at 62 µg/m³ (Round 1, Station 5) and 54 µg/m³ (Round 2, Station 3), surpassing the EU annual limit of 40 µg/m³. Elevated levels were consistently linked to traffic corridors and combustion processes in Zone A.

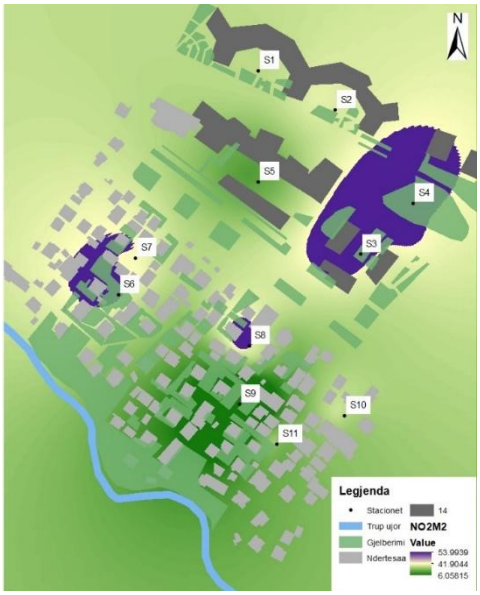


Figure 4. *Concentrations of NO_2 during the first monitoring round.*
Source: Author.

- CO_2: Ranged between 298-435 ppm in Round 1 and 330-420 ppm in Round 2. Higher values were found in densely built areas, suggesting poor natural ventilation and strong anthropogenic influence.

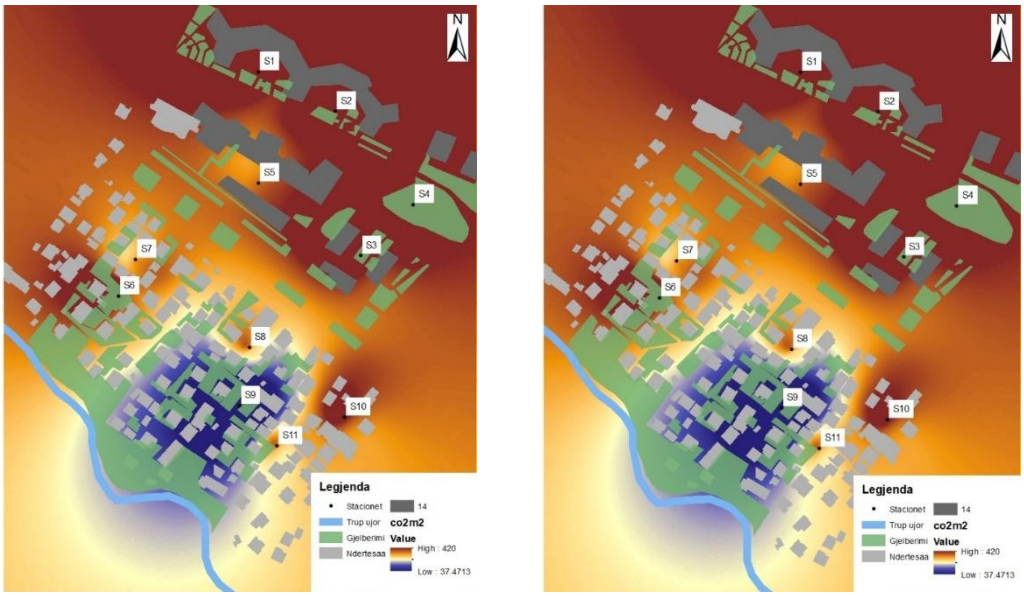


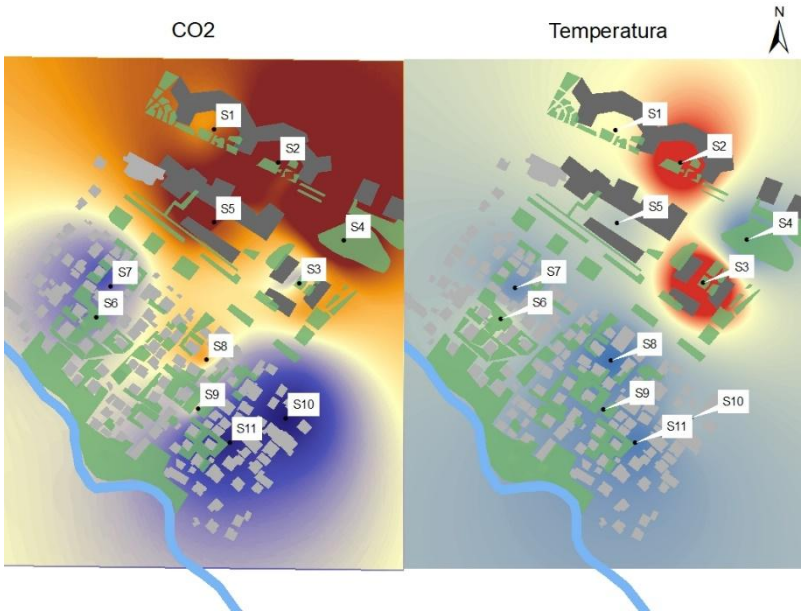
Figure 5. *Concentrations of CO_2 during the first monitoring round (left) and during the second monitoring round (right).*

Source: Author.

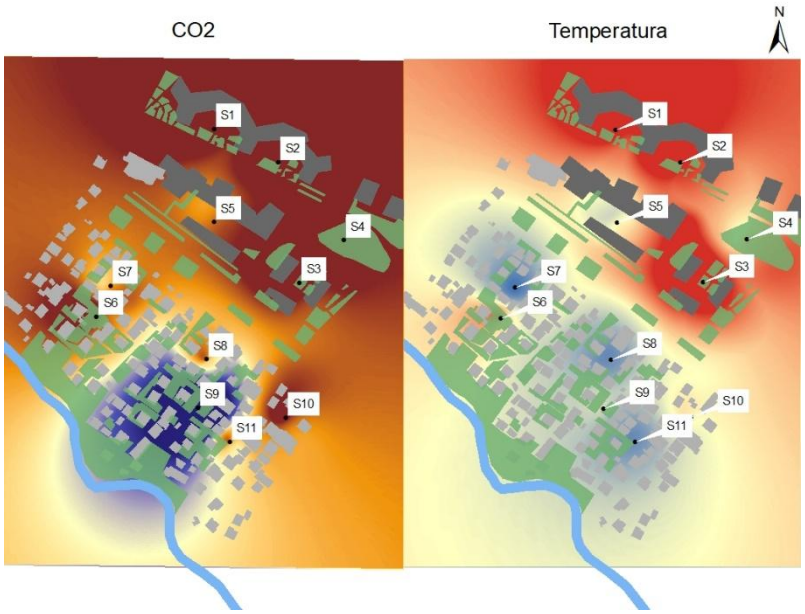
- Temperature: A clear difference of 3–4°C was observed between compact built-up areas and greener zones, consistent across both monitoring rounds.

Correlation analysis

- Round 1: Strong positive correlations were found between temperature and CO_2 ($r = 0.792$, $p < 0.01$) and temperature and PM2.5 ($r = 0.777$, $p < 0.01$). CO_2 also correlated strongly with PM2.5 ($r = 0.762$, $p < 0.01$).



- Round 2: Correlation between temperature and CO_2 increased further ($r = 0.918$, $p < 0.01$), indicating higher sensitivity of CO_2 accumulation under warmer conditions. A significant correlation remained between PM2.5 and CO_2 ($r = 0.621$, $p < 0.05$).
- PM2.5 and PM10 also showed significant co-variation (Round 1: $r = 0.625$, $p < 0.05$), confirming shared emission sources such as traffic and construction activities.



Correlation analysis

The correlation analysis provided further insights into the interactions among pollutants, temperature, and CO_2 levels in both monitoring rounds.

During the first round, strong positive correlations were observed between temperature and CO_2 ($r = 0.792$, $p < 0.01$), as well as between temperature and $PM_{2.5}$ ($r = 0.777$, $p < 0.01$). $PM_{2.5}$ and PM_{10} also exhibited a significant positive correlation ($r = 0.625$, $p < 0.05$), suggesting common sources or similar dispersion behavior. Interestingly, NO_2 did not show significant correlations with the other parameters, implying that traffic-related NO_2 emissions may follow different temporal or spatial patterns compared to particulate matter and CO_2.

Correlations

		Temperature	CO_2	NO_2	$PM_{2.5}$	PM_{10}
Temperature	Pearson Correlation	1	.792**	.321	.777**	.420
	Sig. (2-tailed)		.004	.336	.005	.199
	N	11	11	11	11	11
CO_2	Pearson Correlation	.792**	1	.506	.762**	.366
	Sig. (2-tailed)	.004		.112	.006	.268
	N	11	11	11	11	11
NO_2	Pearson Correlation	.321	.506	1	.284	.080

	Sig. (2-tailed)	.336	.112		.397	.815
	N	11	11	11	11	11
$PM_{2.5}$	Pearson Correlation	.777**	.762**	.284	1	.625*
	Sig. (2-tailed)	.005	.006	.397		.040
	N	11	11	11	11	11
PM_{10}	Pearson Correlation	.420	.366	.080	.625*	1
	Sig. (2-tailed)	.199	.268	.815	.040	
	N	11	11	11	11	11

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Table 2. *Statistical analysis for first-round data.*

In the second monitoring round, a very strong positive correlation was detected between CO_2 and temperature ($r = 0.918$, $p < 0.01$). CO_2 also showed a moderate positive correlation with $PM_{2.5}$ ($r = 0.621$, $p < 0.05$). By contrast, NO_2 was negatively correlated with PM_{10} ($r = -0.582$, $p = 0.061$), though this was only marginally significant, suggesting a potential divergence in emission dynamics or dispersion conditions. The strong association of CO_2 with both $PM_{2.5}$ and temperature highlights the role of dense urban morphology in trapping heat and pollutants.

Correlations

		$PM_{2.5}$	PM_{10}	CO_2	NO_2	Temperature
$PM_{2.5}$	Pearson Correlation	1	.550	.621*	-.138	.550
	Sig. (2-tailed)		.080	.041	.685	.079
	N	11	11	11	11	11
PM_{10}	Pearson Correlation	.550	1	.254	-.582	.213
	Sig. (2-tailed)	.080		.451	.061	.530
	N	11	11	11	11	11
CO_2	Pearson Correlation	.621*	.254	1	.238	.918**
	Sig. (2-tailed)	.041	.451		.482	.000
	N	11	11	11	11	11

NO_2	Pearson Correlation	-.138	-.582	.238	1	.290
	Sig. (2-tailed)	.685	.061	.482		.387
	N	11	11	11	11	11
Temperature	Pearson Correlation	.550	.213	.918**	.290	1
	Sig. (2-tailed)	.079	.530	.000	.387	
	N	11	11	11	11	11

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Table 3. *Statistical analysis for second-round data.*

The correlation results confirm that particulate matter and CO_2 tend to co-vary under conditions of limited atmospheric ventilation, as observed in the denser urban subzone. The first-round analysis demonstrated that rising temperatures were linked with increases in both CO_2 and $PM_{2.5}$, which aligns with the heat-island effect intensifying pollutant accumulation. In the second round, the correlation between CO_2 and temperature became even stronger, suggesting that seasonal or meteorological changes may amplify the entrapment of pollutants in compact urban environments.

The weak or negative correlations involving NO_2 indicate that traffic-related emissions may disperse more quickly than particulate matter under certain conditions, or that NO_2 peaks occur during specific traffic hours not fully captured by the monitoring sessions. This contrasts with $PM_{2.5}$ and CO_2, which reflect more cumulative and spatially consistent pollution loads.

Comparing the two monitoring rounds reveals that while PM and CO_2 relationships remained relatively consistent, NO_2 behaved differently, underscoring the need for higher temporal resolution monitoring to capture traffic-related peaks. These findings align with previous studies (e.g., Liang & Gong, 2020; Guo et al., 2022) that emphasize how urban form and meteorological conditions jointly determine pollutant dispersion and accumulation.

4.2. Urban form and vegetation

- NDVI analysis indicated vegetation cover of only 12% in Zone A compared to 27% in Zone B.
- GIS-based urban form analysis showed high building density and low street orientation variability in Zone A, leading to “urban canyon” effects that restrict natural ventilation.
- Identified air corridors were fragmented, especially in Zone A, limiting the dispersion of pollutants.

Figure 6, 7. *NDVI for the study area, 2015 and 2025.*
Source: Copernicus.

5. Discussion

The results demonstrate a strong relationship between urban form, vegetation, and pollutant accumulation. Zone A, characterized by high-rise buildings, dense infrastructure, and limited green cover, exhibited systematically higher pollutant levels and stronger heat island effects than Zone B. The positive correlation between temperature, CO_2, and PM2.5 highlights the compounding effect of heat on pollutant accumulation, driven by stagnant air and limited vertical dispersion. Similar findings are reported by Liang & Gong (2020) and Xie, Zhang & Wang (2019), where compact urban structures intensified both heat retention and air pollution.

International experiences confirm the potential of green corridors and ventilation pathways as mitigation measures. For example, Medellín's green corridors reduced local temperatures and improved airflow (PreventionWeb, 2021), while European urban studies demonstrated that compact morphology without adequate ventilation increases pollutant concentrations (Rodríguez et al., 2016).

5.1. Implications for Tirana

- Urban planners should integrate air corridors and prioritize vegetation, particularly in rapidly urbanizing neighborhoods.
- Nature-based solutions (green roofs, pocket parks, tree-lined streets) can reduce heat accumulation and filter pollutants.
- Policy frameworks should align zoning regulations with air quality objectives, ensuring that densification does not compromise ventilation or green infrastructure.

6. Conclusion

This study underscores that urban form directly shapes air quality and microclimate in Ish-Fusha e Aviacionit.

Key findings

- Zone A (densely built) consistently exhibited higher pollutant concentrations and stronger heat island effects than Zone B (less dense).
- Vegetation and ventilation corridors demonstrated measurable benefits in reducing pollutant accumulation.
- Temperature emerged as a critical driver of pollutant dynamics, reinforcing the role of urban design in mitigating air stagnation.

Limitations

- Small study area and short monitoring period restrict seasonal and citywide generalization.
- Limited monitoring stations constrain spatial representativeness.

Future research

- Extend temporal monitoring to capture seasonal variability.
- Incorporate socio-economic factors influencing exposure and vulnerability.

Final takeaway

For cities like Tirana undergoing rapid urban transformation, integrated planning that combines green infrastructure, ventilation corridors, and climate-sensitive design is essential for safeguarding air quality and ensuring sustainable urban development.

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The Price of Progress: Unveiling the Environmental Cost of Urbanization in Tirana through Life Cycle Assessment

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Dr. Kledja CANAJ
ORCID 0000-0003-0610-7717
Faculty of Planning, Environment and Urban Management, POLIS University, Albania,
kledja_canaj@universitetipolis.edu.al

Abstract

Urbanization in Tirana, like in many rapidly growing cities, poses significant environmental sustainability challenges – particularly within the construction sector. This study conducts a cradle-to-grave Life Cycle Assessment (LCA) of a representative residential building to quantify its energy use, material flows, environmental impacts, and external (eco-)costs throughout its life cycle. The analysis reveals that the production phase – dominated by materials like concrete, cement, and bricks – accounts for the majority of the impact, contributing €146.95 per m², or approximately 89% of total eco-costs. The operation phase, including energy and water consumption, adds €6.19 per m², while the end-of-life stage, particularly landfilling of inert waste, contributes €11.99 per m². In total, the life cycle eco-cost amounts to €165.12 per m² of gross floor area, representing approximately 13% of the direct purchase cost (€1275/m²). These findings highlight the critical environmental burden of current urbanization patterns, emphasizing the need for circular construction practices, energy-efficient building design, and adaptive reuse strategies in Tirana's housing sector. By quantifying environmental externalities in monetary terms, the study supports data-driven policy interventions aligned with Albania's sustainability goals and the broader transition to resilient, low-impact urban development in the Western Balkans.

Keywords

Life Cycle Assessment (LCA), eco-costs, urbanization, residential construction, Tirana

1. Introduction

The construction industry has a profound impact on the economy, society, and the environment (Sev, 2009). Worldwide, the built environment (buildings and infrastructure) is the fundamental component of economic and social development (Huang et al., 2018). The sector accounts for a substantial share of GDP and employment in both emerging and developed countries (Lopez, 2012). As a key contributor to economic prosperity and job creation, it is vital to achieving national social and economic goals (Serogina et al., 2022). Furthermore, it acts as an important economic multiplier, driving demand in adjacent areas such as manufacturing, transportation, and finance, broadening its impact across the economy (Ive and Gruneberg, 2000). However, the built environment (both residential and commercial structures) involves consuming enormous amounts of natural resources (Rao et al., 2025), thus contributing to environmental emissions and associated ecological burdens (Sandanayake, 2022). Material extraction, processing, and transportation for construction activities alone drive substantial levels of embodied energy and carbon emissions, with concrete and steel being among the most resource-intensive materials (Li et al., 2025). According to European Environment Agency data, the European Union the buildings sector accounted for 34% of all energy-related emissions in 2022.

The total life cycle energy consumed by a building is classified into operational energy and embodied energy (Abouhamad and Abu-Hamd, 2021). Even while emissions associated with building operations are declining due to improved energy efficiency and decarbonised energy sources, the production of building materials still has a significant environmental impact (Li et al., 2024). Therefore, it is suggested that life- cycle thinking be used as a crucial instrument in attempts to appropriately address the ecological impact of the construction industry (Buyle et al., 2013). Life-cycle assessment (LCA) is known to be one of the most comprehensive assessment tools for the analysis and prediction of multiple environmental impacts of the construction industry (Sala et al., 2021).

Beyond environmental issues, construction activities also impose notable social costs. These include the adverse impacts on nearby residents and communities during project implementation, which are often overlooked in conventional cost assessments (Çelik et al., 2019). The external environmental costs of the construction sector – those borne by society and ecosystems rather than by developers or end-users – are increasingly acknowledged. These costs represent a substantial component of the industry's total environmental burden (Allacker and De Nocker, 2012). Therefore, the use of monetized life cycle assessment (LCA) is becoming more popular as a way to promote more environmentally friendly decision- making in the building industry (Durão et al., 2019). Monetization refers to the process of expressing environmental impacts – such as emissions or resource use – in monetary terms, thereby allowing for direct comparison between environmental and economic trade-offs (Krieg et al., 2013).

Tirana, the capital of Albania, exemplifies the tension between rapid urban growth and sustainable development. However, rapid and often unregulated urbanization since the early 2000s has resulted in profound changes in land use, environmental conditions, and urban structure (Haxhiu and Aliaj, 2025). While the expansion of Tirana’s built environment has contributed to economic

growth and urban modernization, it has also raised critical concerns about the hidden environmental and social costs embedded in this rapid development.

So, what is the price of progress? To uncover these hidden burdens, this study conducts a cradle-to-grave Life Cycle Assessment (LCA) of a representative residential building in Tirana, intending to quantify the building's external environmental (eco-)costs per square meter (€/m²). By enabling a direct comparison between financial expenditures (i.e., direct purchase cost in €/m²) and ecological trade-offs, the analysis offers a more comprehensive and integrated perspective on the true cost of urban development.

2. Materials and methods

2.1. Goal and scope

The goal of this study is to conduct a monetized life cycle assessment (LCA) to determine the environmental impacts and associated ecological costs of a typical residential building in Tirana. Eco-costs are "*hidden environmental costs for society that are not part of the market price"* (the so-called 'external costs'). The system boundaries for this analysis are defined as cradle-to-grave, encompassing all stages of the building's life cycle from the initial extraction of raw materials to its final disposal (Figure 1).

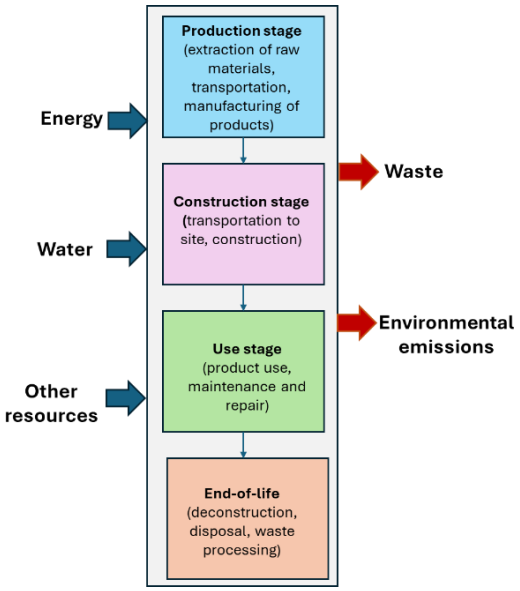

Figure 1. *System boundaries for the building life cycle assessment (LCA), structured according to EN 15978/ISO 21930.*

The functional unit is one square meter (1 m²) of gross floor area, assessed over a reference service life of 50 years. The analysis focuses on a multi-storey reinforced concrete building, representative of residential developments built in Albania after 2000, and incorporates the construction materials and technologies commonly used in the region.

2.2. Inventory analysis

The case study building is a multi-storey reinforced concrete structure, reflecting typical post-2000 residential developments in Tirana. The life cycle inventory (LCI) was compiled based on commonly applied construction materials and technologies in the urban housing sector (Gulcimen et al., 2021). Table 1 summarizes the recalculated values of construction materials, energy inputs, transport, and operational requirements per 1 m² of floor area, as well as typical annual consumption for one apartment during the use phase.

Category	Flow / Material	Ecocost
Concrete & Cement	Concrete	65.55
	Cement (Portland CEM I 52.5 N)	0.19
Metals	Steel (Europe mix, beams/sheet)	0.36
	Copper wire/plate/tube (68% prim, 32% sec)	3.58
Minerals	Sand	0.00
	Gravel	0.00
	Red clay brick (housing/roads)	0.05
	Gypsum	0.02
	Hydrated lime ($Ca(OH)_2$)	0.18
	Stoneware	0.09
Plastics & Wood	MDF	0.19
	Glass (float glass)	0.26
	PVC (upcycled)	0.62
	PS (EPS, white)	1.26
	Plywood (softwood)	0.21
	PE (LDPE)	1.22
Finishes	Roof tiles	0.06
	Paint (water-based white)	2.51
	Ceramic glass	0.53
Energy & Ops	Electricity (Albania)	0.02
	Diesel (low-sulphur)	0.93
	Drinking water	0.15
Waste & Transport	Landfill (inert waste)	0.14

	Truck transport (24t, B7)	65.55

Table 1. *Aggregated life cycle inventory of the case study building (per 1 m² gross floor area).*

2.3. Life cycle impact assessment and monetization

The life cycle impact assessment (LCIA) and subsequent monetization were carried out using the Eco-costs 2020 method (Vogtländer et al., 2001), which applies standardized damage cost factors to emissions (e.g., CO_2, SO_2, NO_x) and resource extractions. This approach converts environmental burdens into monetary values (€/kg emission). The final output is expressed as an external cost in euros per square meter (€/m²) of gross floor area, providing a common economic metric that enables direct comparison of environmental impacts with financial costs. The scope 3 Idemat dataset [Idemat 2024 Rev V1-2] was applied for ecocost calculation.

2.4. Market effects – true prices and price corrections

In the final step, environmental externalities are internalized into financial costs to calculate the corrected market price of the building. This approach bridges the gap between environmental assessment and economic decision-making by translating environmental burdens into monetary terms.

The true price per square meter is calculated as (Eq. 1):

True Price per m² = Direct purchase cost (€/m²) + Eco-cost (€/m²) (Eq. 1)

For the Tirana case study, the direct purchase cost of the building was estimated at €1,275 per m². By incorporating the monetized environmental externalities (eco-costs) derived from the LCA, the true cost of housing per square meter is determined. This corrected price reflects both the market cost of construction and the hidden environmental costs, providing a more comprehensive basis for policy, design, and investment decisions.

3. Results

Figure 2 shows the calculated eco-costs per life cycle stage of the residential building. The production stage clearly dominates the total impact, contributing 145.52 €/m², or about 88% of the overall external costs. The operation stage follows with 6.19 €/m² (≈ 4%), while the disposal stage accounts for 11.99 €/m² (≈ 7%). This distribution aligns closely with broader research findings, where embodied impacts from materials have been shown to account for over 85% of a building's environmental footprint in monetized LCA assessments – particularly in public construction procurement – consistently highlighting material production as the dominant contributor to environmental costs (Arendt et al., 2020; Fregonara et al., 2022).

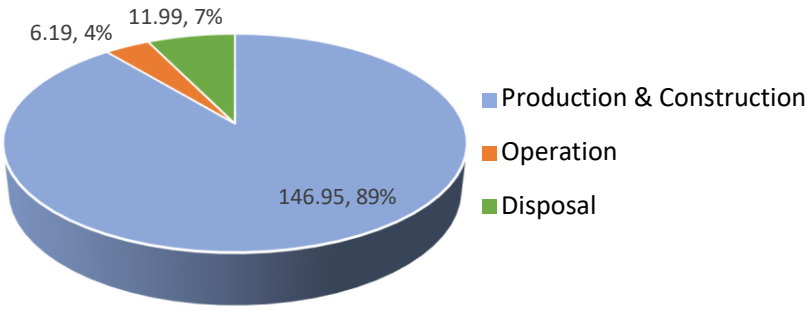

Figure 2. *Share of Eco-costs by building life cycle stage.*

The breakdown of production-stage eco-costs (Figure 3) shows that structural materials are the dominant contributor, with 82.18 €/m² (≈ 56% of production costs). This reflects the heavy reliance on concrete, cement, and reinforcing steel in Albania's post-2000 residential construction, which are known for its energy- and emission-intensive production processes. This pattern is consistent with international findings, where embodied emissions from structural materials often represent the bulk of environmental impacts in residential buildings (Zhang, 2017; Fregonara et al., 2022). The second largest share is attributed to envelopes and finishes (56.90 €/m², ≈ 39%), including windows, insulation, doors, flooring, and coatings. While individually less impactful than structural materials, their cumulative contribution underscores the importance of material choices for architectural finishes and building envelopes. Though less impactful individually, finishes collectively play a crucial role in eco-costs – a point emphasized by Pujadas-Gispert et al. (2021), who showed that sourcing and durability can significantly shift a building's overall profile. By contrast, MEP installations (mechanical, electrical, plumbing) contribute only 6.45 €/m² (≈ 4%), reflecting their relatively low mass intensity compared to bulk construction materials. This is in line with studies that consistently show MEP systems play a smaller role in total environmental burdens when compared to bulk construction materials (Collu and Boninu, 2018). Construction-stage inputs (1.09 €/m², ≈ 1%) and transport activities (0.33 €/m², <1%) are negligible in comparison. Overall, the results confirm that the eco-cost profile of residential buildings in Tirana is strongly determined by material production, with a particular emphasis on cement, steel, and other structural components.

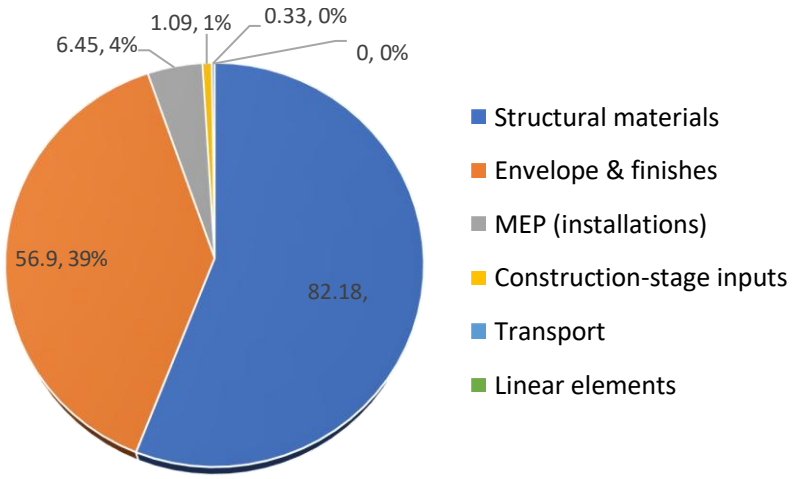

Figure 3. *Production-stage eco-cost breakdown of residential buildings in Tirana.*

In terms of impact categories, Figure 4 shows that the carbon footprint is by far the most dominant driver of external costs, with a total of 101.46 €/m², accounting for nearly two-thirds of the overall impact. This outcome is consistent with findings from other authors (Arendt et al., 2020; Fregonara et al., 2022), which confirm that emissions from the production of cement, concrete, and reinforcing steel represent the largest share of embodied carbon in residential buildings – especially in regions with limited material substitution and low-carbon infrastructure. The second most relevant category is protecting nature, with 31.07 €/m² (≈ 20%). This category includes impacts related to land use change, ecosystem degradation, and emissions to soil and water, all of which are common consequences of raw material extraction and open-pit mining for construction minerals. Such effects were similarly emphasized by Zhang (2017), who noted that environmental degradation during upstream material sourcing is often underestimated in conventional LCA unless linked to monetized indicators. Resource scarcity follows with 21.76 €/m² (≈ 14%), reflecting the depletion of non-renewable raw materials during material extraction and end-of-life losses at the disposal stage. These impacts are especially prominent in linear construction economies, where material recovery and circularity remain underdeveloped (de Melo et al., 2024). By contrast, the human health category contributes only 10.84 €/m² (≈ 7%), primarily due to emissions of air pollutants during the production of bulk construction materials. Collectively, these findings confirm that the environmental cost structure of residential buildings is largely shaped by carbon emissions and material extraction impacts, reinforcing the need for upstream interventions in material efficiency, carbon reduction, and ecosystem preservation.

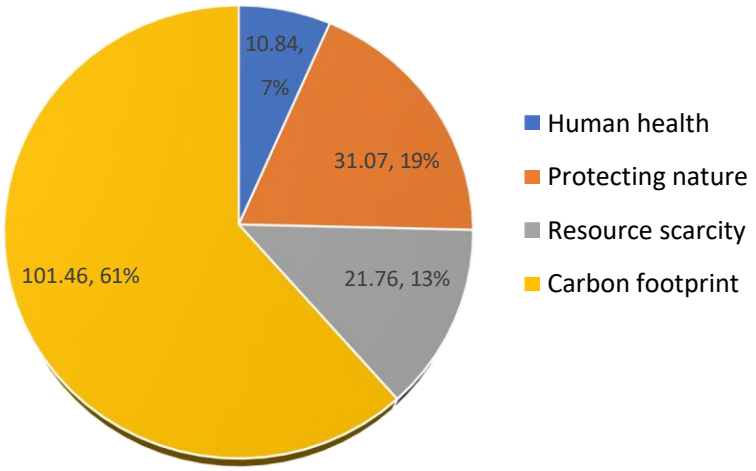

Figure 4. *Distribution of eco-costs by impact category for residential buildings in Tirana.*

The assessment shows that the production and construction phase is the dominant contributor across all categories (Figure 5), particularly for the carbon footprint (98.04) and ecosystem protection impacts (29.69). Human health (9.99) and resource scarcity (9.23) burdens are also concentrated in this stage, reflecting the significant role of material extraction and manufacturing processes. The operation stage contributes only marginally, with low values across all indicators (≤3.43), suggesting that the use phase is relatively efficient compared to the embodied impacts of construction. At the disposal stage, the main issue is resource scarcity (11.99), linked to waste management challenges and material losses at end-of-life, while other impacts remain negligible.

These findings are consistent with broader literature, which confirms that early life cycle stages – particularly material production – dominate environmental burdens in residential buildings, while operational and end-of-life phases contribute comparatively little (Arendt et al., 2020; Fregonara et al., 2022; de Melo et al., 2024).

Figure 5. *Distribution of eco-costs by impact category and life cycle stage.*

The True Price of Housing per m² is the adjusted cost of a structure, including direct purchase costs and monetized environmental externalities (eco-costs). Figure 4 illustrates this calculation: Adding the total eco-costs of € 165.12/m² to the direct purchase cost of € 1,275/m² yields a total price of € 1,440.12/m². This adjustment represents a 13% increase over the financial cost alone, highlighting the hidden environmental burden of residential construction and demonstrating the significance of life cycle cost accounting.

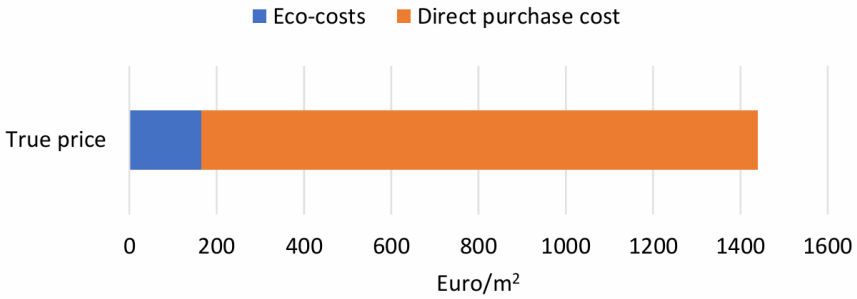

Figure 6. *The True Price of Housing per m², combining direct purchase costs with monetized eco-costs.*

4. Conclusions

Modernization in Tirana is transforming the urban landscape; yet, structures continue to have substantial negative environmental implications, such as emissions, resource use, and ecological damage. In the building industry, environmental impacts result in costs borne by society and

ecosystems rather than developers or end users. Such external costs are rarely captured by traditional economic assessments, which normally only include commodities and services with a direct market price. The *true price* concept captures both the market price of a product and the external costs associated with its production – costs that are typically hidden from conventional financial analyses.

In this work, we used monetized Life Cycle Assessment (LCA) coupled with current market prices to uncover the hidden environmental costs of residential development and determine a more comprehensive true price of housing. The results show that the total eco-costs of one square meter in Tirana amount to 165.12 €/m², which are heavily concentrated in the production stage (≈88%), with structural materials such as cement, concrete, and steel representing the largest share. When these monetized eco-costs (165.12 €/m²) are added to the direct purchase cost (1,275 €/m²), the true price of housing rises to 1,440.12 €/m² – an increase of about 13% over financial costs alone.

The research does not attempt to establish the exact value of eco-costs, but rather to illustrate the usefulness of monetization as an assessment tool. Different monetization methods exist, each applying varying damage cost factors and assumptions, which can lead to differences in results. Nonetheless, the comparative insights remain valuable for demonstrating the hidden environmental burdens of construction and guiding more sustainable decision-making.

As Tirana's urbanization proceeds in the next years, with increased modernization and the emergence of multi-level structures, incorporating such ideas will become critical. Companies, investors, banks, and governments may all use monetized LCA to increase transparency, incorporate sustainability into financial planning, and influence investment decisions. By incorporating hidden environmental costs into the true cost of building, these players can discover cost-effective ways to decrease environmental burdens, encourage material substitution and energy efficiency, and support policies that promote circular and low-impact urban development.

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Albania Forest Futures: Rethinking Forests as Ecological Infrastructure for Sustainable Industrial Development

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Dr. Dan HANDEL
ORCID 0009-0002-7904-1608
Department of Architecture, University of Haifa, Israel

Erez ELLA
Bezalel Academy of Arts and Design, HQ Architects (Founder), Israel

Abstract

Albania possesses significant forest resources, yet its forestry sector is underdeveloped in terms of industrial capacity, certification, and market integration. As Albania faces major infrastructural and urban development and prepares for deeper alignment with EU environmental law during the accession process, there is an opportunity to reframe forests as ***ecological infrastructure*** *– multi-functional assets that provide carbon storage, ecosystem services and renewable materials for construction. This comparative study examines Albania's forestry profile alongside three European cases – Austria, Slovenia, and Bosnia and Herzegovina – chosen for their illustrative governance, certification trajectories, and industrial outcomes. Using harmonized indicators (forest cover, growing stock and sustainable yield, public management share, industry maturity, timber use in public infrastructure, export share, forestry revenues per capita, and CO_2 emissions per capita), the paper identifies transferable lessons and proposes a set of short-, medium- and long-term policy interventions for Albania. The study finds that certification programs, pilot mass-timber investments, and public procurement can be combined to activate Albania's timber potential while safeguarding ecological functions.*

Keywords

Ecological infrastructure, forest governance, sustainable forestry, territorial planning, urban resilience

1. Introduction

Forests are a central component of Albania's environmental endowment. Although national forest cover falls below the European Union average, the country's diverse climatic zones support a varied and potentially more resilient forest composition.[1,2] In the absence of population growth pressures, Albania is well-positioned to expand and optimize its forest areas, while developing management systems capable of sustaining a small yet modern timber industry for both domestic construction and export markets. The pursuit of EU accession in the coming decade may further enable this trajectory through access to funding, technical expertise, and mechanisms for forest certification, sustainable management, and integration of engineered wood production.[3] Nonetheless, persistent challenges – including illegal logging, limited professional capacity, and the need to develop new markets – necessitate a critical examination of external models that could be selectively adapted to the Albanian context (European Environment Agency, 2015).

The international construction sector has experienced rapid growth in timber-based systems over the past two decades, including the completion of high-rise buildings. Rising concerns over the carbon intensity of conventional construction, combined with advances in sustainable forestry practices and engineered timber technologies such as Cross-Laminated Timber (CLT) and Glue-Laminated Timber (Glulam), have expanded the range of building types feasible in wood and enabled significant emission reductions. Most realized projects, however, employ hybrid rather than all-timber systems (Svatoš-Ražnjević et al., 2022). This incremental approach demonstrates that timber can be integrated gradually, allowing Albania to strengthen its forest-based construction sector without requiring a complete, immediate transition.

Hybrid systems provide a pragmatic pathway toward increased timber use, emission reductions, and alignment with European sustainability standards.

The Balkan region offers precedent through long-standing traditions of timber construction in vernacular architecture and crafts. In several countries, these traditions have supported the modernization of forest governance and industry. Drawing on such heritage in contemporary innovation situates timber architecture not as a nostalgic practice but as a contextually grounded and globally relevant approach (Çaushi et al., 2015). In an era defined by ecological awareness, resilience, and culturally embedded sustainability, regional timber practices continue to inform modern applications.

Against this background, this paper examines whether Austria, North Macedonia, Bosnia and Herzegovina, and Romania provide instructive models for Albania in developing an independent, sustainable wood industry integrated with ecological infrastructure. With the exception of Austria, these cases were selected for their trajectories as post-socialist states with legacies of centralized

[1] Mehmet Meta, Forests and Forest Policy in Albania, *Journal of Forestry*, Volume 91, Issue 6, June 1993, Pages 27–28.
[2] World Bank. (n.d.). Forest area (% of land area) – Albania. World Bank Data. https://data.worldbank.org/indicator/AG.LND.FRST.ZS?locations=AL.
[3] World Bank. (2025, February 12). *World Bank approves $120 million loan to boost Albania's resilience and green development*. https://www.worldbank.org/en/news/press-release/2025/02/12/world-bank-approves-120-million-loan-to- boost-albania-s-resilience-and-green-development.

planning and state ownership, now undergoing varying degrees of privatization and EU alignment. Austria serves less as a directly transferable model and more as a benchmark for a fully developed forest-products industry. The objectives of this paper are threefold: (1) to outline Albania's current forestry profile, with particular emphasis on forest stock and governance; (2) to compare key indicators across the four reference cases; and (3) to derive policy recommendations and pilot project proposals relevant to Albania's EU accession trajectory.

2. Literature review & conceptual framing

This analysis draws primarily on two strands of research. The first examines forest policy, ownership, and management, highlighting how governance structures, certification schemes (FSC/PEFC), and public- and private-sector reforms shape the development of domestic wood industries, including the role of donor- supported initiatives in expanding market access. The second focuses on advances in engineered wood technologies, such as Cross-Laminated Timber (CLT) and Glue-Laminated Timber (Glulam), and their increasing use in diverse building types, illustrating how technological progress enables broader adoption of timber construction. Empirical cases illustrate these dynamics: Austria represents a mature, certified wood sector, while Romania, North Macedonia, and Bosnia and Herzegovina show how post-socialist transitions, institutional development, and targeted certification initiatives influence industrial outcomes. This framework underpins the comparative analysis presented below.

3. Methodology

This study employs a comparative case study approach, integrating quantitative and qualitative indicators to identify forest management and engineered wood industry policies relevant for Albania. Five countries were included: Albania, North Macedonia, Bosnia and Herzegovina, Romania, and Austria. Austria serves as a benchmark for a mature EU forest products industry, while North Macedonia, Bosnia and Herzegovina, and Romania illustrate post-socialist transitions in forest governance, privatization, and alignment with EU standards. Albania provides a reference for current national forest conditions, with 36.6% of land forested but experiencing ongoing degradation and negative net annual growth.

Data sources include national forest inventories (FAO/FRA), regional datasets (EEA/FISE), market and trade statistics (Eurostat, UNECE), and project documentation (World Bank, FSC/PEFC). Where multiple estimates exist – such as forest area or growing stock – values were harmonized, ranges noted, and sources cited.

Indicators include forest area, total growing stock, sustainable yield, forest productivity, net annual increment, share of public management, engineered wood industry maturity, forestry sector revenue, carbon emissions, FSC and PEFC certification.

4. Results – country profiles

4.1. Romania

Romania's forestland currently covers 7.038 million hectares, representing 29.6% of the national territory, of which 6.93 million hectares are classified as "lands covered by trees." Forests are predominantly located in the mountainous and hilly regions, with European beech (*Fagus sylvatica* L.) comprising over 30% of total forest area, followed by oaks (16%) and conifers, dominated by Norway spruce (*Picea abies* L. Karst) at 20%.

Historically, most forests were state-owned during the communist period, and public ownership remains prevalent today, accounting for 65.9% of forestland in 2018, held by the state and local administrative units. Private forests are highly fragmented, divided among approximately 750,000 owners, 4,000 associations, and 4,000 legal entities.[4]

Romania's forest policy is structured around a strict functional zoning system that prioritizes protection. Since 1954, forests have been divided into two groups: Group I, dedicated to protection functions, and Group II, combining production and protection. Group I now covers 66% of forestland, with sub-groups focused on water, soil, climate, social, scientific, and biodiversity protection. Natura 2000 sites, virgin forests, and UNESCO reserves represent particularly important conservation areas. At a finer scale, 87 functional categories and six functional types regulate management intensity, ranging from no intervention (TI) to full silvicultural use (TVI), emphasizing ecological conservation over timber production (Nicolescu, 2022).

Romanian forests contain a total standing volume of 2.35 billion m^3, averaging 340 m^3 per hectare, and exhibit one of Europe's highest annual growth rates at 8.46 m^3/ha/year. Despite a total annual increment approaching 59 million m^3, the legally allowable cut is limited to 23 million m^3 due to uneven age-class distribution and limited accessibility. Actual wood removals since 1989 have averaged approximately 15 million m^3 per year, well below the allowable level.

Forest management is strictly regulated through mandatory, state-approved Forest Management Plans, leaving owners – public or private – with little influence over silvicultural practices. High management costs, strict regulations, low profitability, and the absence of compensatory incentives place considerable pressure on smallholders. Following restitution, weak law enforcement contributed to suboptimal practices and large-scale illegal logging, although such activities have decreased in recent years (Stancioiu, 2022). The sector continues to face challenges from outdated equipment, low productivity, labor shortages, and rising costs. Nonetheless, forestry and wood harvesting remain a significant contributor, accounting for around 2% of Romania's GDP. Romania begun FSC certification in 2003, and had in 2020 2,82 million hectares of certified forest, 40% of its total forest area.[5] PEFC certification covers 653,612 hectares.[6]

[4] Ministerul Apelor și Pădurilor. (2018). *Raport privind starea pădurilor României în anul 2017 [Report on the state of Romanian forests in 2017]*. București, Romania.
[5] Forest Stewardship Council. (2020, February 17). *Facts & figures*. https://fsc.org/sites/default/files/2020-02/Facts_and_Figures_2020-02-17.pdf.
[6] Programme for the Endorsement of Forest Certification, *PEFC global statistics: Data June 2024*, PEFC International, https://www.pefc.org/resources/pefc-global-statistics.

4.2. North Macedonia

North Macedonia's forestland currently covers 1.160 million hectares, representing 44.4% of the national territory, of which 1.049 million hectares are classified as "forested areas." Forests are dominated by broad-leaved species, which cover about 61% of total forest area, with oaks (31%) and European beech (24%) as the main species. Coniferous forests account for roughly 7%, primarily black pine (4.6%), and mixed forests make up around 28% of the total (2014 figures) (State Statistical Office of the Republic of North Macedonia, 2015). Vegetation varies with altitude: lowlands and lower mountain slopes are dominated by forests of Carpinus orientalis and Quercus coccifera mixed with shrubs; the middle mountain belt (600-1,500 m) is covered by beech and deciduous oak forests, while above this zone coniferous forests emerge.

Forests in North Macedonia are predominantly state-owned (88.9%), with private forests accounting for 11.1%. Both public and private forests are required to follow management plans prepared by the Sector for Forest Management and Design within the Public Enterprise (PE) "Makedonski Shumi", which is responsible for planting, silvicultural operations, and timber harvesting (Gorgievska & Naumova-Mihajlovska, 2022). The total growing stock was estimated at 80.16 million m^3 in 2018, with an average of 77.1 m^3 per hectare. The forestry and wood processing sector contributes approximately 2.5-3% of GDP, but logging and wood processing are below optimal levels due to geographic constraints, low forest productivity, poor wood quality in low forests, and difficult alpine terrain (Berezjuk et al., 2021).

The Public Enterprise "Makedonski Shumi" faces major challenges, including outdated equipment, poor forest roads, inadequate planning, and a monopolistic market position. The network of forest roads is largely soft-surfaced (6,301 km softroads vs. 1,972 km solid roads), limiting accessibility and increasing costs, particularly in winter. Illegal logging, forest fires, natural disasters, and biotic pests also impose significant economic losses, though illegal logging has decreased in recent years due to strengthened forest guard enforcement. Despite PEFC certification and monitoring improvements, insufficient processing capacity for industrial roundwood further constrains the sector. FSC levels remain low, with only 31 companies currently producing of selling FSC-certified products. The country recently began PEFC certification, with 1600 hectares listed in 2024.[7]

4.3. Bosnia and Herzegovina

Bosnia and Herzegovina's forestland currently cover 3.232 million hectares, representing 63.1% of the national territory, of which 2.905 million hectares are classified as "forest cover" (Mataruga et al., 2019). Forests are distributed across four ecological vegetation zones: the Pripannon, Inner Dinarides, Transitional Illyrian-Moesiac, and Mediterranean areas, with horizontal zonation and altitudinal belts shaping the spatial patterns of the main vegetation types. Mountainous areas are dominated by beech forests, mixed beech-fir, beech-fir- spruce, and subalpine beech belts.

Ownership is complex and divided among multiple entities: approximately 80% of forests are publicly owned and managed by the Federation of Bosnia and Herzegovina, the Republic of Srpska

[7] PEFC global statistics: Data June 2024.

through the public enterprise Šume Republike Srpske, Brčko District, and institutions responsible for protected areas, while around 20% are privately owned.

Total growing stock is estimated between 307 and 392 million m³, yielding an average of 95–120 m³ per hectare, though figures vary across sources. Data on illegal logging is also inconsistent, with official statistics reporting an average of around 93,000 m³ annually in 2014-2018, while independent assessments suggest the real figure may exceed 1 million m³ per year.

The forestry and wood-processing sector, known for its furniture making, is a significant contributor to the national economy, accounting for approximately 10% of GDP, and Bosnia and Herzegovina is a net exporter of primary and secondary forest products. As of 2015, it was argued that one third of the forest stock held FSC FM or COC certification (Foreign Investment Promotion Agency of Bosnia and Herzegovina, 2015). While this data is somewhat hard to verify, the FSC counts 2 million hectares, around 62% as certified forests, with 350 companies that produce or sell FSC-certified products. PEFC is not listed.

4.4. Austria

Austria's forests cover 4,015,000 hectares, representing 47.9% of the national territory, and the wooded area continues to expand by an average of six hectares per day, mainly in the alpine regions of western Austria through reforestation and natural regeneration (Lackner et al., 2023). Conifers dominate the composition, with spruce accounting for 46% and beech for 10%, alongside firs, pines, and oaks.

Forest management has a long tradition, anchored in the Forestry Act of 1975, which requires regeneration and sustainable yield. About 82% of forests are privately owned, with the remainder held by the state, provinces, municipalities, and Austrian Federal Forests (ÖBf AG). Ownership is relatively consolidated, supported by cooperatives and associations that facilitate effective management and marketing. Policy is guided by the Austrian Forest Strategy 2020+ and EU frameworks, prioritizing multifunctionality and balancing production, biodiversity, climate protection, and recreation.

Austria's forests contain 1.18 billion m³ of standing volume, averaging 350 m³ per hectare, with nearly half in trees over 40 cm in diameter. The annual increment is 30.4 million m³, or 9 m³ per hectare, while the harvest rate is 25.9 million m³, or 7.7 m³ per hectare, ensuring continuous growth (Jandl et al., 2018). Certification is nearly universal: by June 2024, 3.38 million hectares were PEFC-certified, along with 568 chain-of-custody certificates.[8]

Austria is presented here not as a directly applicable case for Albania, but as a higher benchmark. It illustrates how strong governance, cooperative ownership, and near-universal certification can sustain ecological resilience and support a competitive bioeconomy.

[8] PEFC global statistics: Data June 2024.

Comparative table

Indicator	Albania	North Macedonia	Bosnia & Herzegovina	Romania	Austria
Forest area (% of total land)	36.6% (~1.05 million ha); 91.2% natural, 8.8% plantations	44.4%	63.1%	29.6%	47.9%
Total growing stock (m^3)	54.06 million	80.16 million	307–392 million	2.35 billion	1.18 billion
Sustainable annual yield (m^3/year)	NA	NA	9 million	59 million	30.4 million
Forest productivity (m^3/ha total stock)	53	77.1	95–120	340	350
Net annual forest increment (m^3/ha/year)	NA / negative; losses: 1990–2010 ≈ 650 ha/year, 2001-2021 ≈ 6.5% tree cover lost, 2023: 2,200 ha lost	NA	3.1	8.46	9
Share of forest area managed by public agencies	97%	88.9%	~80%	65.9%	18% (82% private)
Condition/maturity of engineered wood industry	Emerging; limited engineered wood production	Developing; limited capacity for engineered wood	Developing; some engineered wood production	Developing; growing engineered wood sector	Mature; advanced engineered wood sector, high-value products
Forestry sector revenue per	NA	2.5–3% of GDP	~10% of GDP	~2% of GDP	1.8% of GDP

capita/value-added					
Carbon emissions per	1.59	4.53	6.81	4.03	6.75

Indicator	Albania	North Macedonia	Bosnia & Herzegovina	Romania	Austria
capita (tCO_2e)					
FSC-certified area (% of forest)	NA	Low; 31 companies	~62%	40%	Minor (not specified)
PEFC-certified area (% of forest)	NA	0.14%	NA	9%	Nearly universal (~84%)

5. Discussion

Scale and productivity

Austria combines high forest cover (47.9%) and growing stock per hectare (350 m^3/ha) with a mature engineered wood sector. Romania also shows high productivity (340 m^3/ha).

Albania's forests (36.6% of land; 53 m^3/ha) are less productive overall, but localized high-stock zones indicate potential for pilot mass-timber operations if governance and legal frameworks are strengthened (Albania NFI; EEA).

Public ownership as an advantage

Albania's 97% publicly managed forests facilitate transparent chain- of-custody systems. Private owners are generally less likely to adopt certification, making public control a strategic benefit. Bosnia demonstrates that donor-supported reforms can certify large state-managed blocks, improving market credibility and reducing illegal logging (FAO; World Bank).

Certification and market creation

PEFC or FSC certification is essential for EU and global markets. Targeted pilot landscapes could formalize timber supply, address illegal logging, and link public-forest output to engineered wood demand. Neighboring countries currently produce limited engineered wood, suggesting potential regional markets.

Value chain and climate co-benefits

Aligning certified supply with domestic building industries and demonstration projects can avoid stranded capacity while promoting CO_2 mitigation. Albania's low per- capita emissions (1.59 tCO_2e)

mean substituting steel and concrete with sustainably sourced timber can yield climate and rural economic gains (Forest Europe; national NDCs).

Albania's potential lies in certification, high public ownership, and integration with domestic and regional markets to develop an emerging engineered wood sector.

6. Conclusion and recommendations

Albania's forests are an underutilized ecological and economic resource. Lessons from Austria, Slovenia, and Bosnia show that sequenced reforms – cadastre/legal clarity, targeted certification, modest value- chain investment, and demand creation through public procurement – can foster a resilient engineered wood sector and support alignment with EU standards, aiding Albania's EU accession process. Such an approach would also strengthen the connection between the rapidly changing Albanian built environment and local identity, while positioning Albania as a contributor in global conversations on low- carbon, resilient architecture and timber engineering.

6.1. Recommendations

Short term (0-2 years): Launch cadastre and chain-of-custody pilots; conduct CLT/glulam feasibility studies, potentially funded by EU or UNDP programs.

Medium term (2-5 years): Implement FSC/PEFC certification on pilot landscapes, link certified supply to public demonstration projects, and upgrade sawmills for engineered wood production with technical assistance and external financing.

Long term (5+ years): Integrate forestry into climate strategies with MRV and carbon-finance mechanisms.

Next steps: Harmonize Albania's NFI data, model economic and carbon outcomes, and design donor- supported programs to implement cadastre, certification, and pilot procurement sequences.

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Assessing Water Quality and Pollution Sources in the 'Kune-Vain-Tale' Lagoon

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MSc. Sidorela CERENI
ORCID 0009-0009-6858-1255
Faculty of Planning, Environment and Urban Management, POLIS University, Albania,
sidorela_cereni@universitetipolis.edu.al

Abstract

Water resources are of use for all categories in conditions where pollution indicators and toxins are within the approved national and international organisations that enable use as drinking water, agricultural water, or water discharged from economic activities, mainly industrial ones. Other studies, or those taken from the monitoring system at different levels, show that waters of rivers, lakes, seas and reservoirs in the country contain contaminating substances in values that damage the aquatic environment and reduce use values. From analyses performed in drainage hydrovore 'Tale', in the city of Lezha, at three monitoring points: before hydrovore, after hydrovore, and before the sea release for pH inductivity indicators, chlorides, sulphates, phosphates, nitrite, nitrates, ammonia, turbulence, dissolved oxygen, temperature, COD (chemical need for oxygen), coliform, Cu, Pb, Zn, and Cr.

It turns out that at the points that we analysed, the parameter content is above the limits allowed for substances such as phosphates and heavy metals. At all three points, they have emerged above the permitted value, as well as high organic loads of BOD and COD. Like physico-chemical parameters and microbiological parameters (e-coli, coliform) indicate considerable faecal pollution. The study performed shows us the impact of urban and agricultural pollution as well as marine salts on water quality.

Keywords

Water quality, chemical, biological paramters, physicochemical parameter, lagoon

1. Introduction

One of the main challenges today around the world is water pollution, which has a direct impact on human health, biodiversity and the development of urban and rural areas. The many causes of water pollution come from anthropogenic activities, including industry, intensive agriculture, and wastewater discharges. Water pollution is classified as surface water or groundwater pollution. One of the main sources of surface water pollution in our country is urban discharges containing nitrogen and phosphorus compounds, organic matter that favours the eutrophication process, pathogenic viruses and bacteria, heavy metals, and substances that spoil the appearance of water and give it a bad smell (Lin, Yang and Xu, 2022).

In some European countries, surface water is used more than groundwater. The reason lies in the fact that groundwater, which is used as the main source for public use, has a very high processing cost and the supply of such water is relatively small until the water has acquired high quality for consumption. The demand for a clean, potable water supply has been and will remain a challenge for developing countries in the revolution as well as for countries with the most advanced technology (Damania et al., 2019). In recent times, we have been using water in an uncontrolled way in terms of quality to determine whether it can be consumed or not. From the past experiences of various societies, it is known that from polluted water, which does not meet the conditions for consumption, humanity suffers global catastrophes, disease and death (du Plessis, 2022). Water is important and essential for all forms of life and the world in which we want to live.

Water in nature makes up the largest part of the surface, occupying about 70.1% of it, of which 97% of the world's water reservoirs are oceans, of which only 3% is freshwater. Of the total amount of freshwater, 77% of the water is glaciers and snow, and only 1% of that is surface water, including rivers, lakes, and ponds (USGS, 2019). Marine pollution is a consequence of water pollution. The marine environment is a marine space with water resources, flora and fauna, and the surface of the sea, including the coastline, beaches, inland waters, lagoons, and river estuaries. It is state property, and its administration is carried out by state bodies designated by law. Marine environments are used for commercial, scientific, social, economic, tourist, military, and sporting activities.

Figure 1. *Kune Vain Lagoon.*

Albania is a mountainous country with about 450 km of coastline and numerous water reserves, such as rivers, springs and natural lakes. Over 152 rivers and streams, ultimately forming 8 major rivers, flow from southeast to northwest, mainly towards the Adriatic coast. Of the total annual flow of 42.25 billion m^3, only 12.8 billion belong to groundwater. The average annual precipitation in the Albanian territory is 1,430 mm/year but is distributed unevenly throughout the year: about 40% in winter, 32% in spring, 17% in autumn and only 11% in summer. The temperature fluctuates from 3.5 to 8.9°C in winter and from 17.8 to 24.6°C in summer (Nationally Determined Contribution Albania, 2022).

Albania is rich in lakes (Enti Rregullator i Ujit, 2021); it has 247 natural lakes and over 800 artificial ones. According to the origin of formation, natural lakes are divided into tectonic, tectonic-karst, glacial, karst and coastal lakes. In Albania there are about 15,000 ha of coastal lagoons, which serve as a shelter for the protection, nutrition and reproduction of many living things. Albanian aquatic habitats are naturally important for the great diversity of flora and fauna. Surface waters also constitute a great asset for the country's economy (Sulçe et al., 2018). They are important for many traditional uses such as: irrigation, fishing, tourism and industry. Almost all rivers, lakes and coastal areas serve as discharge sites for urban and industrial liquid and in some cases solid waste. The main sources of water pollution in Albania in the last decade are untreated urban discharges. Urban wastewater and other industrial discharges are discharged directly into watercourses and go to rivers, lakes or the coast due to the lack of wastewater treatment plants (National Environment Agency, 2014).

Albania has four main lagoons. The Karavasta Lagoon is the largest lagoon in Albania and one of the largest in the Mediterranean Sea since 1994, located near Divjaka(Ramsar Convention Secretariat, 1994). The lagoon is part of the Karavasta Divjaka National Park, with an area of 45 kilometres and a maximum depth of 1.3 metres. To protect several ecosystems of national importance, it is home to about 5% of the world population of the rare species of the Dalmatian pelican. The second largest lagoon in Albania and one of the largest in the Adriatic Sea, located in the south of Albania near the city of Vlora. Narta Lagoon has an area of 26.7 kilometres. Inside the lagoon are also the islands of Zvernec, known for hosting the greater flamingo. Lake Butrint is a salt lagoon with a length of 7.1 kilometres and a width of 3.3 kilometres and a surface area of 16 kilometres. The lagoon is known for housing a great diversity of fauna and flora. The lake is connected to the Ionian Sea through the Vivran Channel. Patoku Lagoon is located between the Ishem and Mat rivers along the Adriatic coast of Albania in the west within the Lezha district. It has a surface area of 4.8 kilometres, and its average depth is 0.7 metres. Patoku Lagoon is part of the Patok-Fushekuqe-Ishem Natural Park, declared by the Albanian government in 2010 to protect its diversity and unique flora. Other lagoons include the Viluni and the Kune-Vain-Tale Lagoon. Hydrovore 'Tale' is located in the Vain-Tale area – one of the most important lagoons in Albania near the Mat River and closely connected to the Adriatic Sea. The dams were built to enable the management of water flows and to protect agricultural lands from flooding.

Through this paper, the findings of the assessment of pollutant and toxic indicators in the waters of the Vain Lagoon area will be presented. Through data obtained from water samples analysed for chemical-physical and microbiological indicators. The area is sensitive to wastewater discharges, urbanisation, and water pollution from agriculture's pesticides and fertilisers.

Figure 2. *Kune Vain Lagoon pollution.*

2. Methodology

The methodology consists of taking samples at three different points: before discharge from inside the lagoon and before exiting for the sea. The analysis of the indicators is conducted using the relevant methods, and the results are interpreted according to the Albanian version of the international standard S SH ISO/17025:2017, which pertains to the competence of testing and calibration laboratories. ISO/IEC 17025:2017 is a global standard that specifies the requirements for laboratories to demonstrate their impartiality, competence and consistent operation to produce reliable and valid results. Samples for analysis were taken in two different periods in May and September. In both periods, we took samples at three different points and on the water surface. The analyses were carried out in the Environment Laboratory of POLIS University with standard equipment and methods. Some of the equipment used in performing analyses for certain parameters:

- Multimeter for pH, EC, temperature and turbidity;
- Spectrophotometer for phosphates, nitrites, nitrates, total phosphorus and heavy metals;
- Gravimetric method for chlorides,
- BOD/COD analyser for organic load;
- Bacteriological analysis for E. coli and coliforms.

3. Results

The sampling process was carried out in accordance with standard guidelines for collecting water samples. The sampling bottle was pre-rinsed with the sample water 2–3 times to avoid possible contamination and to ensure real representativeness of the sample. After rinsing, the container was completely filled with the sample water up to the neck, leaving no space for air, in order to avoid the presence of oxygen that could affect the chemical composition of the sample.

At each of the designated points, a water sample was taken in two different time periods. Specifically, at the first point (before hydrovore), the sample was taken on 16/05/2025 May at 09:15. As mentioned, the procedure performed is in accordance with the standard of collection of aquatic samples where

specifically: the nature of the sample is superficial; the water temperature is 20.1°C; the preservative used- is HNO3 (nitric acid) for heavy metals; sample appearance -slightly blurry; weather conditions- sunny; Sample container type: 1.5 L plastic bottle; Sample volume: 1.5 L; Storage and transport conditions: the sample is stored in a refrigerated box (ice box) at a temperature of 4 °C until arrival at the laboratory. The analysis of the sample begins immediately as soon as the sample has reached the laboratory and the ambient temperature is taken.

The sampling procedure at the second and third points are also based on the standard of collection of aquatic samples. The difference lies only in some parameters such as:

In the second sample: water temperature 23.6°C; time of its intake 10:40.

In the third sample: water temperature 23.6°C; pick-up time 12:55.

The second period of measurements and sampling was carried out in September in order to comparatively assess the water quality after the summer season and to identify possible physico-chemical changes caused by climatic and anthropogenic factors. The sampling procedure continues the same in this period, with the following changes:

First point: date of receipt 02/09/2025 at 10:15; water temperature 19.5°C;

Second point: intake time 11:55; water temperature 22.5°C;

Third point: 13:50; water temperature 15°C;

The following table illustrate measurements taken in May and September at three different locations (before hydrovore, in hydrovore and before sea release) in the Laguna Vain Hidrovor Tale area.

Parameter	**Before hydrovore**		**After hydrovore**		**Before sea release**		**Norm**
	May	**Sep**	**May**	**Sep**	**May**	**Sep**	
*Chlorides, Cl-(mg/l)	1293.93	1701.6	2442.21	24992.3	2215.63	4324.9	250
*Electrical conductivity, EC (µs/cm)	5320	5380	7760	61800	7640	12760	≤2500
*Sulphates, SO4 (mg/l)	117.64	915.26	244.21	2334.31	229.17	503.83	≤250
BOD (mg/l)	65	72	33	97	36	59	≤ 3
COD (mg/l)	135	120	98	141	137	115	≤ 25
O2 (mg/l)	2.93	3.74	3.43	3.58	4.35	4.21	≥ 5
*Nitrites, NO2- (mg/l)	0.12	0.12	0.14	0.03	0.12	0.05	≤ 0.1

Lead Pb (mg/l)	0.23	0.14	0.19	0.21	0.15	0.18	≤ 0.01
Nickel Ni (mg/l)	0.1	0.03	0.13	0.05	0.11	0.15	≤ 0.02
*Phosphates, PO4 (mg/l)	6.64	2.29	2.87	14.2	8.8	1.96	≤ 2.0
*Nitrates, NO3- (mg/l)	3.82	3.67	3.71	6.68	3.72	3.76	≤ 25.0
*Ammonia, NH4+ (mg/l)	0.31	0.3	0.22	0.12	0.11	0.59	≤ 2.0
Turbidity NTU	5.56	8.13	7.31	12.34	8.57	5.92	≤ 25
Temperature ˚C	20.1	19.5	23.6	22.5	23.4	16.9	20-25
E-Coli CFU/ 100ml	2500	2700	1400	500	1200	640	≤ 2000
Koliform CFU/ 100ml	10	400	5	450	15	28	≤ 5000
Chrome Cu (mg/l)	0.02	0.03	0.04	0.06	0.07	0.13	≤ 0.1
Zinc Zn (mg/l)	0.058	0.06	0.018	0.048	0.02	0.04	≤ 0.5
Chrome Cr (mg/l)	0.04	0.03	0.04	0.03	0.05	0.05	≤ 0.1

Table 1. *Analysis result.*

4. Discussion

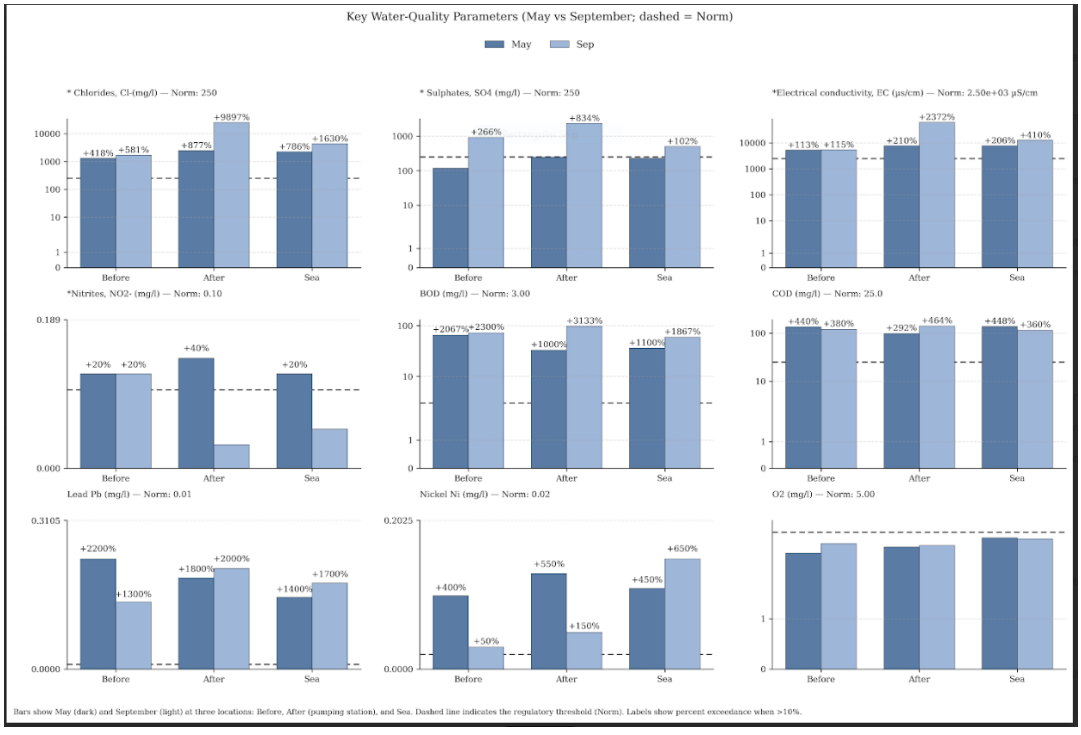
After receiving the results, it is observed that the water quality in the Vain Lagoon area is affected by a series of environmental factors, some of which have exceeded the permitted norms, disrupting the natural balance of the area. But on the other hand, there are also parameters that are below these norms, such as O_2. Specifically for the month of May, the results obtained from the analysis of the aforementioned parameters can be interpreted as follows:

- High salinity (EC, Cl^-, SO_4^{2-}): The values obtained in these parameters are well above the permitted limits, indicating direct influence from the sea and infiltration of saline waters.
- Organic load (BOD, COD): Much higher than the standards → indicating pollution from the discharge of agricultural waters and sewage.
- Dissolved oxygen: The value obtained is below the minimum level necessary for the aquatic ecosystem, this indicates that there will be a direct unfavorable impact on aquatic life.

- Phosphates and nitrites: The values obtained from these two parameters have high concentrations that lead to eutrophication, especially at point 3 (in front of the sea).
- Heavy metals: The values obtained from the parameters of heavy metals such as: lead (Pb) and nickel (Ni) exceed the permitted norms, posing a serious risk to the health of living beings.
- Microbiological parameters: The measured microbiological parameters E. coli and Coliforms present at high levels indicate that we have fecal pollution.

While for the month of September, the measurements made and the values obtained can be read as follows:

- Many key parameters exceed national limits when compared to the values of the drinking water regulation (e.g. Pb, Ni, E. coli, BOD/COD, Cl^-, EC). This means that the water is not suitable for consumption without further treatment and poses a health risk.
- Lead and nickel are very high compared to national values (lead 10 µg/L, nickel 20 µg/L). This is an important signal: lead concentrations (150-230 µg/L) are many times above the norm.
- Microbiological parameters (E. coli) are very high – an indicator of faecal contamination and the risk of water-related diseases. For drinking water, the norm is 0 CFU/100 mL.
- Many parameters (BOD, COD, PO_4, turbidity, EC, Cl^-) very high values were obtained for organic pollution, food (fertilizers) and salinity (coastal impact / marine intrusion).



Graphic 1. *Key water- quality parameters (May vs September).*

At the end of the analyses performed, a graphical summary of the results for the main parameters of laboratory measurements was performed. The graphs provided show the values of each analyzed parameter, emphasizing in particular those that have resulted below the established norms or above the limits allowed according to the water quality standards. This visual representation serves to clearly

illustrate general trends and identify parameters that require further monitoring or intervention to improve environmental quality.

5. Conclusion

After parameter measurements have been carried out at all three monitoring points and in two different time periods, it results that the level of water pollution is high, reflecting the impact of numerous environmental and human factors. One of the main sources of this pollution is the uncontrolled and untreated discharge of urban and agricultural wastewater, which carries chemicals such as phosphates and nitrates, as well as concentrations of organic matter harmful to the ecology of the environment. These chemicals lead to the transformation of natural habitats, endangering the ecosystem. Wastewater contains not only domestic and organic pollutants but also chemical fertilisers and pesticides. Furthermore, this situation increases the biochemical demand for oxygen, necessary for the development of aquatic flora and fauna. A parameter that is vital for aquatic life, dissolved oxygen is below the minimum value, which causes unfavourable conditions for biodiversity. This indicates that the conditions are not optimal for aquatic life, risking the degradation of the ecosystem. In general, pollution was found to be higher at the monitoring points before entering the hydrovore and before discharge into the sea, which suggests that pollution comes from both the inputs of polluted waters before the hydrovore, as well as from transport processes before discharge into the sea.

The results obtained reinforce the urgent need to develop strategies and mechanisms for treating wastewater before its discharge into the sea to avoid the destruction of ecological chains. The development of well-defined environmental policies and community awareness about the controlled use of water resources helps establish an environmental balance.

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Integrating Land-River Interactions in the Marzenego River Contract

A relational approach to water governance

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MSc. Sofia BESCHI
ORCID 0009-0009-7017-3752
Department of Architecture and Arts, Università Iuav di Venezia, Italy, s.beschi@stud.iuav.it

Dr. Filippo MAGNI
ORCID 0000-0002-1399-1080
Department of Architecture and Arts, Università Iuav di Venezia, Italy, fmagni@iuav.it

Abstract

Contemporary approaches to river management remain hindered by sectoral fragmentation, insufficient spatial integration, and a persistent separation between land and water governance. Consequently, existing frameworks often fail to adequately address the complex and interdependent environmental, social, and economic challenges posed by river systems.

This study explores the operational potential of the land-river interaction framework as an analytical tool to integrate fluvial systems within planning processes. By explicitly clarifying spatial and functional connections between terrestrial and fluvial components, the framework aims to enhance the effectiveness of planning instruments for adaptive and integrated management grounded in a socioecological perspective.

The methodology is applied to the Marzenego River in northeastern Italy, characterized by heterogeneous territorial configurations and significant anthropogenic pressures. The case study provides insights into the spatial dimension of land-river interactions and supports ongoing local participatory initiatives, such as the River Contract.

The study aims at demonstrating that incorporating land-river interactions enables the identification of latent territorial structures, spatial patterns, and immaterial relations frequently overlooked by conventional sectoral planning.

Findings show that this approach supports spatially explicit and context-sensitive interventions that address multifaceted territorial challenges. Ultimately, it contributes to embedding fluvial systems within comprehensive governance frameworks to promote environmental sustainability, social resilience, and adaptive capacity.

Keywords

Integrated water management, land-river interactions, river contract, spatial planning

1. Introduction

River management and planning face persistent challenges due to disciplinary fragmentation, weak spatial integration, and the separation between land and water governance (Cid et al., 2008). Although rivers are increasingly recognized as socioecological systems, current approaches often remain limited by sectoral or hydro-technical priorities that overlook their relational and multidimensional character (Kidd, 2007; Dunham et al., 2018).

Over the past decades, several integration-oriented frameworks have been proposed, such as Integrated Water Resources Management (GWP, 2000) and the Source-to-Sea approach (Granit et al., 2017). Although they have provided important guiding principles, their practical implementation has frequently been limited (Granit et al., 2014).

In response to these limitations, new forms of collaborative governance have emerged to reconnect territorial dimensions within river planning. Among them, the Italian river contracts represent co-planning instruments capable of fostering integration across sectoral objectives and governance scales, thanks to their flexible, trans-scalar, and participatory nature (Cialdea and Pompei, 2022; Rossi, 2022). They provide a negotiation arena that enables the alignment of ecological and social priorities, overcoming administrative and hydrographic rigidities (Bastiani, 2011; Scaduto, 2016).

Within this framework, the concept of land-river interaction is proposed as an analytical tool that explicitly addresses the spatial and functional interdependencies between rivers and the surrounding territories. Grounded in socioecological and relational perspectives (Anderson et al., 2019; Stokols, 2018), it emphasizes the fluid, interdependent, and co-produced nature of riverscapes. Building on this conceptual foundation, the study borrows from the author's previous work and established planning paradigms, including Source-to-Sea (Mathews et al., 2019), Land-Sea Interactions (Bocci and Marković, 2022), and Conservation Planning (Álvarez-Romero et al., 2011). Through a systematic literature review and a comparative analysis of selected planning experiences across multiple scales, Beschi (2025) defines land-river interactions as complex networks of multidirectional spatial and functional relationships connecting rivers and the territories they traverse, manifesting in both material and immaterial forms.

This paper applies the developed framework to the Marzenego River Contract in northeastern Italy, demonstrating its potential to inform spatially explicit, integrated, and context-sensitive planning.

2. Methods and data

The analysis of land-river interactions follows a seven-step methodology, previously developed in Beschi (2025).

The seven steps are applied as follows:

1. Define the spatial and planning context. Specify the study area and identify the planning instruments to be informed by the analysis, aligning with existing governance frameworks.
2. Identify and classify interactions. Compile a matrix of land-river interactions across five systems - environmental, agricultural, urban, infrastructural, and socio-cultural - considering current,

historical, and potential relations. Local knowledge supports the identification of context-specific dynamics.

3. Link interactions to planning instruments. Relate interactions to relevant policies, plans, and programs, highlighting synergies, conflicts, and overlooked relationships.
4. Map and engage stakeholders. Identify key actors (institutions, associations, research organizations, civil society) and define suitable engagement methods for local conditions.
5. Spatialize interactions. Represent interactions through GIS and visualization tools, integrating both material elements and immaterial dimensions.
6. Delimit the relational space of the river. Integrate results across systems to delineate the river's relational space, identifying hotspots, overlapping dynamics, and transition zones as a coherent spatial frame for planning and management.
7. Formulate strategic orientations and guidelines. Translate findings into operational recommendations, including scenarios and design guidelines, to support integrated and adaptive planning.

The Marzenego River serves as a case study to demonstrate the operational potential of the methodology. Since 2014, a River Contract process has been underway, offering a relevant governance framework for applying the analytical approach.

The investigation combined multiple methods: documentary analysis of official reports associated with the River Contract (Comuni del Bacino Idrografico del Marzenego and Consorzio di Bonifica Acque Risorgive, 2015); historical and cartographic research using materials collected by the association storiAmestre (storiAmestre, 2025); representation of geographical data provided by the Veneto Region (Regione del Veneto, 2025); field surveys and direct observation, employing walking as a method of territorial inquiry to capture elements not evident from documents (Vergunst and Ingold, 2016; Mullally et al., 2023).

3. Results

3.1. Step 1 – Define the spatial and planning context

The Marzenego River (Figure 1) originates from resurgence springs in Resana (Treviso) and follows a 45 km course across the central Venetian plain before discharging into the Venetian Lagoon via the Osellino canal. The river traverses a highly anthropized landscape where dispersed urban settlements, agricultural land, and productive activities coexist within a polycentric "agropolitan" system (Regione del Veneto, 2020).

Extensive human modifications have significantly altered the river's morphology, reduced its natural self-regulation capacity, and increased hydraulic risk in densely populated areas. Additional anthropogenic pressures, such as soil consumption, intensive agriculture, industrial activities, and dense infrastructure networks, contribute to water quality degradation, biodiversity loss, and habitat fragmentation (Renzoni and Tosi, 2016). The variability of settlement patterns, ranging from small villages to major urban centers, provides an opportunity to investigate how land-river interactions differ across gradients of anthropogenic pressure.

Since 2014, a participatory River Contract has engaged local authorities, associations, and citizens in basin governance. Despite the adoption of an action program in 2015, implementation has been limited, and the process remains largely inactive.

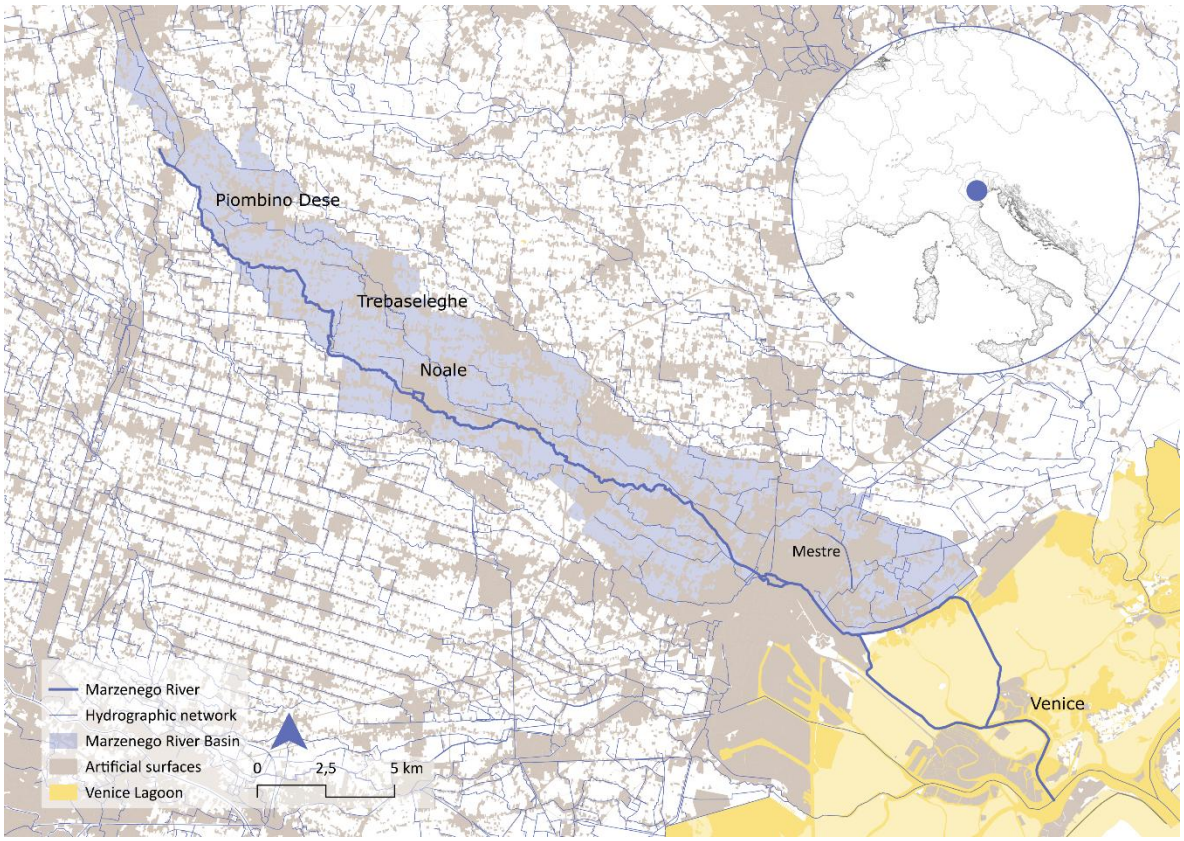

Figure 1. *Study area context - Overview of the Marzenego River Basin.*
Source: Author's elaboration.

3.2. Step 2 – Identify and classify interactions

Combining desk research and field surveys, the analysis of land-river interactions revealed a complex network of interrelated processes. Interactions were classified within five systems - environmental, agricultural, urban, infrastructural, and socio-cultural - and described in terms of direction, environmental and socioeconomic effects, and key flows affected. Both historical trajectories and future scenarios were considered, allowing the reconstruction of long-term dynamics of transformation.

Figure 2 illustrates the matrix structure, showing one representative interaction per system and the total number of interactions identified in each system.

Figure 2. *Structure of the land-river interaction matrix with representative system-specific interactions.* Source: Author's elaboration.

3.3. Step 3 – Link interactions to planning instruments

The review of planning instruments indicates overall coherence in objectives across scales, particularly concerning ecological quality, mitigation of anthropogenic pressures, and hydraulic safety. Nonetheless, fragmentation remains evident, with themes such as ecological connectivity and cultural heritage dispersed across instruments without systematic integration. Land-use change represents the most critical concern, as projected urban expansions along the river corridor lack sustainability criteria and risk undermining conservation goals and exacerbating hydraulic vulnerability. Furthermore, hydraulic safety, while central in many plans, is rarely addressed in conjunction with climate adaptation, revealing a gap in resilience-oriented strategies. Conversely, open-space accessibility and active mobility emerge with increasing prominence toward the lagoon, and cultural heritage valorization is more strongly pursued at the regional scale. Within this fragmented framework, the River Contract emerges as a potential coordination mechanism to realign objectives toward a shared vision

3.4. Step 4 – Map and engage stakeholders

The stakeholder mapping (Figure 3) illustrates the high degree of complexity in the governance of the Marzenego. In this study, stakeholders were identified and mapped based on a comprehensive documentary analysis, including relevant policy and planning documents, official institutional websites,

and publicly available reports and project databases. A participatory engagement with stakeholders was not carried out, but the step is conceived to accommodate participatory processes in future applications.

Environmental and infrastructural systems are characterized by a wide distribution of institutional and technical actors, reflecting both regulatory responsibilities and sectoral competences. The agricultural system displays a more restricted but highly specific set of connections, especially with farmers' associations and producer consortia. The socio-cultural system reveals a particularly dense network of associations, cultural groups, and civic organizations, confirming the strong local identity linked to the river.

This heterogeneity underscores the necessity of integrated coordination mechanisms. Importantly, several stakeholders are positioned at the intersection of multiple systems, offering opportunities for synergies if adequately mobilized. However, the limited implementation of the River Contract indicates that these potentials are not yet fully activated.

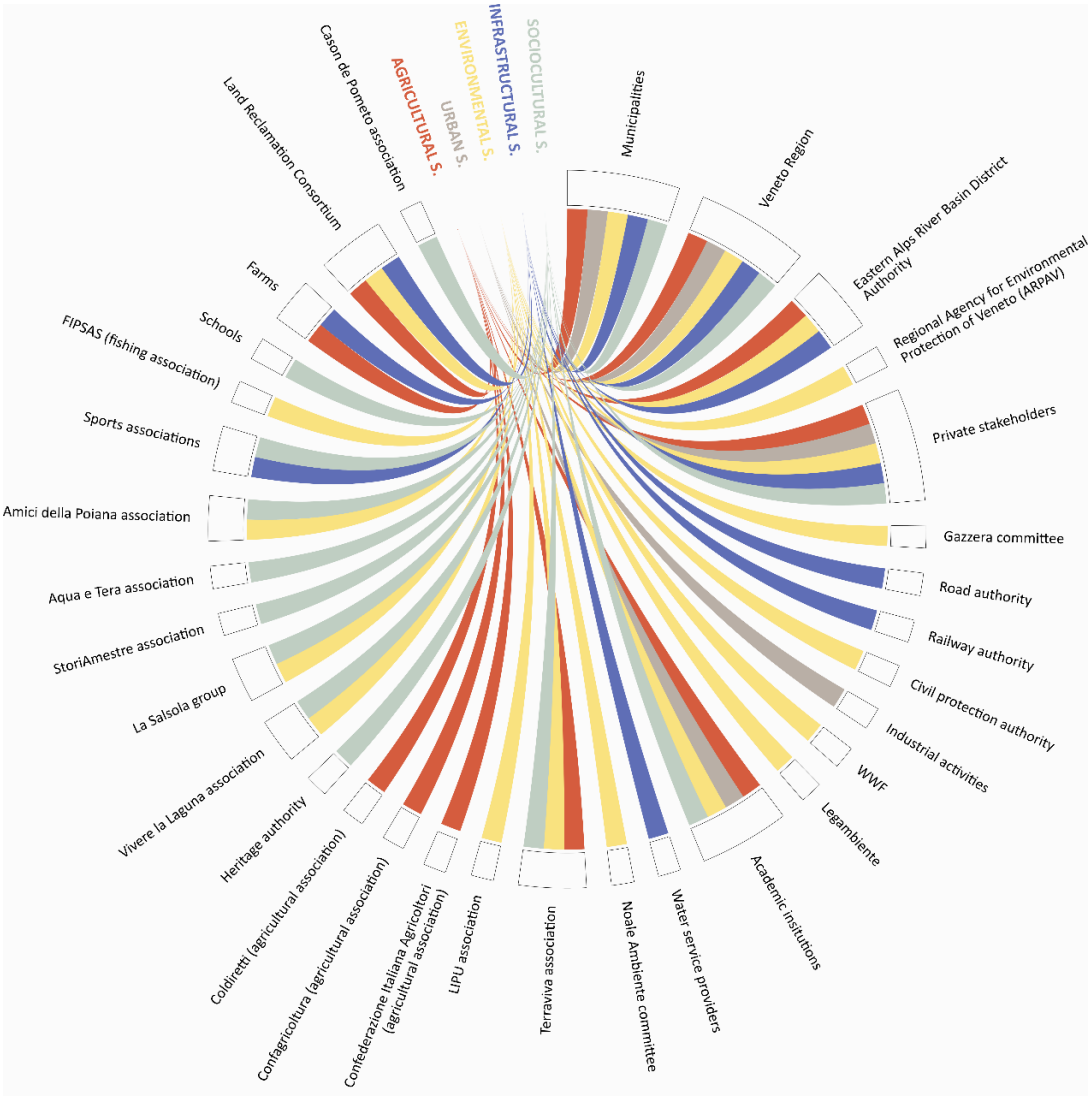

Figure 3. *Stakeholder connections across the five systems.*
Source: Author's elaboration.

3.5. Step 5 – Spatialize interactions

Interactions were mapped separately for each system. Spatial data were sourced from the Veneto Region Geoportal (Regione del Veneto, 2025) and represented using GIS for visualization purposes. The existing official datasets from the Veneto Region were integrated with field-based observations, supporting a qualitative interpretation of the interactions. The decision to map hydrologically relevant elements only (e.g., discharges, intensive monocultures, impervious surfaces) within the strict basin boundaries, while visualizing other features (e.g., cultural assets, ecological networks) beyond them, reflects the relational nature of land-river interactions.

The results highlight the complexity of each system:

- Agricultural system. The basin shows a mosaic of practices: maize monocultures dominate, alongside vineyards, radicchio IGP, and biomass plots. Hedgerows, tree rows, and residual meadows sustain ecological connectivity, while intensive livestock farms exert strong pressure.
- Urban system. The corridor features dispersed settlements, from Mestre's dense fabric to towns like Noale, Trebaseleghe, and Piombino Dese, with frequent contiguity between residential and productive uses.
- Environmental system. The Marzenego acts as a regional ecological corridor linking the pre-Alps, the plain, and the Lagoon. Natura 2000 sites, riparian vegetation, and buffer strips support connectivity. Abandoned quarries reflect a legacy of past extractive activities. Flood risk is high, particularly near Mestre, where the Lagoon further increases hydraulic vulnerability.
- Infrastructural system. Numerous roads and railways fragment continuity; riverside paths are discontinuous. Nineteen historic mills limit navigation to the Osellino Canal. The airport near the mouth adds disturbance, while a dense irrigation network shapes the upper basin.
- Socio-cultural system. Mills, Venetian villas, fortified landscapes, and historic centers reflect the river's formative and strategic role. The River Park project shows how cultural heritage can support ecological and social valorization.

For the purposes of this paper, the spatial representation of the five systems was simplified in Figure 4 to ensure clarity and readability.

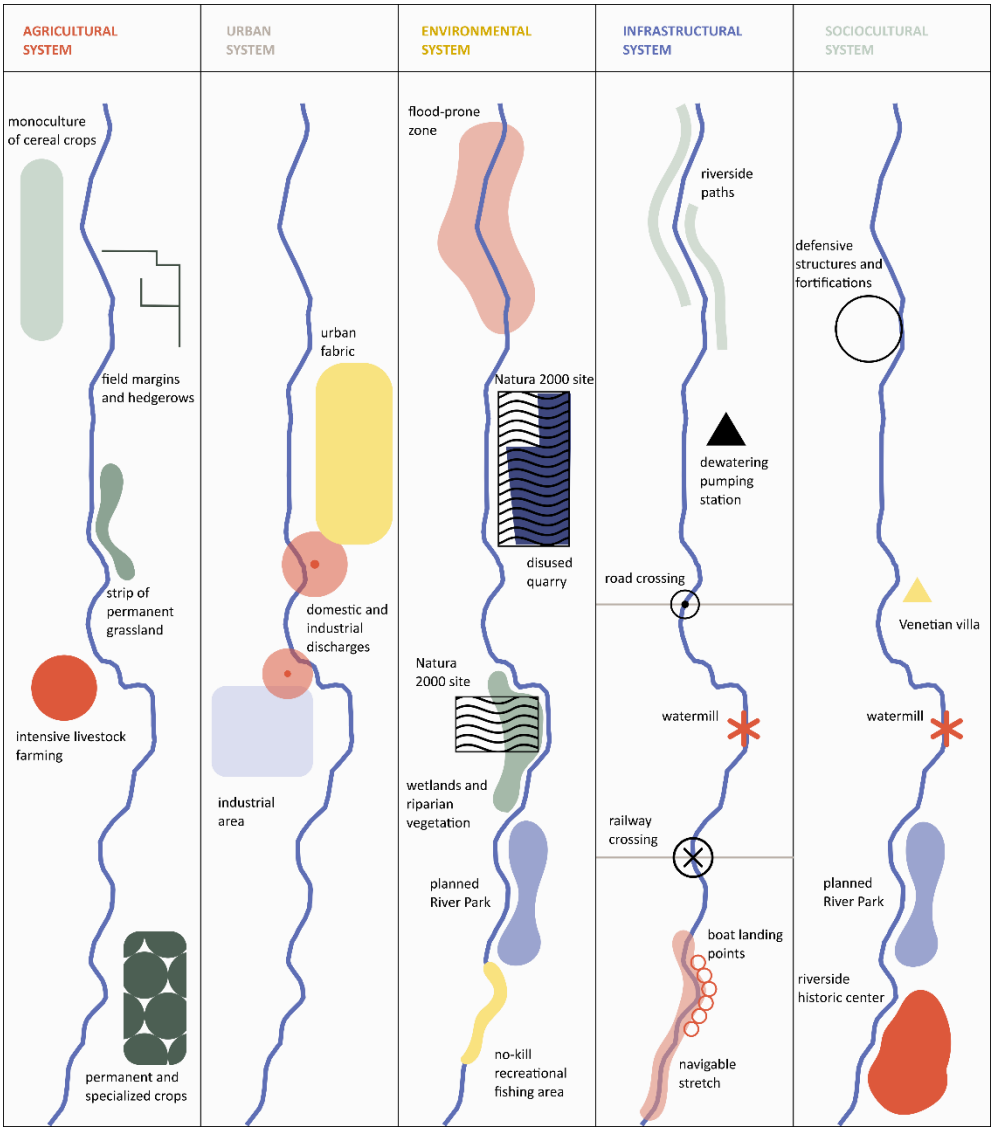

Figure 4. *Simplified spatial maps of the five interaction systems.*
Source: Author's elaboration.

3.6. Step 6 – Delimit the relational space of the river

The synthesis of system-specific representations allowed the definition of Marzenego's relational space, conceived not as a fixed territorial unit but as a dynamic field of interactions. The analysis was conducted through interpretive categories, such as permeable/impermeable surfaces, light/interfering presences, warm/cold connections, and soft/hard interfaces, that express the quality and intensity of land-river interactions (Figure 5).

This step marks the transition from descriptive mapping to interpretive reading, where the focus shifts from objects to relations. The relational space of the Marzenego highlights hotspots of conflict and synergy, zones of transition, and overlapping dynamics that require integrated planning responses. It

also provides a conceptual and spatial bridge between empirical analysis and strategic orientations, reinforcing the value of the framework in linking theory and practice.

Legend

CATEGORY	SUBCATEGORY	SYMBOL	DESCRIPTION
SURFACES	impermeable		Urbanized areas and all other surfaces that prevent water infiltration, influencing surface runoff dynamics and water quality.
	permeable		Agricultural, natural, and semi-natural areas that promote rainwater infiltration, affecting groundwater recharge dynamics and water quality.
PRESENCES	light		Activities or elements with limited impact on the river system. Due to their environmental compatibility, they can be enhanced from a planning and design perspective.
	interfering		Activities or elements that exert a strong impact on the river system, altering its morphology, the quantity and quality of water, and the overall ecological balance.
CONNECTIONS	warm		Linear transport infrastructures that enhance interaction with the river, providing opportunities for direct access and recreational use of the riverine space.
	cold		Linear transport infrastructures that are indifferent to the river's presence.
INTERFACES	soft		Transition zones where gradual integration occurs between adjacent environments, playing a key role in mitigating anthropogenic impacts through their function as ecological buffers.
	hard		Sharp boundaries between distinct environments, with no functional or ecological connectivity between landscape components.

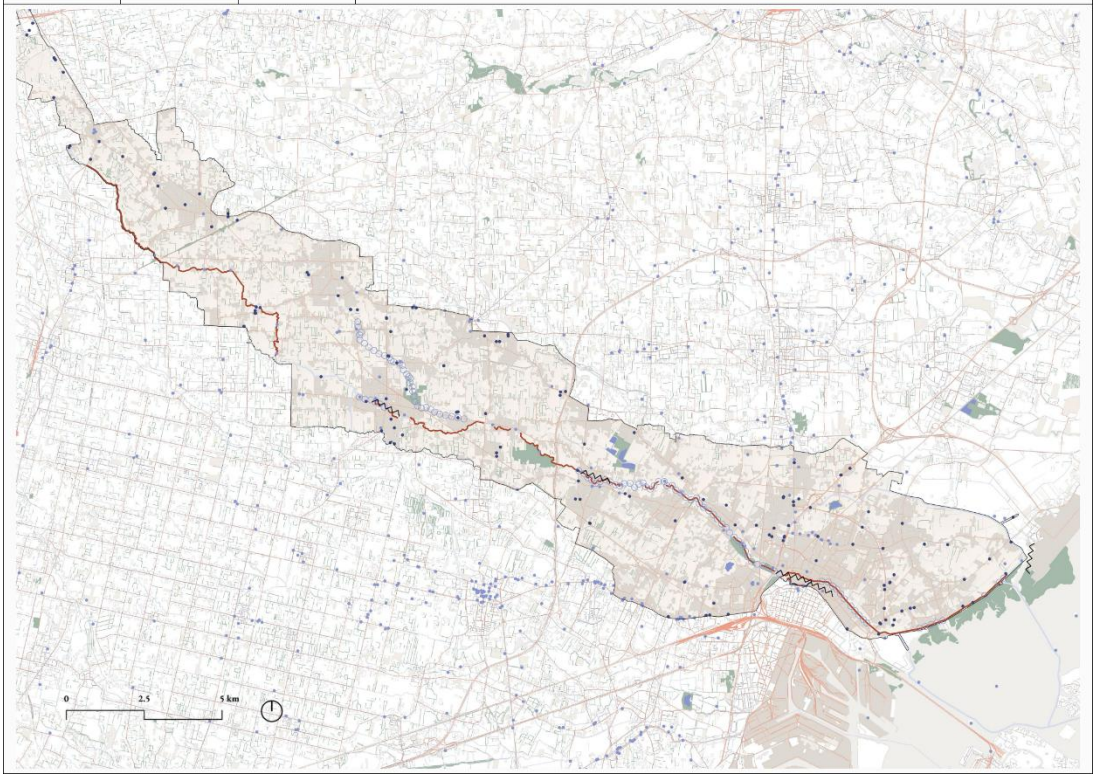

Figure 5. *The relational space of the Marzenego River based on the interpretive categories.* Source: Author's elaboration.

3.7. Step 7 – Formulate strategic orientations and guidelines

This step translates analytical insights into strategic orientations and actions. Rather than a prescriptive plan, these orientations show how the systematic analysis of land-river interactions informs and enhances the River Contract, helping to refine its objectives and measures. Building on the previous steps, the recommendations provide a structured framework that can be further validated, refined, and prioritized through stakeholder engagement. Key strategic orientations include:

- Integrated flood-risk management, e.g., selective reopening of culverted stretches to restore flow continuity, and creation of riparian grasslands as natural flood expansion areas.
- Maintenance and rehabilitation of the hydrographic network, e.g., coordinated maintenance of the minor drainage system, and naturalization of canals and field ditches using bioengineering techniques.
- Restoration and protection of riverine and riparian ecosystems, e.g., riparian forest restoration, invasive species control, and ecological reconnection between wetlands and Natura 2000 sites.
- Adoption of sustainable and multifunctional agricultural practices, e.g., establishment of hedgerows, tree rows and field margins as ecological buffers, and adoption of conservation agriculture and on-farm phytoremediation.
- Enhancement of landscape and cultural heritage, e.g., restoration of historic mills and riverside villas for cultural and educational uses, and conversion of former quarries into wetlands and recreational spaces.
- Strengthening of recreational networks and public spaces along the river, e.g., improved river access and continuous walking-cycling routes, and regeneration of degraded riverfronts as multifunctional public spaces.
- Active participation and community awareness, e.g., participatory mapping and citizen-science initiatives, and community stewardship programs for river spaces.
- Improvement of organizational and management aspects, e.g., shared monitoring and transparent reporting systems, and integration of River Contract priorities into municipal plans and joint funding strategies.

4. Discussion and conclusion

The application of the land-river interaction methodology to the Marzenego demonstrates both its analytical potential and its operational relevance for participatory instruments such as River Contracts. These voluntary agreements are valued for their flexibility and ability to integrate diverse perspectives (Cialdea and Pompei, 2021). Their reliance on stakeholder engagement and independence from strict administrative borders makes them a favorable arena for relational approaches.

The methodology contributes to this process by creating a shared, spatially explicit knowledge base. Systematically cataloguing interactions across environmental, agricultural, urban, infrastructural, and socio-cultural systems enables actors to recognize socioecological dynamics often invisible in sectoral approaches. This shared understanding supports negotiation of strategies tailored to local specificities, enhancing inclusiveness and scientific robustness.

While River Contracts usually follow municipal or basin borders, relational mapping reveals socioecological spaces that cut across them, aligning management with actual dynamics of water, land use, and community practices. The strategic orientations formulated for the Marzenego illustrate how the methodology can refine and enrich the River Contract, making objectives more coherent, integrated, and spatially explicit. Even without full participatory implementation, the approach serves as a valuable diagnostic and preparatory tool.

From a governance perspective, land-river interactions can also help reactivate stalled participatory processes, particularly relevant in Veneto where several River Contracts face delays (La Nuova Venezia, 2020). The framework not only strengthens the legitimacy of these instruments but also expands their operational capacity. More broadly, it demonstrates the value of a relational approach: uncovering latent spatial structures, socioecological dynamics, conflicts and synergies, and bridging the gap between land and water management. By translating complex dynamics into actionable orientations, it supports integration of sectoral objectives, reduces fragmentation, and fosters more resilient and adaptive strategies.

While the application to the Marzenego River provides a robust empirical test, several limitations remain. First, the analysis depends on the availability and quality of documentary, cartographic, and participatory data, which can vary across contexts. Second, translating the methodology into concrete measures requires political will, institutional capacity, and long-term engagement. Additionally, the orientations proposed in this paper are derived mainly from analytical outputs rather than from a participatory process, and their operational legitimacy should be strengthened through direct involvement of local actors. While stakeholder mapping provides a preliminary understanding of governance complexity, validating and operationalizing the results still requires active stakeholder engagement. Future research could apply the framework to other rivers to assess transferability, refine the tools, and compare outcomes under different governance arrangements.

Overall, the study demonstrates that embedding land-river interactions into planning supports both deeper analysis and stronger governance, advancing integrated and adaptive river management.

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Art in Public Spaces

Creative Cultural Productions

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MSc. Iris CANAJ
POLIS University and University of Arts, Tirana, Albania

Abstract

What is an urban space? What is culture, street art and vandalism? Public art not only brings the audience closer to artistic expression but also enhances the city's aesthetic appeal, which in turn fosters the emotional well-being of its residents and stimulates tourism, ultimately impacting the country's economy. Creating art in public spaces – whether through multidisciplinary festivals like the Festival of Street Performers, book-shaped benches like the "Stolibër" project, urban installations like "Reja – The Cloud", murals, or initiatives like "The Visual Park" (Car-Free Day transforming neighborhoods into communal engagement spaces) – represents a form of artivism. But what is artivism? These artistic interventions do not merely entertain or beautify urban spaces; they also serve an educational purpose by addressing themes such as architecture, cultural heritage preservation, environmental awareness, socialization, tourism promotion, economic sustainability and more. Public space, as a shared domain, should be utilized by and for the community while also being protected by it – yet, it is often vandalized by the very people it serves. But where is the line between artivism in public spaces and vandalism? How can an artist make creative use of public space without damaging the city or violating legal regulations? How do we use the space? Do laws governing public art exist? Do we think of public space like a common space and share responsibilities? Let's explore the challenges and opportunities that urban public art offers to artists and communities alike. This analysis will be based on research into personal experiences from the aforementioned projects, as well as insights from collaborators and responsible institutions regarding the authorization, utilization and preservation of public space for artistic purposes and bring some recommendations.

Keywords

Urban spaces, street art, artivism, vandalism

1. Public spaces, art and vandalism

1.1. Understanding the terms

Based on Decision No. 130, dated 15.11.2018, on the approval of the regulation "On the conditions and rules of the occupancy of public space in the municipality of Tirana"

1. "Public Space, is the outer space of the subject, such as the sidewalk, street, square, garden, park and other similar, in the service of the community, where the management can be public and/or private, as well as all those assets that are not registered in the register of immovable properties in the name of the private party". Public spaces for the public and the environment that are, according to law no. 8743, date 22.02.2001 "On the immovable properties of the state"[1]

On decision No. 1096 dated 28.12.2015, "On the approval of rules, conditions, and procedures for the use and management of public space."[2]

CHAPTER II - EXISTING PUBLIC SPACES

Article 4, Regime of existing public spaces

1. Existing public spaces, such as sidewalks, roads, squares, boulevards, parks, promenades, walkways, and other areas for public use, are inviolable and cannot change their purpose for public use except through planning documents as provided by law.
2. The part of the parcel or parcels built outside the building boundary of the buildings is considered public space and is used as such by the community of citizens. This space is not fenced, except when otherwise provided in the construction permit. The municipality covers the maintenance costs.
3. When the space, according to point 2, serves the community of owners, according to the law on co-ownership, the co-owners' assembly carries out maintenance and improvements following the rules established by the municipality, and bears the respective expenses. Otherwise, maintenance and improvements are carried out by the local authorities compulsorily, and the intervention costs are charged to the co-owners' assembly.

Article 5, Public spaces according to PDV (Detailed Local Plan)

(PDV - Detailed Local Plan, is an instrument in the Republic of Albania that specifies the provisions of the General Local Plan (PPV) at the level of one or more structural units. The PDV also establishes conditions for developing an area through building permits.)

1. Public spaces indicated in a detailed local plan, prepared and approved according to law, become the property of the public authority and are maintained by it, according to the PDV agreement, prepared based on the model attached in Appendix A.

[1] Decision No. 130, dated 15 November 2018, *"On the Use of Public Spaces"*, as amended, Municipal Council of Tirana. Official document, available at: https://dpttv.gov.al/wp-content/uploads/2025/01/Vendimi%20nr.%20130,%20dt.%2015.11.2018%20Shfrytezimi%20hap%C3%ABsirave%20publike,%20t%C3%AB%20ndryshuar.pdf

[2] Decision No. 1096, dated 28 December 2015, *"On the Approval of Rules, Conditions, and Procedures for the Use and Management of Public Space"*, Council of Ministers of Albania. Official document, available at: https://qeverisjavendore.gov.al/wp-content/uploads/2024/08/Vendim-nr.-1096-date-28.12.2015-Per-miratimin-e-rregullave-kushteve-e-procedurave-per-perdorimin-dhe-menaxhimin-e-hapesires-publike.pdf

2. Public spaces, outlined in approved urban studies, where development rights are allocated, are maintained and improved by the public authority at its own expense.

Law No. 41/2024, on amendments and additions to Law No. 107/2014, "On Territorial Planning and Development," as amended.[3]

Article 3, In point 1 of Article 4/1, "Public space," the following additions are made:

1. Before the phrase "playground," add the phrase "children's playground."
2. After the phrase "For state immovable properties," add the word "amended."

ART m.[4]

1. A form of representing the world through the creative reproduction of reality using artistic images; artistic creative activity. Folk art (national). Socialist art (revolutionary). Progressive art. Art work. Art workers (enthusiasts). To elevate to art.
2. ~E, ~ET. Branch or type of artistic creative activity. Dramatic (theatrical) arts. Fine arts, a common term for music, painting, sculpture, and architecture. Figurative arts, a common term for painting, graphics, and sculpture. Applied arts (or decorative arts), specific types of art creating objects for daily use, furniture, etc., which also have artistic value. Visual arts. Cinematic art. The art of painting (sculpture). Institute of Arts. The Seven Liberal Arts. (In ancient Roman terminology): arithmetic, geometry, music, astronomy, grammar, dialectics, and rhythm.
3. The total production of a period or a country in the field of artistic creative activity, as part of a certain culture. Albanian art. Egyptian (Greek, Roman) art. Medieval art. Art gallery.
4. The set of rules and methods required to perform an activity skillfully and perfectly; a refined understanding of a craft and the ability to do it properly; mastery. Military art. The art of speech (writing). The art of directing (command). The art of war. Culinary (and tailoring) arts.
5. "Art for art" is a fundamental principle in reactionary aesthetic theory, viewing art as an end in itself, detached from content, social-political life, and the duty to serve broader masses. An art work can be a large construction, such as roads, railways, canals, etc., whose construction requires special effort.

VANDALISM m.[5]

Barbaric and relentless destruction of art and cultural monuments and all valuable things; indiscriminate looting, accompanied by murder and cruelty; a ferocious and barbaric act, behaviour of a vandal; barbarism, cruelty. Vandalism by fascists (Nazis, occupiers, chauvinists). Acts of vandalism. Engages in vandalism.

[3] https://planifikimi.gov.al/index.php?eID=dumpFile&t=f&f=7987&token=34ec9d8d32b2861471582e7632a6c8d45381c325

[4] Academy of Sciences of Albania (Akademia e Shkencave e Shqipërisë). *Dictionary of the Albanian Language* (*Fjalori i Gjuhës Shqipe*). Tirana, 2002.

[5] Ibid.

1.2. Is street art a true art form?

What is art? - Regarding the "EDEN":

Art is meant to move, to inspire...

And yet…

Over the past 2-3 decades, the art world has provided us with a sterile, near-clinical experience rather than focus on the desirability, excitement and inspiration that defines its core essence.

It has created walls between those who create it and those who love it; robbing many from that exhilarating experience, alienating many others from even considering it.

EDEN was founded in 1997 by Cathia Klimovsky with a vision to transform the relationship between artist and art lover.[6]

Why do we need art? It is a "must" or it is something that only belongs to the upper class, the wealthy strata of society? During this research, I will base myself on my personal experience. Should understand the difference between cultural and creative productions; we must mention that culture is made from people, but cultural productions are focused on heritage, traditional arts and the preservation of cultural and historical memory, while creative productions are based on innovation, applying artistic practices, generating profit and creating jobs through intellectual property.[7] We learn the theatre's story and we have learned also about Thespis: he was the first human to appear on stage as an actor playing a character in a play (instead of speaking as himself). Thespis also invented theatrical touring; he would tour various cities while carrying his costumes, masks and other props in a horse-drawn wagon.[8]

This theatrical touring, maybe is the beginning of the street theatre, while moving from a place to another and performing outdoor, he visited different cultures and met new people.

What is street art?

Carla H. Kruger said: "Blank walls, are a shared canvas and we're all artists" (Kruger, n.d.). But how do we deal with the law? Street art has been illegal and even nowadays it is illegal in some conditions or otherwise it is called "vandalism", not only on private properties, but also on heritage buildings... Artists found ways to just to avoid being caught by the police, so they invented stencils, to make their work faster. As street art becomes more popular, the art world and the general public have struggled to determine the best way to characterize street art.

Street art is a unique sort of outdoor art that, as the name suggests, is found on the streets. Many people do not identify this artwork as art and they often associate it with vandalism. It's fair to say that some street art is legally viewed as vandalism, but that doesn't answer the question on whether it can also be art.

[6] https://www.edenart.com/about.
[7] https://www.culturepartnership.eu/en/publishing/course/lecture-5#:~:text=The%20concept%20of%20%E2%80%9Ccultural%20industries,jobs%20by%20creating%20intellectual%20property.
[8] https://en.wikipedia.org/wiki/Thespis.

Street art encompasses a variety of works such as graffiti art, sticker art, stencil graffiti, street poster art, urban knitting and wheat pasting, to name a few. It is the association with graffiti and tagging in particular, that makes it difficult for some people to define street art as a valid art form.

But street art, is not only a visual art. When You travel, have You seen musicians on the metro's stations performing? Have You been part of a juggling performance at the squares? Have You applauded a theatre play or danced at a street battle? Or even being part of flash mobs at the airports? Have You taken pictures of sculptures or installations in the neighborhood? If the answers are mostly "yes", then we can say that street art, it is a multidisciplinary art, that chooses public spaces as "a stage" where different artists can perform.

Is street art real art?

The increased popularity and reach of street art demonstrates that over time, we have grown to reconsider what is art and what is vandalism. Street art is now widely regarded as genuine works of art. The often-transient nature of street art can make it even more valuable in the fast-paced metropolis. Street art is something worth seeking out, or pausing to appreciate, photograph, and promote.

Due to its high visibility – often more so than traditional art seen in theaters, galleries, or cinemas – street art is gaining popularity and can even be promoted on a larger scale, thanks to the important and timely themes it addresses in both urban and rural environments. Can we distinguish whether it's vandalism or artistic activism? In the case of the former Radio Tirana building, graffiti was photographed on its façade – graffiti being a discipline of street art. However, since the building is a 2nd Category Cultural Monument (Institute of Popular Culture), any intervention on its facade is strictly prohibited (Instituti Kombëtar i Trashëgimisë Kulturore, 2024). Moreover, the painted letters (which are colorful in real life) convey no message, do not provoke discussion and lack any rebellious approach to social or political issues. They do not serve as a voice for citizens or present an alternative viewpoint; instead, they harm the building more than they draw attention to it. In another case, graffiti was applied to the Pyramid of Tirana (prior to its restoration), where the message attempted to advocate for its preservation. This partially fulfilled the mission of street art to amplify civic voices. However, the marble surface of the structure was damaged. Even though the Pyramid is not officially declared a Cultural Monument, it is part of the cultural heritage ensemble along the "Dëshmorët e Kombit" boulevard. In this case, the graffiti—whether freehand or stencil – can be considered partly street art and partly vandalism. Both buildings have been or are undergoing restoration and the graffiti has either been removed or is removable. This sets them apart from other visual artworks that are transportable and displayed in various galleries worldwide.

Figure 1. *Former Radio Tirana, 2018.*

Figure 2. *The Pyramid, before reconstruction.*

These deviant behaviors are often mistaken for street art, which in essence is based on rebellion, freedom of expression, creativity, and delivering messages in public spaces – often through guerrilla-style, unauthorized methods. Its purpose is to provoke critical thinking, deliver political messages, and spark reactions. Street art may be seen as "the voice of the city," speaking to the masses, in contrast to the elitist nature of traditional art (Klimovsky, n.d.). This artistic approach aligns with activism and the role of being an active citizen – leading to the term artivism. To understand the difference between destructive vandalism and street art that provokes thought and defends cultural heritage, we can refer to a mural by artist Franko Dine, created during the first edition of The Festival of Street Performers (2019), at "Kont Urani" Street in Tirana. It was painted on the surrounding wall of the former Radio Tirana building without touching the monument's facade. The mural draws attention to the building's value and history by depicting a radio microphone. Today, the building is undergoing restoration, thus resisting deterioration. Although the mural has faded over time, it served its purpose – becoming a landmark for photos promoting culture, art, the artist, the festival and even raising awareness among decision-makers. At the time, there wasn't even a sign indicating the building's monument status, but it should have been protected regardless of ownership.

Figure 3. *Former Radio Tirana, during The Festival of Street Performers, (2019) *The child's portrait it is intentionally covered.*

2. The importance of art in public spaces

2.1. Examples

1. How does globalism interfere on tradition, heritage, history, folk and architecture? Have You ever thought about cities after some years…? What it will be left? What happens with ethnography? Earlier, in Albania, we dressed up with folk clothes, which represented our geographical position also and everyone knew if we were coming from Shëngjergj or Petrela, from Tirana or Burreli, from Korca or Gjirokastra, only because of what we were wearing. What about now? No one knows from where we come from…sometimes either ourselves…are we losing the identity or only the origin and becoming global? Fast fashion is making us equal or without identity and just unifying us as "world's citizens"? "Transient_cities" (including "Transient_Tirana" and "Venus and someotherheroes") is a Willi Dorner's project, an Austrian choreographer, curious about the landscape, architecture, photography and

ethnography. During his project, he overlaps different patterns, in different locations; controversial situations, mixing old and new, at the outskirts or centres, involving models with multiple folk elements and nowadays wearing and "freezing" the moment through camera shoot. After some years, we can use these pictures as a document of the past, to see where have we been and where we will be. This project is made in Tirana: - "A juxtaposition of old and new, of the unfinished and the partially destroyed" (Dorner & Rastl, n.d.) and in Skopje and they made pictures in this "transforming" areas, with "transforming" identities (Klimovsky, n.d.)

Figure 4, 5, 6. *"Transient Tirana".*

Figure 7, 8, 9. *"Venus and someotherheroes".*

2. Willi's relation with architecture, it is shown also at the project "Bodies in Urban Spaces", - a moving trail for a group of dancers. The performers lead the audience through selected parts of public and semi-public spaces. A chain of physical interventions set up very quickly and only existing temporarily, allows the viewer to perceive the same space or place in a new and different way – on the run. Appropriation of city spaces, architecture that exercises power over us and behavioural conventions in public spaces are put forward to discussion (Dorner & Rastl, n.d.). How does this makes You feel about the city? Does this point of view, photographed in public and semi - public spaces, changes Your perceptive of the city? As we may all see, the art in public spaces interferes in our everyday lives and might change our point of view in different ways. When we made the "Bodies in Urban Spaces" in Tirana, the audience also said: - "I had a lot of time without passing on these streets that almost forget that existed", but at the same time, it helped us to see the tiny spaces we usually don't think about those; if are functional or not, if are clean or not, etc.

Figure 10. *"Bodies in Urban Spaces".*

3. Mural arts in Tirana, have raised the qualities not only in the aesthetic way, but are also helping in a functional way, such as addressing in the capital city. For example, now we orientate ourselves even by saying: - "Meet me at the "Building with arrows" or at "Ismail Kadare's mural", etc. Or even by remembering a period of time, such was the pandemic situation and honoring the doctors as heroes. Moreover, public art increases the value of private property and the well-being of residents too. As part of the 4th edition of the Street Artists Festival, we created a mural to commemorate the 70th anniversary of the former Kinostudio, highlighting the first Albanian film, "Tana", near the building of the Central State Film Archive. This mural created an emotional moment even for the actress Tinka Kurti, who saw herself on the mural. This impact not only reminds us all to reconnect with our cinematography and its history but also emotionally touches individuals who are living parts of that history.

Figure 11, 12. *Murals, "TANA" the first Albanian film and the first mural in Elbasan.*

4. Through "Visual Park" project, we brought attention to the drivers to slow down while driving near the school, because the orange pumpkins are more visible than zebra's white lines for pedestrians. Artivism, is activism through art.

Figure 13. *"Visual Park".*

5. "Stolibër" is a functional project where benches seem like an open book. While putting a QR code, citizens and tourists can scan the code and read the biography of the author and some of his/her literature in different languages, written as a critic by young people also, to encourage reading.

Figure 14, 15, 16, 17, 18. *"Stolibër".*

3. Creative Productions spent/bring money for the state's economy?

3.1. "Hardh Fest" example

Discussions on Creative Industries and Cultural Productions are often considered as "excessive expenses", this is how the state's budget, as well as the private sector, consider them when they are invited to invest in this creative industry, but the figures seem to contradict this "rumor". Now, we can also express ourselves with the term "creative economy". But how is Art in Public Spaces related to the economy? We all want to travel and get to know the culture of different countries! But not all of us travel for the sake of a creative production that is taking place in a place outside our place of residence, or outside our neighborhood. We travel also for cultural heritage and for history and for architecture, but also for artistic productions in cultural institutions or closed places, but also in open environments or public/urban spaces. If an urban or public space it a shared space, it can it also be in rural areas or on the outskirts of the city. How does a creative production affect the tourism of that area, in its transformation into an attraction and in the creative economy that circulates?

According to a study for a Festival in Rahovec; “Hardh Fest” in Kosovo, on their study it is written that; for every €1 of investment, (from the public and private sectors, in the form of financing/grants or even sponsorships), the local economy has generated €47.8. Some of this money are returned to the state’s budget, in the form of the collection of taxes or local fees from the local businesses (Vllasaliu & Jusufi, 2025).

3.2. Not only…but also social impact

On the other hand, art also has a great social impact, since people educated in art have greater emotional intelligence, which also affects the reduction of crime, which costs less money to the state’s budget to keep people in “conflict with the law” in the relevant institutions. But how can we massively educate the public with art? Initially, by "breaking" the mentality that art belongs only to the "elite" of the country... and this is going to be achieved, when we as organizers, aim to go towards the public, by organizing inclusive productions, in different locations. This can be achieved by producing cultural/creative productions in public spaces or even in shopping center, - although private, - but with massive attendance, train and bus stations, airports, neighborhood “pockets”, in suburban areas, on building terraces or stairwells, elevators, etc.

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Children and Public Space

The Role of Urban Structure in Safety, Mobility, and Play in Residential Areas of Tirana

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MSc. Sindi DOCE
ORCID 0009-0004-1630-6749
Department of Planning and Environment, POLIS University, Albania,
sindi_doce@universitetipolis.edu.al

Dr. Doriana MUSAJ
ORCID 0000-0002-2919-8458
Department of Planning and Environment, POLIS University, Albania,
doriana_musaj@universitetipolis.edu.al

Abstract

The urban environment is undergoing transformation in both its physical form and social dynamics due to rapid urban development and demographic change. Focusing on the residential areas of Tirana, this research analyses public spaces to examine perceptions of safety and to explore how they can be readapted to encourage children's inclusion as rightful users of urban space. The methods employed include structured questionnaires with parents, video recordings from the children's perspective, open interviews with children, and on-site observations. Applied in two selected case studies, the analysed data reveal the spatial attributes that make public spaces child-friendly and demonstrate how they can be adapted to support children's development and independent play. The identified attributes are: (a) active edges and visual interaction; (b) visibility and continuity of movement; (c) urban forms with pockets, courtyards, and in-between spaces; (d) integration of parents' activities with children's play; and (e) spatial variety and diversity of urban elements. The research argues that urban planning, which considers children's physical scale, perspective, and creativity, can make public spaces more inclusive for all. Recommendations include interventions related to urban form, material use, and the promotion of mixed-use environments to foster flexible spaces within the shared fabric of community life.

Keywords

Children, inclusive planning, independent mobility, public space, safety, unstructured play

1. Introduction

Experiences and interactions within cities spark curiosity about how urban form and design influence daily life. This research focuses on children's relationships with public space in residential areas, where they spend a significant portion of their daily time. Public space is essential to urban life, serving as a setting for interaction, communication, and exchange (Moroni & Chiodelli, 2014), while also providing a stage for play and exploration for children. Through play, children engage with their surroundings, while developing imagination, as well as cognitive, motor, and emotional skills (Ginsburg et al., 2007). Unlike adults, however, children's mobility is often limited to their immediate "neighbourhood" – a space they are familiar with, where they are recognized, and where a sense of community is established.

1.1. Play and mobility

In Tirana, concerns regarding children's use of public space have become increasingly urgent. The city has undergone a rapid transformation in recent years, both in its physical and social composition of residential areas. Nearly one-third of Albania's population now resides in Tirana (INSTAT, 2024), whose growth has been described as a "turbo engine", where the human being is not considered a central dimension in urban planning and redevelopment (Aliaj, 2009). Three decades ago, neighbourhoods were more homogeneous, and children's play culture was significantly different. In the process of city development, children's independence in public spaces has decreased, while reliance on parental supervision and structured environments such as after-school programs, gyms, or learning centres has increased. Technology and extracurricular activities have further enclosed play in indoor or adult-controlled contexts, highlighting a growing detachment from outdoor play. Nevertheless, the need to experience the city's public spaces remains unchanged.

Parallel to these shifts, international attention to the rights and needs of children has grown. The UNICEF Child-Friendly Cities Initiative emphasises that children should have access to safe mobility, green spaces, and opportunities for participation in civic life (UNICEF, 2009). However, this right is often not guaranteed in cities where space prioritises economic over social use. As Ward (1978, p.25) argued, urban planning has long assumed that the city exists primarily for "the adult, male, white-collar, out-of-town car-user". In contrast, children spend more time in residential areas and are more exposed to the surrounding environment (Egli et al., 2019), making inclusivity and safety essential conditions.

1.2. Safety

Safety is a crucial concept in postmodern cities. Jacobs (1961) highlighted the role of "eyes on the street", referring to the spontaneous supervision provided by people present in public spaces. Gehl (2010) expanded this perspective, stressing that safety at the human scale is fundamental for social interaction and freedom. In Tirana, however, urban development often neglects this scale, leaving residential streets dominated by cars and parents hesitant to allow children to play independently outdoors. Therefore, this research approaches safety not only as a protective condition, but also as an enabler of children's autonomy and inclusivity in public space.

1.3. Play space

Although playgrounds are the most common form of "space for children", studies show that they do not always guarantee children's presence (Egli et al., 2019), who often prefer informal spaces such as sidewalks or courtyards, which they adapt for play. Ward (1978) similarly argued that children play "anywhere and anytime", redefining ordinary urban elements as play opportunities. Gibson's (1979) theory of affordances explains how such possibilities for action are perceived directly in the environment rather than the qualities of objects themselves. Heft (1988) applied this concept to children's play, showing how benches, trees, fences, stones, sticks, and other everyday objects provide opportunities for climbing, jumping, and imaginative uses. This demonstrates how children reinterpret urban elements, assigning them new functions. Children's independent mobility and the presence of affordances are indicators of two important criteria for child-friendly cities: diversity and accessibility (Kyttä, 2004).

These insights challenge the logic of functional zoning that separates playgrounds from other urban spaces. Nicholson (1971) introduced the concept of "loose parts" for elements that can be modified and rearranged to stimulate creativity. Franck and Stevens (2006) expanded this idea with the notion of "loose space", highlighting flexible environments shaped by users of public space, rather than by rigid design. This perspective particularly challenges the concept of predetermined, traditional playgrounds. In this context, free, spontaneous, and "unstructured play" – including activities involving a certain healthy level of risk, such as climbing or independent exploration – is crucial for children's emotional, physical, and social development, while overprotectiveness can limit their freedom and growth (Lester & Russell, 2010; Brussoni et al., 2012).

1.4. Existing initiatives and gaps

In the last decade, several initiatives in Tirana have aimed to improve public spaces for children. The municipality's *Play Tirana* initiative (2015) improved or constructed nearly 50 playgrounds across the city, beginning with the large linear playground in the Artificial Lake Park (Kuris, 2019). More recently, in the context of post-pandemic recovery, Qendra Marrëdhënie (Relationship Centre) has requalified school zones through the *Tirana School Streets* program, restricting car use and creating safer gathering spaces for children and parents (Qendra Marrëdhënie, 2023). While these efforts mark progress, they remain focused on designated areas rather than the everyday shared spaces where children's right to the full spectrum of public space should be recognized. Tirana's rapid urban transformation provides an important context in which to test theories of affordances, play, mobility, and safety, and to understand how children adapt urban environments to their needs.

1.5. Research question and objectives

The main hypothesis assumes a positive relationship between the perception of physical safety in public spaces and their use for activity and play, suggesting that readapting public spaces to support safe movement fosters inclusion and social interaction. Specifically, this study asks how spatial elements influence children's mobility, play, and the transformation of urban spaces into play areas.

Objectives:

1. To analyse spatial factors that support children's independent mobility at the human scale.
2. To identify urban elements that invite children's play and interaction.
3. To interpret how children adapt and transform public space through play.

By examining children's experiences, this study contributes both theoretically and practically: it situates international concepts within Tirana's unique urban context, while proposing child-centred principles that can inform inclusive planning in other rapidly urbanizing cities.

2. Methodology

This research adopts a mixed-methods approach to investigate how perceived safety influences children's use of public space in residential areas of Tirana. Safety is examined through three complementary lenses: the researcher's perspective, parents' perceptions, and children's lived experiences. The researcher provides systematic observations grounded in planning theory, parents express concerns and protective behaviours, and children reveal how they perceive and adapt their surroundings. Each lens generates distinct but intersecting insights, enabling a cross-analysis of subjective perceptions and objective spatial characteristics.

2.1. Researcher's lens

The researcher observed and documented spatial and social conditions of the selected case studies – Administrative Unit 7 and Unit 14 – through maps, sketches, on-site notes, and photographs. Within each unit, four 100 x 100 metre grid squares were defined for analysis, following Gehl's (2010) observation that people can perceive and interact within these distances. The grid squares were selected for their proximity to main movement corridors (Kavaja Street and Tom Plezha Street), their housing typologies, and the presence of at least one playground within each residential block.

On-site observations were guided by a checklist organised into four categories:

1. Sidewalk structure – width of 2 meters based on Road Code (1998), lighting, signage, pedestrian crossings.
2. Pedestrian movement and barriers – visual obstructions, continuity, orientation.
3. Edges of public space – façades, seating areas, transitions between private and public space, drawing on Jacobs (1961) and Gehl (2010).
4. Free play and spatial experience – children's presence, play types, and interaction with urban elements, based on Heft (1988).

The observational data were thematically analysed, informed by theory, to identify attributes that encourage child-friendly urban life.

Figure 1. *Grid with highlighted playgrounds in Unit 7 (a) and Unit 14 (b).*
Source: Author's annotations on Google Earth (April 9, 2025).

2.2. Parents' lens

Parents' perspectives were collected through an online survey distributed across Tirana, obtaining 120 responses in two weeks. The survey consisted of 11 structured questions divided into three sections: demographic and residential characteristics, children's use of public space, and perceptions of safety. Parents' perceptions were compared with on-site observations to examine how subjective feelings of safety align with, or diverge from, spatial realities.

Two administrative units of Tirana – Unit 7 and Unit 14 – were selected as case studies based on survey-derived criteria: high response rates, family-oriented social composition, frequent use of public space by children, different periods of urban development, and geographic proximity, allowing systematic comparison.

2.3. Children's lens

Children's lived experiences were documented using the walk-along video recording method with a GoPro camera, moving through the selected grids of the case studies. This approach emphasised how body size and perception shape children's spatial experience: surfaces, obstacles, and small-scale details such as paving textures or stair edges appear more significant to them than to adults (Ward, 1978). Filming was first piloted with a three-year-old and later conducted with two participants: a 14-year-old in Unit 7 and a 10-year-old in Unit 14. The children were instructed only on starting and ending points, and were then allowed to choose their own routes.

Following this method, short open-ended interviews were conducted to interpret the recordings and clarify children's feelings during their movement. Still images were extracted from the video material to highlight key spatial moments, such as encounters with barriers, diversions in movement, or spontaneous play interactions.

3. Results

The results are presented through the three complementary perspectives: those of the parents, the researcher, and the children. Drawing on data collected from two selected case studies, the analysis illustrates how safety, urban form, and social life influence children's use of public space in Tirana's residential areas.

Unit 7 serves as an example of an older, consolidated neighbourhood shaped by the Regulatory Plans of the mid-20th century and later transformations, where prefabricated housing, private dwellings, and recent residential complexes coexist. In contrast, Unit 14 represents a more recently developed area that was rapidly urbanized after the 1990s, evolving from agricultural land and informal housing into dense multi-storey blocks arranged along an orthogonal grid.

3.1. On-site observations

Observations within the eight grid squares across both units highlighted contrasts in mobility, visibility, and play. Sidewalks were generally narrow and frequently obstructed by kiosks, trees, or parked cars, often forcing pedestrians into the street. In more than half of the quadrants, blind spots caused by buildings and vehicles reduce visibility, confirming parents' concerns regarding safety.

The edges of public space influenced activity levels. In areas with active façades (shops, cafés, or mixed uses), both children and adults were more present, and seating areas were frequently occupied. In contrast, areas with lower activity or single-use residential edges were quieter and less inviting. Jacobs' (1961) notion of "street ballet" was observed in several quadrants, particularly around the school (Unit 7) and commercial areas, although activity levels varied throughout the day.

Figure 2. *Active façades and presence of children (a) Unit 7, and (b) Unit 14.*
Source: Author's elaboration.

Play was observed in both designated and improvised spaces. In Unit 7, the Magnet residential complex (Quadrant D) supported constant child activity, while the school zone (Quadrant B), developed through the *School Block* project by Qendra Marrëdhënie, was lively only during specific hours. In Unit 14, the

large municipal playground (Quadrant C), part of the 2015 *Play Tirana* project, attracted children of all ages. Equally high levels of play were noted in shared squares, where boys turned flowerpots into goalposts and girls rode bicycles or played in enclosed passageways. Higher activity levels were also observed in areas where courtyards were formed within the urban fabric, compared to linear spaces.

In both units, fenced playgrounds or sports fields that required a small fee were less frequently used than open spaces, confirming that children more often prefer shared, accessible environments over limited-access ones.

3.2. Parents' perceptions

The parents' survey (120 responses) revealed that most families live in post-1990 multi-storey buildings or newer residential complexes. Housing type influenced parents' involvement: 30% of parents in multi-storey buildings reported allowing their children to play independently, while 37% in residential complexes supervised them closely.

In Unit 7, most parents (41.2%) accompanied their children but stayed at a distance, while in Unit 14, parents engaged more often in play with their children (35.3%). In both areas, the youngest children (3-5-year-olds) spent the most time outdoors, whereas lower secondary school-age children (12-15-year-olds) had the lowest activity levels in residential areas, spending time there only "sometimes" (47%) or "rarely" (30%). During the transition from primary to lower secondary education, children begin to gain independence and make joint decisions with their parents (Wray-Lake, Crouter, & McHale, 2010). As a result, their mobility patterns and preferred spaces change.

Parents identified two main concerns: the lack of dedicated children's spaces (69%) and traffic/pedestrian safety (15.8%).

On a safety scale from 1 to 5, Tirana as a whole received a rating of 2.27, with Unit 7 rated slightly higher (2.53) than Unit 14 (2.17). These findings underline the influence of safety perceptions on the use of public space, particularly at young ages.

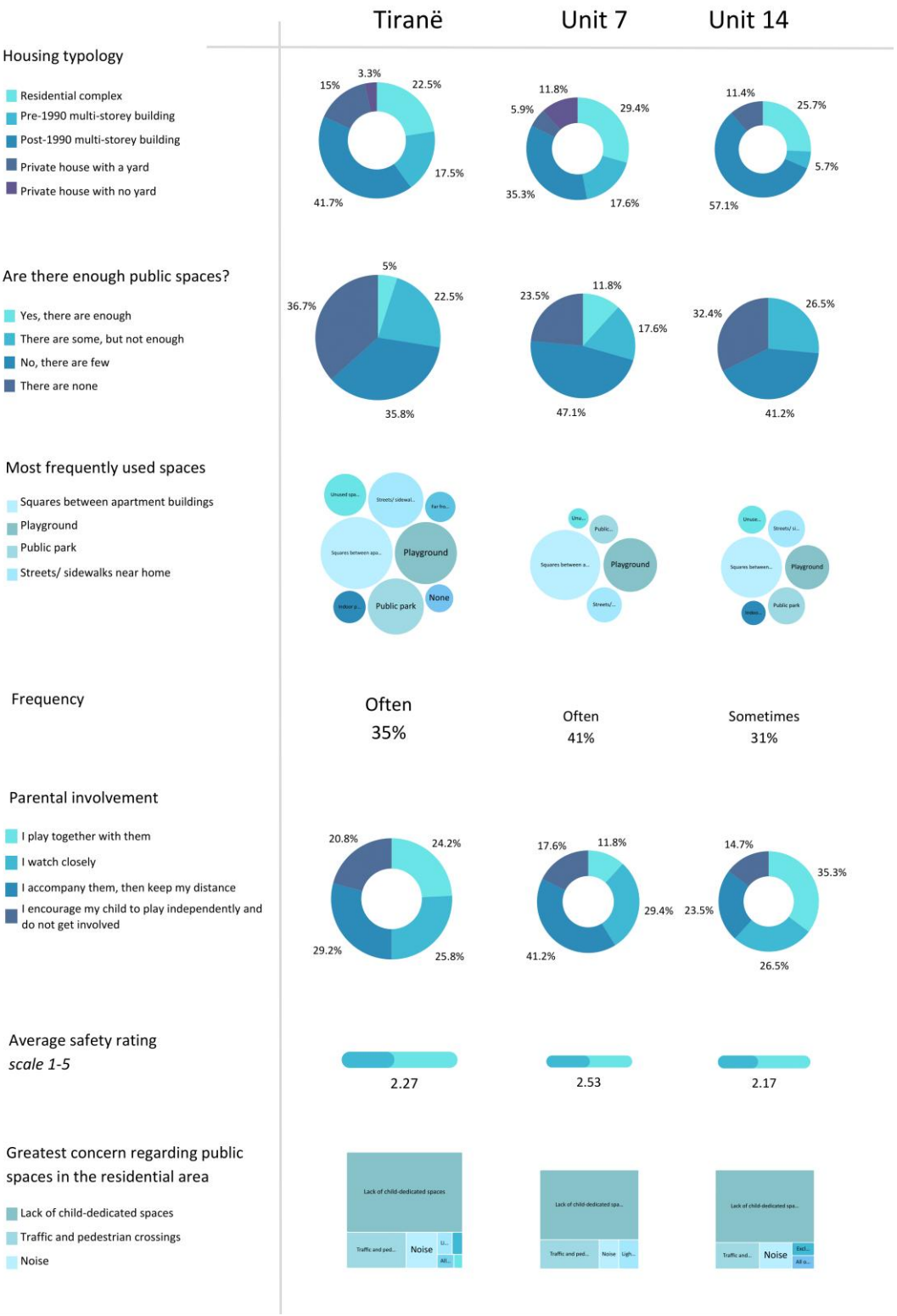

Figure 3. *Matrix of survey results.*
Source: Author's elaboration.

3.3. Children's video walk-alongs

The concept of a "mental map", introduced by Lynch (1960), refers to how individuals create cognitive representations of their surroundings. Children, as users of space, similarly develop their own mental maps of the neighbourhoods in which they live. The GoPro recordings illustrated how children experience mobility at their scale. Obstacles such as air conditioning units, raised manholes, and parked cars forced walking onto the street, where children felt that movement was more continuous and visibility better than on the obstructed sidewalks.

In Unit 7, the older child covered a longer route with fewer distractions, whereas in Unit 14, the younger child travelled a shorter distance with more detours. In Unit 7, the child moved beyond the study squares, following a continuous and uninterrupted route. However, the school and private housing forced movement around them, as they were not passable for pedestrians.

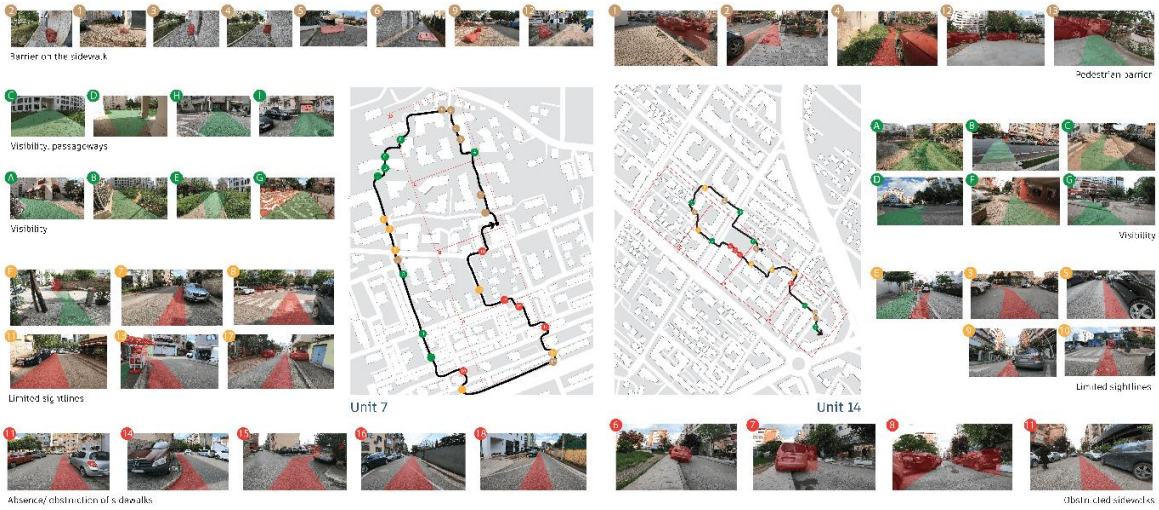

Figure 4. *Video-recording results from Unit 7 and Unit 14.*
Source: Author's elaboration.

The 3-year-old child's footage revealed a different focus: walking on the patterns of the sidewalk pavement, balancing along the edge of a tree base, or noticing a red plastic cap on the ground. This illustrated children's tendency to reinterpret urban elements.

Figure 5. *Frame from video-recording of the 3-year-old (a) walking along the pavement, and (b) stopping to look at the red cap.*
Source: Author.

The interviews following the recordings exposed tension between children's play and adult expectations of order. In both units, flowerpots had been placed in squares to discourage noisy play, reflecting attempts to exclude children from shared urban spaces. Similarly, a parent from Unit 14 noted in the survey that sometimes adults forbid children from playing because the noise disturbs older residents in seating areas or simply out of concern for potential damage to the greenery.

4. Discussion

The findings reveal that children's presence in public space and their engagement with it are closely linked to urban structure, perceptions of safety, and opportunities for interaction. Both parents' and children's sense of safety determines not only whether public spaces are used, but also how long and how freely children stay there.

4.1. Movement and visibility

Survey data indicate that fewer than 20% of parents allow children to play unsupervised, reflecting a general sense of insecurity. However, observational data showed that children were active in areas with clear visibility and overlapping uses, supporting the idea that "eyes on the street" (Jacobs, 1961) is a key condition for perceived safety.

It's important to note that visibility does not necessarily mean wide, linear, or empty spaces. Rather, it involves the removal of physical or visual barriers that hinder orientation and fluid movement. In this context, permeability and the sequential discovery of public space through "serial vision" (Cullen, 1961) contribute to a sense of safety, offering richer experiences than monotonous, open corridors.

The visibility and permeability of the urban form were directly linked to parental comfort and children's independence. Courtyards and mixed-use edges supported higher levels of play and social interaction, while obstructed or mono-functional areas had lower activity levels.

4.2. Play spaces and integration with public life

Although playgrounds and designated child areas exist in both study sites, they were not always the most frequented places. Instead, children gravitated toward shared residential courtyards (sometimes near the café where their parents sat), pathways, and zones of pedestrian movement. Play was most vibrant in places where children's presence overlapped with their parents' or community activities.

This supports earlier findings that children do not necessarily prefer playgrounds (Egli et al., 2019), and echoes Gehl's (2010) observation that "people gather where things happen". Integrating children's spaces with wider urban life not only supports inclusion but also ensures natural surveillance, which makes parents more comfortable granting independence.

4.3. Attributes of child-friendly environments

The overlay of thematic analyses identified five recurring attributes of public space that supported children's presence and play:

a. Active edges – balconies, shops, or entrances enhanced safety and invited social interaction.
b. Visibility and continuity – unobstructed routes allowed children to orient and move intuitively.
c. Courtyards and in-between spaces – provided semi-privacy and enclosure without isolation, encouraging socialization.
d. Integration with parents' activities – enabled casual supervision while adults engaged in their own routines.
e. Variety of urban elements – encouraged creative affordances: benches became platforms, steep paths became slides, flowerpots became goalposts.

These findings highlight that children thrive in flexible and multifunctional environments, rather than rigid, single-purpose playgrounds.

Figure 6. *Urban attributes derived from overlapping thematic analyses, shown for Unit 7.*
Source: Author's elaboration.

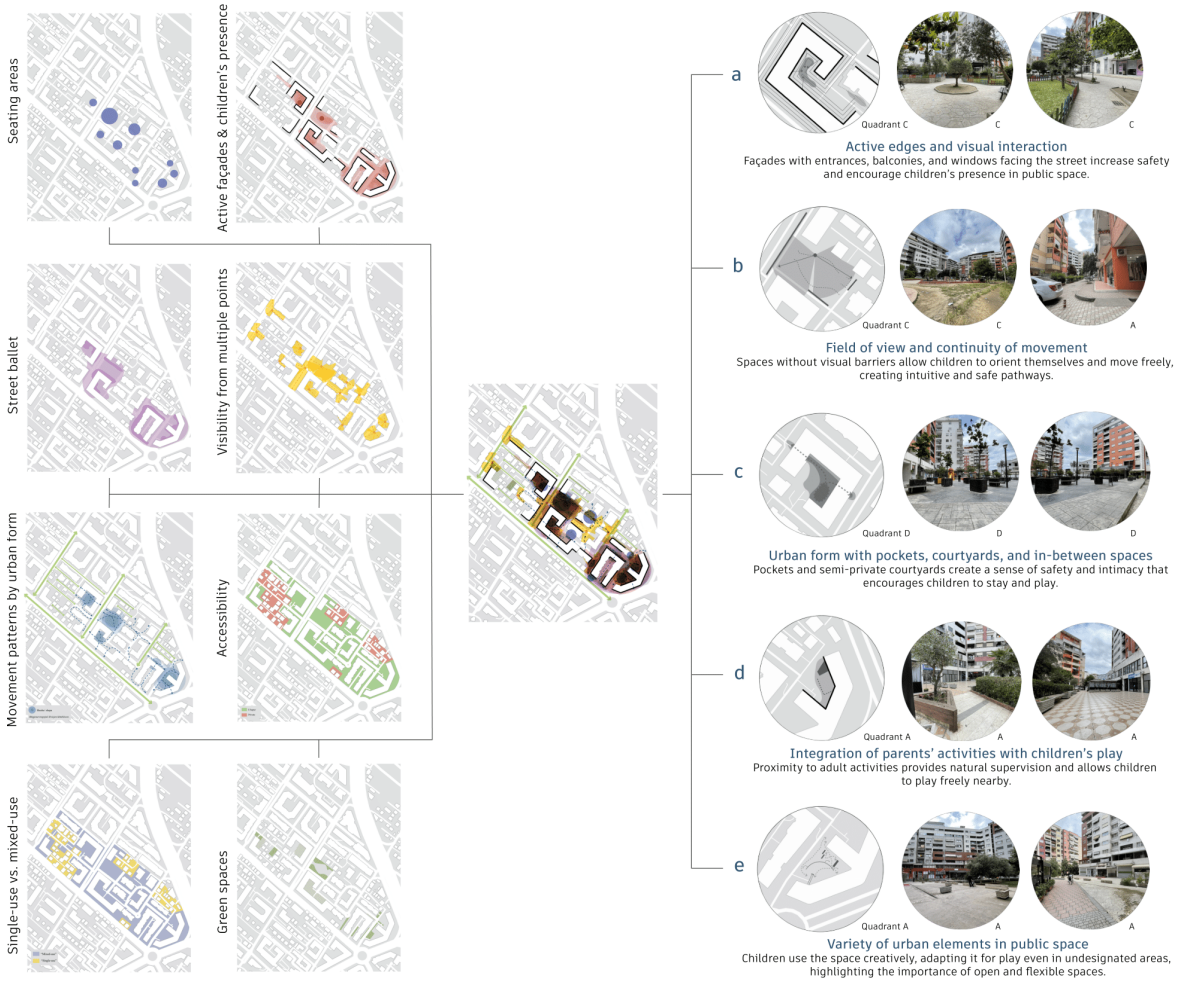

Figure 7. *Urban attributes derived from overlapping thematic analyses, shown for Unit 14.*

Source: Author's elaboration.

4.4. Implications for planning

The comparison of Units 7 and 14 shows that both older and newer neighbourhoods can support children's activity when these five attributes are present, even if their urban forms differ. Children's creative use of elements demonstrates their resilience, while at the same time highlighting the gap in planning that often restricts rather than supports it. As Frost (1992) and Brussoni et al. (2012) argue, play requires a balance of safety and risk; overprotective design may reduce spontaneity and learning opportunities. In Tirana, this suggests that future interventions should move beyond the construction of isolated playgrounds toward the creation of legible, permeable, and socially integrated spaces where children and adults coexist.

Overall, the results affirm that safety in children's environments cannot be reduced to technical standards alone. Instead, it emerges from the combination of urban form, social interaction, and children's own ability to adapt and reinterpret their surroundings. Designing for these dynamics requires rethinking residential areas not only as places of housing, but also as everyday social and play

environments, where the youngest citizens are recognized as active participants in shaping urban life. Taking children's needs into account in city design means creating cities that are more liveable for everyone (Tonucci, 1996).

5. Conclusion

This research explored the relationship between perceptions of safety and children's experiences in residential public spaces in Tirana, focusing on how urban structure and social dynamics shape children's mobility and play. Using on-site observations, surveys with parents, and children's video walk-alongs, the study revealed that children's inclusion is not solely dependent on playgrounds, but also on specific spatial attributes that support safety, creativity, and social interaction:

a) active edges that ensure surveillance;
b) visibility and unobstructed movement paths;
c) in-between spaces such as courtyards and pockets that provide semi-private but connected play environments;
d) integration of children's play with adult's activities; and
e) diversity of elements that encourage creative uses.

These confirm that urban design at the human scale, with incorporated affordances, creates safer and more inclusive public spaces for children and the wider community.

5.1. Design recommendations

1. Promote active edges with balconies, windows, visible entrances, and service units overlooking public space.
2. Ensure continuous pedestrian pathways, free from fences, parked vehicles, or blind corners, using paving that enables intuitive movement.
3. Create small pockets and courtyards with low fences, greenery, benches, or flowerpots to provide semi-private play areas.
4. Place play elements near cafés, benches, and sidewalks so children's play overlaps with adult activities.
5. Introduce varied materials and surfaces – stones, sand, ramps, reliefs, and low walls – that allow creative and unstructured play.

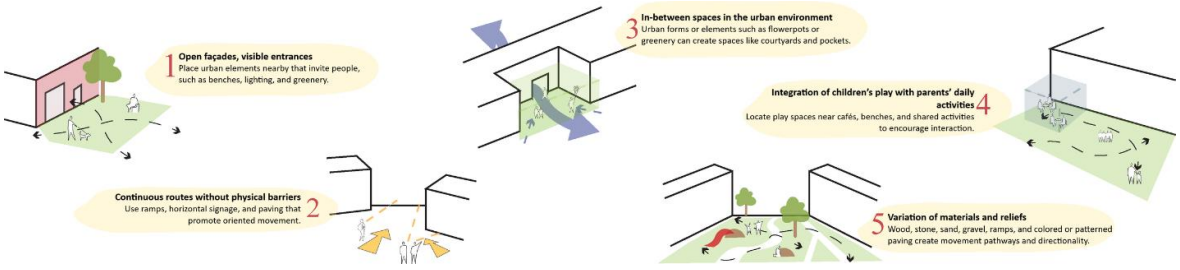

Figure 8. *Recommendations.*
Source: Author's elaboration.

5.1. Limitations and future research

Although observations took place during the rainy season, children were still present in public spaces, demonstrating their strong need for outdoor play. Most parents in the survey had younger children, offering a valuable but partial view of age-specific experiences.

Future research could expand to include different neighbourhood typologies, economic contexts, and especially gender differences in spatial use, as it was observed that boys and girls use space differently. As "digital natives" (Prensky, 2001), children's interactions with the urban environment are also evolving, calling for updated, participatory approaches.

5.2. Final contribution

The research demonstrates that children are active interpreters of public space, whose perspectives can reshape how urban safety and inclusiveness are understood. If cities are designed and readapted to meet the needs of children, they become safer, healthier, and more vibrant for all citizens.

Acknowledgements

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Decentralization of Tourism – An Inter-Regional Approach

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MSc. Hamez TREZHNJEVA
Urban Planner, Albania

Dr. Doriana MUSAJ
ORCID 0000-0002-2919-8458
Department of Planning and Environment, POLIS University, Albania

Abstract

This research investigates the relationship between cultural heritage and urban development in the Tirana region, focusing on historical fortifications, ancient trails, human habitats and their surrounding landscapes. It aims to reassess how Albania's rich historical environment "from Antiquity and the Byzantine era to the Ottoman period" have been affected by contemporary urbanization and shifting socio-economic dynamics. Using spatial analysis and on-site documentation, the study examines key heritage sites, including the castles of Ndroq, Petrelë, Krujë and others, evaluating their historical evolution, geographical significance and environmental context.

The findings highlight the potential of these sites to serve as catalysts for community regeneration and balanced regional development, particularly through the promotion of cultural and eco-tourism, as well as improved digital accessibility. The research proposes a decentralized tourism model that integrates cultural preservation with recreational and sustainable economic uses. By merging historical analysis with urban and tourism planning, it advocates for a multi-scalar policy framework that embeds cultural heritage into broader socio-economic strategies, guiding Tirana toward a more inclusive, sustainable and culturally aware development path.

Keywords

Decentralization, fortifications, heritage, hinterland, spatial planning, sustainability, tourism

1. Introduction

Tourism development in Albania began in the early 19th century, when renowned travelers such as Evliya Çelebiu, Lord Byron and Edith Durham visited the country and left behind detailed accounts of Albanian landscapes and the daily life of an Albanian. A notable peak in tourism activity occurred between 1928 and 1930 (AIDA, 2022, p.4).

However, the freedom to travel and explore the lands of Albanian significantly changed during the communist regime beginning in 1945 and ending 1991. Access to tourism was extremely limited and tightly controlled, foreign visitors faced strict border inspections. Following the 1990s, Albania underwent a profound period of political and economic transition. When the democracy of Albanian was further established Tourism was not integrated into the core of the society as they had long lived without focus on the touristic market. The focus was to open towards the international markets and western society.

Tirana began to Urbanize rapidly without control which has caused challenges such as overcrowding in the city center and the degradation of natural spaces within it. Now more than a decade after a territorial administrative reform in Albania, its full implications are still unfolding across local governance. This reform fundamentally redefined the responsibilities of municipalities, transitioning them from managing only urban cores to overseeing large, complex territory with no knowledge on maintaining such landscape. Despite this territorial growth, a cohesive and sustainable strategy for the development of these incorporated areas has yet to materialize. The current focus remains disproportionately centered on the Capital City.

Unfortunately, the absence of comprehensive and in-depth studies on these historical areas limits the ability to design evidence-based development policies. Existing research is often fragmented and inconsistent, particularly regarding the dating of these structures and whether other associated elements have been lost over time due to natural erosion, earthquakes, urbanization or socio-natural phenomena (Baçe 2021, p.16).

However, unlike much of Europe, where urban and industrial expansion altered the landscape (Wallace, 2024), many Albanian regions have retained their authenticity through strong ties to nature and traditional spatial organization. Notably, these are the same territories where major historical figures such as Julius Caesar during his campaign against Pompey (Karaiskaj, 1981, p. 82-83), Emperor Augustus and Alexander the Great's battles with Illyrian Kings Clitus and Glauk (Bace, 2021, p.18), later followed by Ottoman rule.

The Illyrian's deep understanding of their territory showcases their advanced spatial planning abilities before such concepts existed.

Surrounding Tirana's landscapes ancient fortifications remain presenting a unique opportunity for promoting urban decentralization and the creation of recreational spaces. Such integration can help alleviate urban stress, foster ecological balance and contribute to sustainable development of cultural and natural tourism while also respecting their historical significance and meeting modern needs.

In recent decades, tourism has emerged as one of the most important sectors for Albania's economic growth and cultural promotion. However, the current pattern of tourism development has led to significant territorial imbalances, and unsustainable incomes for the locals. A closer analysis of the

spatial distribution of tourist attractions and visitor flows reveals a troubling phenomenon: the excessive centralization of tourism in urban centers particularly in the capital city of Tirana. While the cultural and natural assets of the peripheral regions remain neglected.

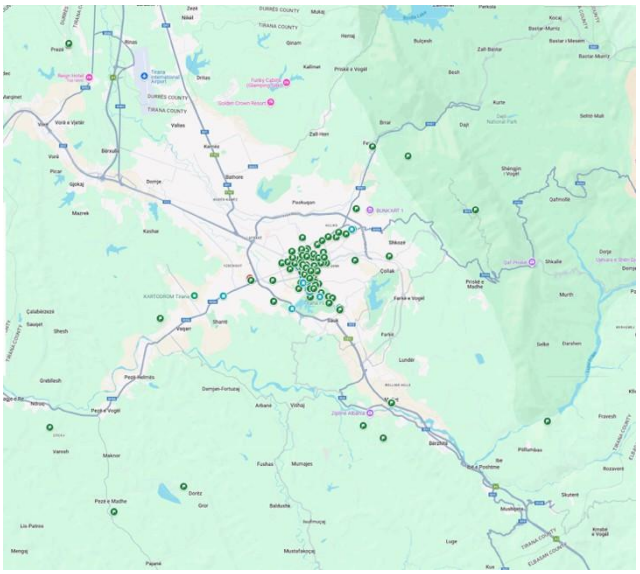

Figure 1. *Spatial Analysis of Concentration of Tourist Attractions centralized in Tirana City.*
Source: Bashkia Tiranë.

The goal of this research is to identify non-urban areas with potential for sustainable tourism development to alleviate pressure on the city and create economic flow.

2. Methodology

Table 1 shows the research methodology used structured in three phases. They addressed a specific research question using qualitative and spatial analysis tools.

No.	Objective	Research Question	Methods/Instruments
1	Exploration and identification of territorial itineraries.	How are these itineraries developed across the territory?	Field observation, Photography, Mental Maps
2	Reading and analysis of historical itineraries	What are the types and typologies of historical itineraries?	Historical/ archival maps, Documents, GIS, CAD, Photoshop, Matrix analysis
3	Interpretation of historical itineraries through planning instruments.	How can historical itineraries be related to contemporary settlements?	Local General Plans, Tourism Strategies, Gaps analysis.

Table 1. *Objectives, research questions and methodology.*

Developing on the table the main data and information collected and interpreted are as follows.

3. Literature review

- Exploration of historical texts, archaeological studies and existing literature related to the antique heritage of Albania.
- Analysis of urban decentralization theories and successful case studies of cultural heritage integration in urban planning.

Case studies

- Examination of selected examples for their historical and strategic relevance.
- Analysis of global best practices in literary and cultural tourism, with a focus on the Mediterranean region.

Field visits

- Conducting on site visits to all accessible castles and Fortification in the Tirana region to document current conditions and assess the potential for integration.
- Engaging with a target group, including historians, urban planners and tourism professionals to gather qualitative insights.

Data analysis

- Utilizing publicly available cartographic data to visualize and understand the spatial relationship between historical areas and urban development.
- Reviewing tourism data to identify opportunities for literary tourism and potential target markets.

4. Results

What immediately stands out when visiting these locations is the remarkable visibility and strategic positioning they offer. Most of these fortifications are built atop hills or on elevated terrains, providing panoramic views of the surrounding landscapes, especially the western lowland and urban areas. From many of these vantage points, one can visually trace a network of fortifications that seem to communicate with each other across the horizon. The pathways leading to and from these sites, though eroded and overgrown forestation still bear the indentations of centuries of use, evoking a strong sense of continuity with the past. The physical sensation of standing on these historic grounds is deeply powerful. The natural elevation, isolation and commanding views from these points highlight the strategic military thinking of those who constructed them. Their positioning not only offered protection and control over movement but also established a symbolic presence in the territory. Architecturally, these fortifications reveal a distinct and purposeful design approach, adapted to the terrain and built with locally sourced materials. The construction methods and layout reflect the technological and defensive knowledge of their respective periods, often with walls adapted to the topography and visibility over key access routes.

Figure 2, 3. *View from the Castle of Varoshi hilltop; Panorama view at Sarisalltik Peak; showcasing the hinterlands of Tiranë.*

The map of Figure 4 is a Spatial Analysis of the Cultural and Natural Landscapes of the area surrounding Tirana. This analysis examines the spatial distribution, interactions and relationships between cultural and natural features within a defined territory. It integrates geographic, ecological and socio-cultural data to identify how natural elements such as topography, hydrology and natural assets interact with cultural layers like fortifications, heritage sites, land use patterns and infrastructure. By applying GIS tools and spatial methodologies, the analysis highlights areas of ecological and cultural significance as well as detecting pressures between human activity and the environment.

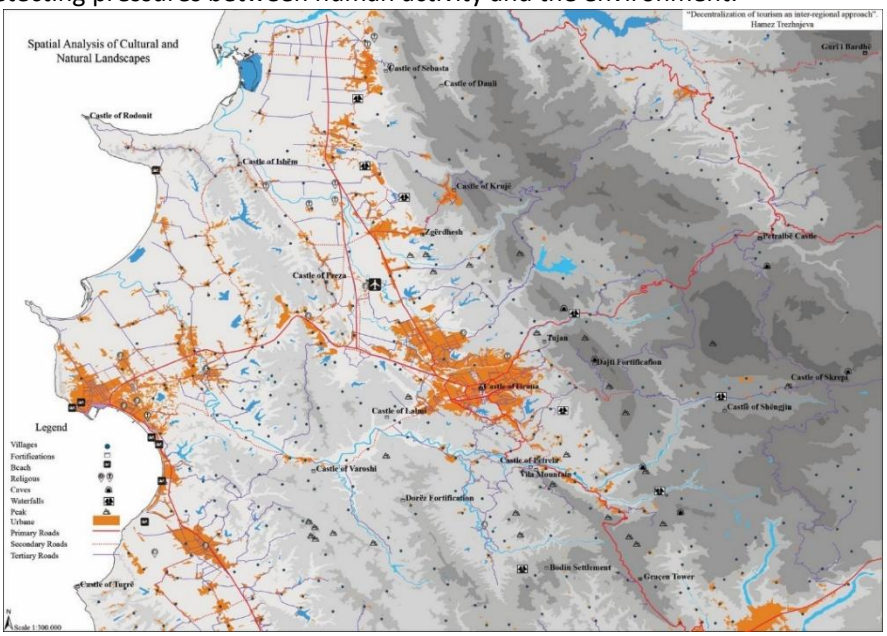

Figure 4. *Spatial analysis of cultural and natural landscapes map.*

Figure 5 shows a Catalog of Itineraries. Building upon the insights from the spatial analysis, the catalog of itineraries translates identified cultural and natural assets into curated visitor experiences. Each itinerary connects significant sites and landscapes into coherent routes, guided by themes such as

heritage, gastronomy, eco-tourism or recreation. Through mapping descriptive content and spatial planning, the catalog presents routes with details on accessibility, duration and thematic focus, ensuring both visitor engagement and landscape protection. By linking analysis with practice, the catalog not only promotes cultural and natural heritage but also supports sustainable tourism strategies that respect ecological balance, reinforce local identity and regenerate the community and income.

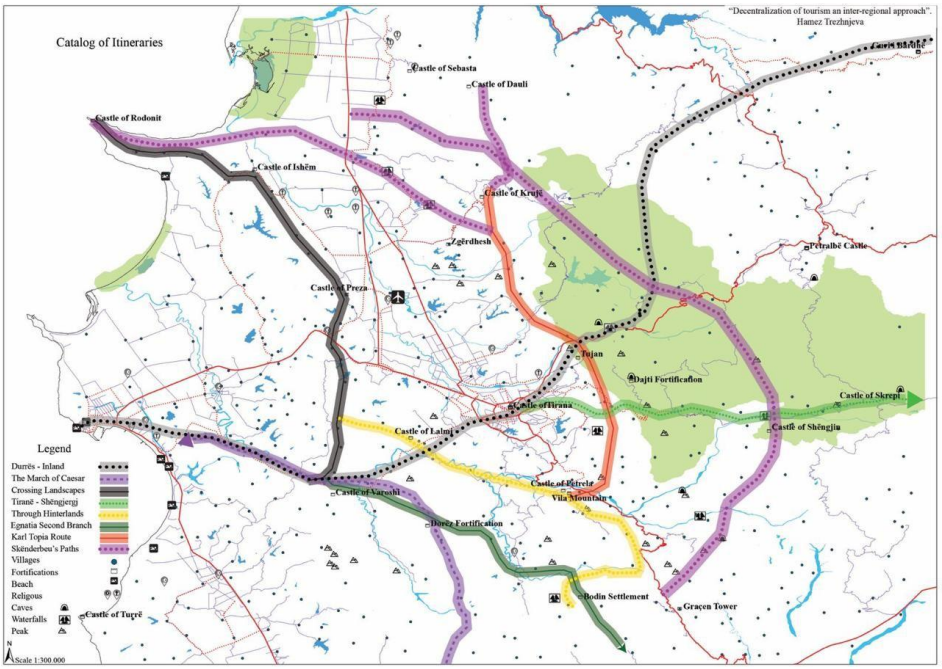

Figure 5. *Catalog of itineraries map.*

5. Discussion

Despite the heritage sites historical and cultural importance, the sites face significant challenges. A major issue observed during my field visits is the lack of maintenance and management. Trash, vegetation, forestation, urbanization, thorny plants and invasive species, have overtaken many of the structures. In several cases, the remains are barely visible beneath layers of overgrowth, making it difficult to understand or appreciate the archaeological significance. At sites like Zgërdhesh, Tujan and Persqop where recent excavations are continuing, they lack any kind of informative signage. Visitors and researchers alike are left with no context or explanation for what is being uncovered or studied.

Figure 6. *Trash left around signage at Petrela Castle a frequented tourist destination.*

Accessibility is another pressing concern. While these fortifications are often popular among hiking enthusiasts, the routes leading to them are typically unmarked and difficult to navigate. The absence of clear trails, directional signage, or visitor infrastructure adds an additional layer of difficulty especially for those unfamiliar with the terrain. This not only limits public engagement with these heritage sites but also poses a risk to their preservation, as unmanaged access can lead to accidental damage.

While the fortifications of the Tirana region offer exceptional insights into the historical landscapes and strategic thinking of earlier societies, their current state raises urgent questions about heritage preservation and public accessibility. There is a clear need for integrated management plans that combine conservation, interpretation and sustainable tourism practices to protect and promote these valuable cultural assets.

Figure 7. *Overgrowth on the path to the Castle of Sebaste.*

One of the most pressing concerns is the apparent silence from the generation of scholars who unearthed and documented these fortifications. Despite their critical role in bringing these sites to light, their findings and interpretations are rarely made accessible to the wider public, nor are they actively updated or debated in contemporary academic platforms. This absence of dialogue not only narrows the academic field but also hinders new interpretations or comparative analyses that might arise from multidisciplinary perspectives

Figure 8. *Wear of signage due to weather on signage at Castle of Varoshi.*

Furthermore, this academic silence has contributed to a larger cultural invisibility of the topic. Fortifications are rarely discussed in popular media or educational settings, and their significance is largely absent from every day public discourse. One would expect such powerful symbols of identity, resistance and continuity to hold a more prominent place in national narratives. However, in practice, they are frequently overlooked in favor of more conventional heritage symbols. As a result, their symbolism and cultural weight are not fully understood or internalized by society. The fortifications sit in the backdrop not utilized as a mean for the economy and growth that Albania desperately needs.

The legal framework of tourism also needs to be addressed as lacks clear, enforceable standards for the construction and operation. Although it defines stimulated activities to include facilities such as hotels, marinas and cultural centers, the absence of specific guidelines regarding design quality, environmental impact and service standards has resulted in inconsistent and often subpar development. The discretionary power to expand these categories without a strategic framework increased the risk of uncoordinated growth, undermining sustainable tourism objectives (7665, article 3). and insufficient protection of cultural and natural heritage; Without clear protective measures, tourism development damages the cultural and ecological values of the areas, threatening both identity and biodiversity (7665, article 7).

6. Conclusion

Even when these sites are located, they often suffer from structural degradation. Many fortifications including towers, walls, cisterns and churches show signs of neglect, collapse risk and biological overgrowth. Some projects aimed at restoration and conservation are either delayed or incompletely executed, leaving key monuments vulnerable. Others lack even basic on-site infrastructure, Informational signage, interpretation panels and visitor pathways are largely missing, making self-guided or educational tourism nearly impossible.

Future research in this area would need to start with Classification and Identification. The castles and Fortifications need to be professional evaluated for archeological data, precise mapping with perimeters, current conditions, access, and tourism readiness. Legal framework would also need to be addressed territorial planning laws would need be updated to include specific measures for peripheral sites.

It's essential to have a more inclusive and territorial approach to the development of Cultural tourism in Albania and this situation presents a critical opportunity. By addressing these interconnected problems through a decentralized, inter-regional tourism approach, Albania can both preserve its cultural assets and activate them as engines of local development rather than concentrating all tourism in urban centers. The catalog of Itineraries in Figure 5 would reconnect fragmented historical landscapes, strengthen regional identities and distribute economic benefits more equitably. Enhancing digital mapping, harmonizing place names, investing in infrastructure, conservation and promoting heritage trails are essential steps toward a more inclusive and resilient model of tourism, one that values cultural continuity as much as economic growth.

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