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ISBN 9789928347220
DOI 10.37199/c41000400

Biophilic design and urban wellbeing in post - communist Tirana: A visual and social reconnection with nature

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DOI: 10.37199/c41000411

Abstract

The integration of biophilic design into urban environments has gained increasing attention for its potential to improve residents' quality of life and foster strong-er connections between humans and nature. This study investigates the role of biophilic design, through both inner and outer spatial elements, in enhancing the wellbeing of residents in the municipality of Tirana, Albania. Special em-phasis is placed on the aesthetic and psychological revitalization of post-com-munist residential buildings, which dominate much of Tirana's urban area. The research explores whether the integration of natural elements in architecture and public spaces contributes to improved mental health, increased social co-hesion, and a stronger ecological awareness among city dwellers. Drawing on field research based on random sampling methods, the study investigates dif-ferences in self-reported emotional well-being, perception of space, and envi-ronmental awareness between those living in buildings or areas with biophilic features and those in more traditional, non-renovated environments. Particular attention is given to post-communist residential buildings, where visual revitali-zation through biophilic design may also contribute to the psychological renewal of urban identity. The findings suggest that residents exposed to biophilic de-sign report higher levels of satisfaction with their living environment, reduced stress, and greater appreciation for urban nature. Conversely, those in less green surroundings tend to express lower emotional and spatial engagement with their neighbourhoods. Despite growing interest in sustainable architecture, institutional support for biophilic renovations remains limited. The study under-scores the importance of integrating nature-centered design strategies into ur-ban planning, especially in post-socialist cities undergoing rapid transformation.

Keywords:
biophilic design, urban wellbeing, post-communist architecture, Tirana, environmental awareness, sustainable urbanism

4.5. 1. Introduction

4.6. Urban environments are increasingly recognized as critical spaces where human wellbeing and environmental sustainability intersect. The spatial structure refers to the organization of living centers, network systems, and the systems of infrastructure and facilities, all serving as the backbone for socio-economic activities in a functionally hierarchical relationship (Nomura. N, 2023). These spatial structures are constituted by zones exhibiting a high concentration of built environments, population, or socio-economic activities within human societies. Such concentration is expressed through urbanization, which, in specific areas, frequently surpasses planned or regulatory frameworks, resulting in uncontrolled urban expansion. Uncontrolled urbanization is often associated with an increase in various mental health problems, including depression, anxiety, and post-traumatic stress disorder (Buttazzoni et al., 2022). The reason is that movement of people to urban area needs more facilities to be made available and infrastructure to grow (Srivastava. K, 2009). The human–nature relationship and health has been explored through three dimensions “Physical Health,” “Mental Health,” and “Social Health” (Seymour. V, 2016). Mental health has become an important issue that requires serious attention, especially in urban spaces. The rapid development and growth of cities has a significant impact on social, economic, and environmental life which in turn affects the mental health of its people (Simon. J et al, 2024). Urban environments, characterized by dense populations, built infrastructure, and limited natural spaces, often challenge the human connection with nature. Research has shown that regular interaction with natural elements, such as parks, trees, water features, and green corridors, can significantly improve mental and physical health, enhance social cohesion, and increase overall quality of life. However, rapid urbanization, industrialization, and historical planning practices in many cities have led to the marginalization of green spaces, creating environments that are often stressful and disconnected from nature. Integrating natural elements into urban design not only supports biodiversity and ecosystem services but also strengthens the emotional and psychological ties between residents and their surroundings. Recognizing the spatial patterns of these interactions and ensuring equitable access to natural spaces are critical steps toward sustainable, resilient, and liveable cities where humans and nature coexist harmoniously.

4.7. In recent years, biophilic design, a concept rooted in the innate human need to connect with nature, has emerged as a transformative approach to improving the quality of urban life. By integrating natural elements such as greenery, natural light, water, and organic materials into architectural and spatial design, biophilic strategies contribute not only to aesthetic enhancement but also to psychological restoration and social cohesion. The importance of biophilic design in urban environments is steadily increasing as cities face challenges

related to rapid urbanization, climate change, and declining mental and physical wellbeing among residents. Research shows that these interventions can reduce stress, enhance cognitive function, improve social cohesion, and contribute to overall health and quality of life. Moreover, biophilic design supports environmental sustainability by fostering biodiversity, mitigating urban heat islands, and improving air quality. As urban populations continue to grow, the adoption of biophilic principles is becoming an essential strategy for creating resilient, liveable, and inclusive cities that balance human needs with ecological considerations. In the context of post-communist cities such as Tirana, the legacy of rapid, unplanned urbanization presents particular challenges for urban wellbeing. Decades of utilitarian construction and the dominance of concrete architecture have produced neighbourhoods often lacking green infrastructure and visual harmony. From an urban perspective, the territory of the Tirana Municipality has experienced continuous spatial expansion. These changes, resulting both from the area's socio-economic dynamics and from modifications in the territorial organization of the municipality, have enabled an increase in its territorial extent from 42.8 km² to 1,110 km², approximately twenty-five times larger (Hasrama et al, 2025). The growth in population, driven by both immigration and positive natural increase, alongside the expansion in the number of buildings for residential, economic, and social purposes, has facilitated a spatial reconfiguration in Tirana, effectively blurring the boundaries between its urban, suburban, and peripheral zones. The territorial expansion of the Tirana Municipality has undergone distinct phases, influenced by political, economic, and social factors. Based on these influences, six periods can be identified: a) The Ottoman Period (when Albania/Tirana was under Turkish rule); b) The Italian Period (when Albania/Tirana was under Italian occupation); c) The Communist Period (when Albania/Tirana was under a dictatorial communist regime); d) The Period 1990–2000 (following the fall of the communist regime); e) The Period 2000–2010; f) The Period 2010–2016 (up to the current territorial organization). It is observed that the concentration of population, economic activities, and state institutions originated from the central area. This indicates that during the Ottoman and Italian periods, such concentration was entirely centered in the core, whereas during the Communist period, expansion occurred towards areas beyond the center. After 1990, urban growth became largely uncontrolled. Furthermore, based on the data presented in the figure, it is evident that, from 2010 onwards, the concentration of these elements has been increasingly directed toward the rural areas of the Tirana Municipality. If we compare the main entities according to their type of activity (construction units, production units, service units, etc.), in 2016, the 11 urban units accounted for 41,042 main entities out of a total of 46,895 in the Tirana Municipality. By 2021, these areas contained 44,834 main entities out of a total of 53,290 (Hasrama. O et al, 2025). According to the data, in 2021 approximately 81% of the main entities were located within the urban units of the municipality. In contrast, the availability of main entities in

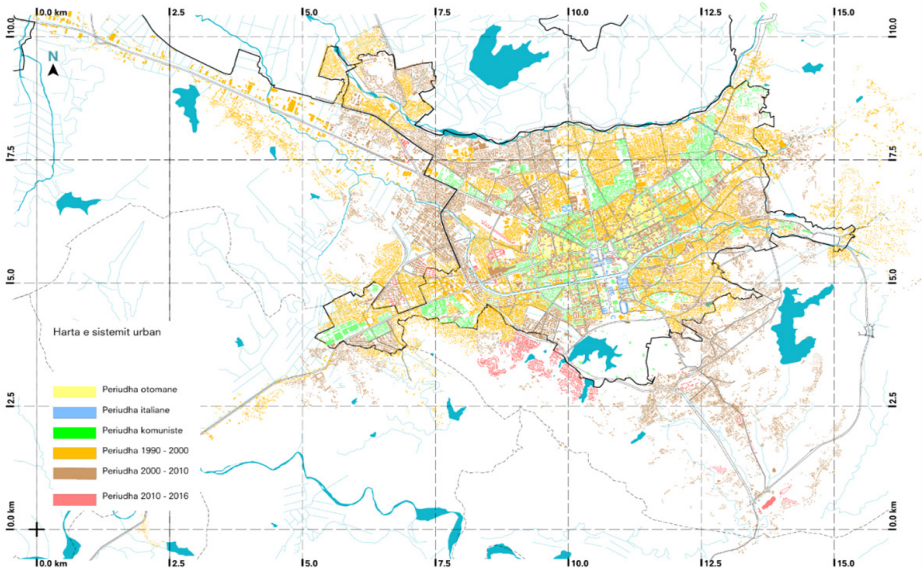

Figure 1. Expansion of Tirana's central area over time (Ottoman Period – 2016).
Source: Municipality of Tirana, 2017.

the rural administrative units remains lower, although the trend has been positive. Geographically, in 2016, the rural administrative units with the highest concentration of main entities were Kashar Administrative Unit (7%), Farkë Administrative Unit (1.5%), Dajt Administrative Unit (1.3%), and Vaqarr Administrative Unit (1%), and by 2021 these same rural units continued to dominate with 7.5% in Kashar, 3% in Farkë, 2% in Dajt, and 1% in Vaqarr. Conversely, the rural administrative units with the lowest number of main entities in 2016 were Krrabë (0.13%), Baldushk (0.09%), Shëngjergj (0.03%), and Zall-Bastar (0.02%), a trend that persisted in 2021, with 0.14% in Krrabë, 0.13% in Baldushk, 0.05% in Shëngjergj, and 0.04% in Zall-Bastar. Indicators such as higher population concentration, productive capacities, and self-development potential collectively demonstrate the existence of a complex center-periphery model. Those urban conditions have contributed to a weakened sense of place and a growing disconnection between residents and their natural surroundings. Although Tirana has undergone significant urban renewal over the past two decades, much of its housing stock still reflects the spatial and visual austerity of the socialist period. This study aims to explore how biophilic design, both through architectural renovation and landscape integration, can enhance the psychological and social well-being of Tirana's residents. By comparing communities living in environments with visible biophilic features to those in traditional, non-renovated settings, the research seeks to identify the extent to which exposure to natural elements contributes to emotional satisfaction, social connection, and ecological conscious-

ness. This study highlights how post-communist cities can harmonize contemporary urban development with the innate human need for contact with nature.

4.8. 2. Literature Review

The term biophilia was first introduced by social psychologist Erich Fromm in the 1970s, defining it as a 'passionate love of life and all that is alive' (Gunderson. E, 2014). Biologist Edward O. Wilson later expanded this concept in 1984, describing biophilia as an innate human tendency to connect with life and natural processes, rooted in evolution. Derived from the Greek words bios (life) and philia (love), biophilia reflects the psychological, emotional, and physiological benefits of interacting with nature (Asojo. A, Hazazi. F, 2025). Biophilic design is focused on creating strong connections between nature and manmade environments which can have benefits for health and wellbeing. The term "biophilic architecture" refers to adaption or design of a building to the environment (Pranjale. P et al, 2019). The idea of biophilia originates in an understanding of human evolution, where for more than 99% of our species history we biologically developed in adaptive response to natural not artificial or human created forces (Kellert. S, Calabrese. E, 2015). Biophilic design translates these evolutionary preferences into architectural applications. Stephen Kellert's framework for biophilic design outlines three experiential domains: direct experience of nature, indirect experience of nature, and the experience of space and place. Direct experiences often involve literal natural elements like plants and water. These last two categories are characterized by less overt, usually imperceptible, design approaches that can influence human psychology and physiology (Gattupalli. A, 2025). Supporting this notion, Attention Restoration Theory (ART) (Kaplan. R, 1989) and Stress Recovery Theory (SRT) propose that natural environments offer aesthetic and restorative benefits (Gaekwad. J.S, 2022 & Hartmann. P, 2010). This connection explains why natural landscapes are consistently preferred over urban environments (Thayer, R.L.; Atwood, B.G, 1978). Biophilic design offers solutions to urban challenges by incorporating design strategies such as natural lighting, materials, ventilation, and views of nature. These elements help improve air quality, regulate temperature, reduce noise levels, and promote human health (Kellert, S., 2018). The integration of biophilic features has been shown to enhance occupant wellbeing and productivity. Research consistently shows that this design approach offers numerous benefits, including improved mental health, reduced stress levels, and increased job satisfaction (Asojo. A, Hazazi. F, 2025). According to Kellert, S. and Calabrese, E. (2015), there are five primary benefits of biophilic design. They argue that biophilic design necessitates repeated and sustained engagement with nature; focuses on human adaptations to the natural world that over evolutionary time have advanced people's health, fitness and wellbeing; encourages an emotional attachment to particular settings and places; promotes positive interactions between people and nature that encourage an expanded sense of relationship and responsibility

for the human and natural communities; and encourages mutual reinforcing, interconnected, and integrated architectural solutions, as well. Contemporary cities have high stress levels, mental health issues … Emerging … design principles … where nature needs to play a bigger part." (Söderlund & Newman, 2015). Several authors have highlighted the importance of incorporating biophilic design within urban environments. According to Browning, W.D. (2014), biophilic design can contribute to stress reduction, enhance creativity and clarity of thought, improve our well-being and expedite healing; as the world population continues to urbanize, these qualities are ever more important. The study on university environments highlights that individual experience increased social interaction with one another… exposure to nature inspires them to acquire human senses, develop social behaviours, and even create ethical structures …" (Rodriguez et al., 2023). In an article on "Biophilic Streets," it is emphasized that streets incorporating natural elements can yield environmental, social, and psychological benefits, arguing that creating habitats for people…that restore or enhance their physical and mental health, fitness and well-being becomes viable (Ulfat, A. et al., 2020). Inarguably, nature plays a central role in biophilic design. However, its influence stretches to often-overlooked strategies that involve spatial configuration and environmental patterning. "Invisible" biophilia frequently leads to positive health outcomes for occupants, working impactfully beneath the surface (Gattupalli. A, 2025). In the case of post-communist cities, such as Tirana, a conceptual model can be developed based on the literature, linking the elements of biophilic design, including: residents' visual and spatial perception (the extent to which spaces connect with nature); emotional and social well-being (stress reduction, social cohesion); as well as ecological awareness and social engagement (sense of connection to nature, community activation). From a geographer's perspective, biophilic design is not only about incorporating natural elements into the built environment but also about understanding the

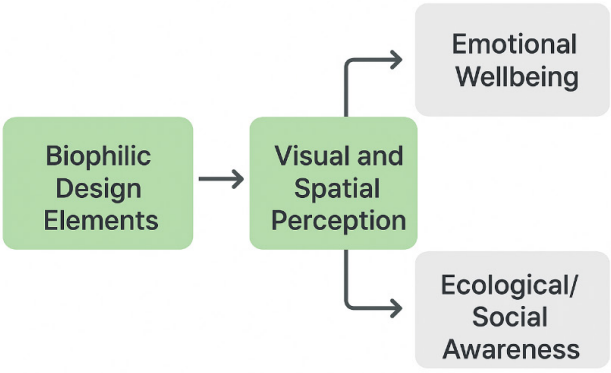

Figure 2. Conceptual model linking the elements of biophilic design.

Source: Author's illustration

spatial and social dimensions of human - nature interactions. Geographers examine how access to green spaces varies across neighbourhoods, regions, and social groups, highlighting patterns of environmental inequality and justice. Geographers use tools such as GIS and through spatial analysis, they can identify patterns of wellbeing, stress, and environmental satisfaction across neighbourhoods and regions, pinpointing areas that are most in need of green interventions. By examining issues of environmental justice, such as unequal access to green spaces, and considering the legacy of rigid, concrete-dominated urban planning, especially in post-communist contexts, geographers can help adapt biophilic principles to diverse landscapes. Their insights also allow for the integration of spatial and environmental conditions with indicators of mental health, social cohesion, and overall quality of life. Moreover, geographers contribute to resilient and sustainable development, particularly in suburban and rural transition areas, and can guide the co-design of public green spaces that reflect local needs. In this way, they ensure that biophilic strategies are both inclusive and equitable, ultimately fostering healthier, more connected, and sustainable communities.

Methodology

This study is based on fieldwork applying a questionnaire composed of both closed and open - ended questions, deemed the most appropriate instrument given the qualitative nature of the information required. The selection of respondents followed a random sampling approach, with the only criterion being citizens in urban areas of Tirana. The survey encompassed a total of 148 participants, representing a significant sample size to capture the realities and trends of the study topic. The questionnaire duration averaged approximately 10 minutes and was conducted partly online (via Google Forms) and partly through face-to-face interviews. The questionnaire was composed to 20 questions, 18 of which were closed - ended (including 4 general profile questions of respondents, 4 questions with the option “yes” or “no”, 6 Likert scale questions and 4 multiple - choice questions) and 2 open - ended questions allowing respondents to express their opinions on the subject matter. This mixed question format facilitated the collection of both qualitative and quantitative data. The aim was to gather, analyse, process, and compare the data obtained, focusing particularly on the perceptions of respondents regarding population perceptions about biophilic designs.

4.10. 4. Findings

What is the social profile of the surveyed population?
The surveyed population, representing the study sample, compose a notable diversity within the context of the general data collected from the field. The respondents’ age distribution is categorized into six groups as follows: under 18 years old comprising 1.4%, 18-30 years old representing 77%, 31-40 years old accounting for 17.6%, 41-50 years old at 2.7%, 51-65 years old making up 1.4%, and those over 65 years old constituting 1.4%. The survey shows that

the majority of respondents are between 18–30 years old (77%), followed by 31-40 years (17.6%). Other age groups are very weakly represented: 41-50 years (2.7%), under 18 (1.4%), 51-65 years (1.4%), and over 65 years (1.4%).

Age	*Under 18*	*18-30*	*31-40*	*41-50*	*51-65*	*Over 65*
Percentage	1.4	77	17.6	2.7	1.4	1.4

Table 1. The respondents' age distribution

Source: Questionnaire's results

The dominance of the 18-30 age group indicates that the survey primarily reflects the perspectives of young adults, highlighting a population segment that is generally more active in education, early career stages, and social engagement. Regarding gender, 18.9% of the surveyed population were male, while 79.7% were female, a proportion that suggests women are more inclined to

Gender	*Male*	*Female*	*Prefer not to answer*
Percentage	18.9	79.7	1.4

Table 2. The gender distribution

Source: Questionnaire's results

respond to questionnaires. The sample is predominantly female (79.7%), while males represent 18.9%, and 1.4% preferred not to disclose their gender. The clear predominance of female respondents highlights either a higher willingness of women to engage with the survey or a sample bias in data collection. However, those gendered distribution implies that the results present environmental awareness, community participation, and perceptions of social issues, where prior studies often note stronger female engagement. Respondents are distributed across different administrative units, with the highest concentrations in Unit 2 (37.8%), Unit 11 (16.2%), and Unit 5 (12.2%). Other units have smaller shares, such as Unit 1 (9.5%), Unit 7 (8.1%), Unit 4 (6.8%), and Unit 10 (4.1%). Minimal representation was observed in Units 6, 8, and 9 (1.4%

Administrative Units	*A. U. 1*	*A. U. 2*	*A. U. 3*	*A. U. 4*	*A. U. 5*	*A. U. 6*	*A. U. 7*	*A. U. 8*	*A. U. 9*	*A. U. 10*	*A. U. 11*
Percentage	9.5	36.2	1.6	6.8	12.2	2.7	8.1	1.4	1.4	4.1	16.2

Table 3. In which administrative units' live respondents?

Source: Questionnaire's results

each). The spatial pattern reveals that Units 2 and 11 dominate the sample, together accounting for more than half of the respondents. These results highlight the accessibility of certain geographic areas to survey participants, rather than reflecting a population's willingness to participate. Nevertheless, despite the lower percentages in some administrative units, efforts were made

to ensure that each unit was adequately represented in the survey results.
The impact of biophilic elements on daily spatial experience
The results of questionnaire indicate that a majority of respondents (62.2%) reported living in areas with visible natural elements such as parks, trees, green walls, or water features. In contrast, 37.8% stated that their surroundings lack such features, while none expressed uncertainty about the presence of natural elements. A significant portion of Tirana's residents, particularly in post-communist residential areas, have access to at least some degree of urban greenery. However, the relatively high percentage of respondents (over one-third) who do not experience visible nature highlights ongoing spatial inequalities in the city's

Options	Percentage
Yes	62.2
No	37.8
Not sure	-

Table 4. Do you live in an area that has visible elements of nature (parks, trees, green walls, water elements, etc.)?
Source: Questionnaire's results

green distribution. Residents living in greener surroundings are generally more likely to report higher emotional stability, reduced stress, and stronger attachment to place. Therefore, the results point to a growing need for integrating biophilic principles in both public and residential urban planning, especially in neglected or non-renovated post-socialist districts of Tirana. According to frequency, reveal that engagement with natural environments varies considerably among respondents. A notable share (37.8%) spends time in green areas a few times per week, while only 21.6% report daily contact with nature. Meanwhile, 28.4% of participants visit such spaces only occasionally, and 12.2% rarely do so. The

Options	Percentage
Daily	21.6
A few times per week	37.8
Occasionally	28.4
Rarely	12.2
Never	-

Table 5. How often do you spend time in natural or green environments (parks, forests, green rooftops, etc.)?
Source: Questionnaire's results

distribution indicates that while exposure to natural environments is relatively common, consistent and habitual interaction with nature remains limited. The predominance of weekly rather than daily engagement underlines that biophilic experiences in Tirana are more situational than integrated into residents' everyday routines. Such patterns reflect spatial accessibility constraints, urban design deficiencies, or lifestyle factors that reduce opportunities for regular immersion in natural spaces. The results demonstrate a strong consensus among respondents regarding the psychological benefits of natural environments. A combined total of 90.6% of participants either strongly agree (54.1%) or agree (36.5%) that access to natural spaces enhances their mood and mental health. Only 9.5% expressed a neutral position, while no respondents disagreed with the statement.

Options	Percentage
Strongly agree	54.1
Agree	36.5
Neutral	9.5
Disagree	-
Strongly disagree	-

Table 6. Do you feel that having access to natural environments improves your mood and mental health?

Source: Questionnaire's results

The overwhelming agreement highlights a widespread recognition of the restorative and therapeutic qualities of natural environments among Tirana's residents. The absence of negative responses further reinforces the idea that contact with nature is perceived as an essential component of psychological wellbeing. These findings are consistent with theories of biophilic design, which emphasize the innate human tendency to seek connections with natural systems as a means of stress reduction and emotional balance. The fresh air and ventilation are overwhelmingly prioritized by respondents, with 79.7% ranking them as the most important feature for their wellbeing. This is followed by quietness and noise control (52.7%) and green spaces nearby (33.8%), while natural light (20.3%) and the aesthetic appearance of buildings (6.8%) are perceived as comparatively less critical. Respondents associate wellbeing primarily with sensory comfort and environmental quality rather than visual or architectural aesthetics. The emphasis on air quality and acoustic comfort reflects growing urban concerns over pollution, congestion, and environmental stressors typical of post-communist urban contexts. Meanwhile, the relatively high importance of proximity to green spaces underscores an implicit awareness of the health and psychological benefits derived from nature exposure, aligning with key principles of biophilic design and urban wellbeing frameworks. According to the results, parks and green

Options	Percentage
Natural light	20.3
Fresh air/ventilation	79.7
Green spaces nearby	33.8
Quietness/noise control	52.7
Aesthetic appearance of buildings	6.8

Table 7. Rank the following features in terms of how important they are for your well-being (1 = most important)

Source: Questionnaire's results

spaces are perceived as the dominant contributors to a healthy urban environment, identified by 75.7% of respondents. Clean streets and trees or green facades follow with equal importance (35.1%), while modern infrastructure and community spaces are each cited by 18.9% of participants. This distribution demonstrates that respondents associate urban health primarily with ecological and aesthetic qualities rather than purely infrastructural development.

Options	Percentage
Parks and green spaces	75.7
Clean streets	35.1
Modern infrastructure	18.9
Trees and green facades	35.1
Community spaces	18.9

Table 8. In your opinion, which of the following contributes most to a healthy urban living environment?

Source: Questionnaire's results

The prominence of parks and greenery reflects a collective awareness of the role of natural environments in promoting both physical and psychological wellbeing. Meanwhile, the relatively lower emphasis on community spaces and modern infrastructure emphasized that social and technological aspects are considered secondary to environmental quality in shaping perceptions of liveable urban areas. These tendencies further affirm the centrality of nature-based elements in constructing a healthier, more restorative post-communist urban landscape such as Tirana. The findings reveal that a large majority of respondents integrate natural elements within their domestic environments. Specifically, 56.8% report having many natural features such as indoor plants, gardens, or balconies with

greenery, while 40.5% state that they have some natural elements. Only 2.7% of participants indicate an absence of such features. These results, about visi-

Options	Percentage
Parks and green spaces	75.7
Clean streets	35.1
Modern infrastructure	18.9
Trees and green facades	35.1
Community spaces	18.9

Table 8. In your opinion, which of the following contributes most to a healthy urban living environment?

Source: Questionnaire's results

Options	Percentage
Yes, have some natural features	40.5
Yes, have many	56.8
No, there aren't such elements	2.7

Table 9. Are there visible natural elements in or around your home (e.g., indoor plants, garden, balcony with plants, natural materials)?

Source: Questionnaire's results

ble natural elements in or around their home, highlight a widespread tendency among Tirana's residents to incorporate nature into private living spaces, reflecting an emerging awareness of the psychological and aesthetic benefits of biophilic domestic design. The prevalence of indoor and proximate greenery, even in the context of post-communist residential architecture, individuals actively seek to re-establish sensory and visual connections with nature. Such practices can be interpreted as compensatory responses to the lack of broader urban green infrastructure, demonstrating how personal initiatives contribute to fostering wellbeing and ecological consciousness within the urban fabric. It is showed a strikingly positive emotional response to the presence of natural elements in or around the home. An equal proportion of respondents (44.4%) reported that these elements have an extremely strong or strong effect on their relaxation and emotional wellbeing, while 9.7% described the impact as moderate and only 1.4% perceived it as minor. None of the participants reported an absence of effect. This kind of distribution underscores the powerful psychological influence of biophilic elements in domestic environments. The predominance of strong positive responses indicates that residents perceive visible contact with nature as a direct contributor to emotional stability and stress reduction. The near absence of neutral or negative perceptions suggests that the human-nature connection

Options	Percentage
Extremely strong	44.4
Strong	44.4
Moderate	9.7
Minor effect	1.4
None	-

Table 10. Do the presence of these elements make you feel more relaxed and emotionally well?
Source: Questionnaire's results

remains deeply embedded even within highly urbanized or post-communist housing contexts. Biophilic design theories asserting that natural stimuli, such as plants, natural materials, and daylight, enhance affective wellbeing by restoring cognitive balance and fostering a sense of calm within living spaces. According to the results, only 32.4% of respondents reported noticing buildings in their neighbourhood that have been visually revitalized through greenery or biophilic features such as green roofs, vertical gardens, or nature-inspired murals. In contrast, 54.1% indicated that they had not observed such interventions, while 13.5% were uncertain. What it can be emphasized is the reality of that

Options	Percentage
Yes	32.4
No	54.1
Not sure	13.5

Table 11. Have you noticed any building in your neighbourhood that has been visually revitalized with greenery or biophilic features (e.g., green roofs, vertical gardens, nature-based murals)?
Source: Questionnaire's results

biophilic revitalization projects in Tirana remain relatively limited or unevenly distributed across residential areas. The majority's lack of visibility of green architectural elements highlights a broader gap between the conceptual adoption of biophilic design and its practical implementation in the urban landscape. This disparity is attributed to the persistence of post-communist building typologies, the slow pace of architectural renewal, or the absence of institutional incentives promoting nature-integrated design. Nonetheless, the share of respondents who have observed such examples indicates emerging efforts toward visual and ecological transformation, reflecting the gradual diffusion of biophilic principles in Tirana's evolving urban identity. Among respondents who observed biophilic interventions in their neighbourhood, a substantial majority (70.8%) perceive these transformations as very positive, highlighting improvements in

aesthetics and overall liveability. A further 16.7% consider the changes moderately positive, noting that the buildings appear better than before. Only 8.3% expressed a neutral view, while a small minority (4.2%) preferred the previous appearance of the buildings. No participants reported a wholly negative per-

Options	Percentage
Very positive – It beautifies the space and improves liveability	70.8
Moderately positive – It looks better than before	16.7
Neutral	8.3
Negative – I prefer the previous look	4.2
Negative	-

Table 12. If yes, how do you perceive this transformation?
Source: Questionnaire's results

ception. The strong preference for revitalized, nature-integrated facades supports the notion that biophilic design can enhance both aesthetic satisfaction and emotional wellbeing in urban spaces. This aligns with broader research on the psychological benefits of nature-based architectural elements, suggesting that even modest green interventions can significantly improve the perceived quality of post-communist urban neighbourhoods. The findings indicate that a substantial majority of respondents (78.4%) believe that incorporating natural elements can visually and socially revitalize old or communist-style buildings. A small proportion (6.8%) disagreed, while 14.9% were uncertain. These results suggest a strong recognition among residents of the transformative potential of biophilic interventions in post-communist urban contexts. The positive perception reflects an awareness that integrating greenery and natural features can not only enhance aesthetic appeal but also foster social engagement and a renewed sense of community within residential areas. Such perceptions support the theoretical premise that biophilic design serves as a tool for both environmental and social regeneration. The qualitative responses reveal a strong perception among residents that the integration of natural elements exerts a revitalizing effect on both their living environment and personal wellbeing. Participants highlighted that greenery and clean surroundings positively influence

Options	Percentage
Yes	78.4
No	6.8
I'm not sure	14.9

Table 13. Do you think that adding natural elements can revitalize old or communist-style buildings visually and socially? Source: Questionnaire's results

mood, reduce stress, and provide emotional and mental calm. Several respondents emphasized the aesthetic benefits, noting that plants, organic forms, and natural colours soften the monotony of concrete structures and enhance the visual appeal of neighbourhoods. Beyond the visual impact, residents recognized the social dimension of green interventions, such as landscaped areas encourage social interaction, foster community life, and improve the overall quality of public spaces. The responses collectively suggest that biophilic elements contribute not only to individual psychological restoration but also to the social and environmental vitality of post-communist urban areas in Tirana.

Emotional connection to nature and community

In the context of their satisfaction, respondents express a positive evaluation of their living environment's design and aesthetics, with 23% reporting being very satisfied and 44.6% satisfied. Meanwhile, 18.9% hold a neutral stance, and a smaller proportion of participants are dissatisfied (10.8%) or very dissatisfied (2.7%).

Options	Percentage
Very satisfied	23
Satisfied	44.6
Neutral	18.9
Dissatisfied	10.8
Very dissatisfied	2.7

Table 14. How satisfied are you with your current living environment in terms of design and aesthetics?

Source: Questionnaire's results

Based on data, the most residents are content with the visual and spatial qualities of their neighbourhoods, there remains a notable minority experiencing dissatisfaction, which reflect areas where urban design, aesthetic appeal, or environmental features are insufficiently developed. The results highlight the importance of interventions, such as biophilic design, that can enhance both the visual quality and the emotional experience of residential spaces, particularly in post-communist neighbourhoods where architectural uniformity limit perceived liveability. The results show an overwhelming interest among respondents for greater integration of biophilic design in their neighbourhoods. A significant majority (91.9%) expressed a desire to see more nature-based design elements implemented, while only 6.8% opposed this idea and 1.4% remained indifferent. This strong preference indicates a clear public demand for urban interventions that enhance connections with nature, improve aesthetic quality, and promote psychological and social wellbeing. The near-unanimous sup-

port underscores the perceived value of biophilic design in transforming post-communist urban environments, emphasizing that residents recognize its potential to enrich daily life, foster social interaction, and address environmental and aesthetic deficiencies in their living areas. The respondents prioritize public spaces and squares (69.1%) for green revitalization, followed by apartment blocks from the communist era (20.6%) and schools and universities (10.3%). No participants identified offices or workplaces as a priority.

Options	Percentage
Yes	91.9
No	6.8
Indifferent	1.4

Table 15. Would you like to see more biophilic design applied in your area? Source: Questionnaire's results

Options	Percentage
Apartment blocks from the communist era	20.6
Public spaces and squares	69.1
Schools and universities	10.3
Offices and workplaces	-

Table 16. Which areas do you believe should be prioritized for green revitalization? Source: Questionnaire's results

Residents perceive communal and publicly accessible areas as the most impactful sites for implementing biophilic interventions, emphasizing the social and collective benefits of green design. The attention given to post-communist apartment blocks also reflects recognition of the potential for nature-based transformations to improve the aesthetic and emotional quality of residential environments. The lower prioritization of schools and workplaces indicate that respondents associate personal wellbeing more strongly with public and residential domains than institutional or professional settings. Overall, the data underscore a community-driven perspective on urban greening, favouring interventions that simultaneously enhance visual appeal, social interaction, and environmental quality in shared urban spaces. Additionally, the findings reveal a strong consensus among respondents regarding the positive effects of biophilic design on stress and productivity. A majority of participants strongly agree (55.4%) or agree (40.5%) that introducing natural elements in schools, workplaces, or homes can reduce stress and enhance productivity, while only 4.1% remain neutral. The widespread perception that nature-based interventions are not merely aesthetic enhancements but also functional contributors to cognitive performance and emotional wellbeing. The data support the theoretical premise of biophilic

design, which posits that integrating natural elements into everyday environments can restore attention, mitigate stress, and improve overall efficiency. This underscores the potential for targeted green interventions in both private and institutional settings within Tirana to foster healthier, more productive urban communities. The qualitative responses regarding the revitalization of old buildings through biophilic design emphasize the necessity and community value of green interventions. Residents highlighted the urgent need to increase green areas, both for environmental quality and public health, reflecting concerns about population density and the lack of adequate natural spaces. Suggestions included the creation of shared green courtyards for multiple apartment blocks, incorporating playgrounds, seating, and landscaped areas to foster social interaction and community cohesion. Participants also emphasized that raising awareness about the benefits of biophilic design could guide urban development in a positive direction. Collectively, these responses underscore that residents view biophilic interventions not only as aesthetic enhancements but also as essential strategies for promoting wellbeing, social connectivity, and environmental sustainability in Albania's post-communist urban neighbourhoods.

Options	**Percentage**
Strongly agree	55.4
Agree	40.5
Neutral	4.1
Disagree	-
Strongly disagree	-

Table 17. Do you think that introducing biophilic design elements could help reduce stress and increase productivity in schools, workplaces, or homes? Source: Questionnaire's results

5. Discussions

The findings of this study highlight the significant role of biophilic design in enhancing urban wellbeing in post-communist Tirana. Quantitative results indicate that a majority of residents have access to visible natural elements in their living areas, and most spend at least occasional time in green environments. Notably, 90% of respondents acknowledged that access to natural spaces positively impacts their mood and mental health, while a similarly strong majority emphasized the importance of fresh air, quietness, and nearby green spaces for personal wellbeing. These findings are consistent with biophilic design principles, which suggest that integrating natural elements into urban environments can mitigate stress, improve emotional balance, and enhance cognitive functioning. The study also reveals that residents perceive public and residential spaces differently in terms of priority for green interventions. Public spaces and squares are overwhelmingly considered the most crucial areas for revitalization, followed by post-communist apartment blocks, reflecting an understanding that

shared spaces can foster social cohesion and community engagement. The qualitative responses reinforce this notion, with participants emphasizing the creation of shared green courtyards, playgrounds, and seating areas to encourage interaction among neighbours. Furthermore, residents expressed an appreciation for visual transformations of buildings, noting that greenery softens the monotony of concrete structures, introduces vibrant colours and organic forms, and contributes to a more pleasant aesthetic environment.

Figure 3. New buildings with a biophilic design approach in the city of Tirana. Source: Authors, 2025

Figure 4. Revitalization of existing buildings in the city of Tirana through biophilic design. Source: Authors, 2025

Residents' satisfaction with their current living environment is generally positive, but a substantial minority remains neutral or dissatisfied, suggesting that architectural uniformity and limited green coverage in some areas may reduce overall wellbeing. Importantly, the overwhelming majority of respondents (over 90%) expressed a desire to see more biophilic design interventions in their neighbourhoods, highlighting both the aesthetic and functional value attributed to natural elements. The data also indicate that the perceived benefits extend beyond aesthetics, respondents strongly agree that biophilic features can reduce stress and enhance productivity in homes, schools, and workplaces. Taken together, these findings underline that integrating biophilic principles into the urban fabric of post-communist Tirana can produce multifaceted benefits, including psychological restoration, social revitalization, and environmental improvement. The combination of quantitative and qualitative evidence underscores that resident not only recognize the health and emotional benefits of greenery but also view it as a mechanism to enhance social interaction, strengthen community identity, and foster sustainable urban development. These insights highlight the need for urban planners, policymakers, and architects to prioritize nature-based interventions in both public and residential spaces to create more liveable, resilient, and aesthetically pleasing urban environments.

4.12. 6. Conclusion

This study demonstrates that biophilic design has a clear and measurable impact on urban wellbeing in post-communist Tirana. Residents perceive natural elements as critical for emotional health, stress reduction, and overall satisfaction with their living environment. The evidence shows that public green spaces, revitalized apartment blocks, and visible domestic greenery not only enhance aesthetic appeal but also encourage social interaction, community cohesion, and psychological restoration. The findings highlight a strong public demand for more nature-integrated interventions, emphasizing the potential for biophilic design to transform monotonous post-communist neighbourhoods into healthier, more vibrant, and socially engaging urban spaces. Consequently, urban planning and policy should prioritize the systematic incorporation of natural elements into residential areas, public squares, schools, and workplaces. By doing so, cities like Tirana can foster a deeper connection between residents and their environment, promote sustainable development, and support the psychological and social wellbeing of urban communities.

4.13. 7. References

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