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Evaluating Proactive Social Responsibility and the Potential for Responsible User Behaviour in Riverfront Development: Abu-Nuwas Street, Baghdad as a Case Study

Sarah W. Khalid *, Asmaa M. H. Al-Moqaram

Department of Architecture, College of Engineering, University of Technology, Baghdad, Iraq

ABSTRACT

Riverfronts are significant public spaces, promoting belonging, social interaction and collective use. This study seeks to evaluate how proactive social responsibility is reflected in riverfront planning and assess how spatial quality indicators may provide conditions that support responsible user behavior, focusing on Abu-Nuwas Street in Baghdad as a case study. PSR is considered a planning and administrative framework embedded in design decisions, while responsible user behavior is a potential outcome. The study adopted a quantitative descriptive-analytical approach through two five-point Likert scale questionnaires. The first surveyed users and visitors of the recreational riverfront area (n=143), while the second surveyed architects and built-environment specialists regarding the road expansion project (n=47). Data were analyzed using means and standard deviations. Users reported high levels of place identity and attachment, safety and comfort, social interaction, and aesthetic and visual quality, in contrast accessibility, walkability, and environmental quality received moderate evaluations. Specialists reported moderate performance across PSR indicators, with stronger spatial connectivity but weaker place identity, pedestrian priority, environmental impact, and long-term social sustainability. The findings indicate that the recreational riverfront provides spatial conditions that may support positive collective use and place attachment, whereas the road expansion project prioritizes traffic-functional performance over social-environmental objectives. The study develops a descriptive-analytical framework for evaluating how proactive planning and riverfront environmental quality may foster conditions supporting socially responsible user behavior.

Keywords: Abu-Nuwas Street-Baghdad, Proactive social responsibility, Socially responsible behavior, Riverfront planning and development

1. INTRODUCTION

Riverfronts are significant public spaces and have always played an important role across history in the emergence and development of cities. Riverfronts serve as interfaces where

*Corresponding author
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economic, social, cultural, and environmental dimensions converge, accommodating multiple functions, including transportation, commerce, and recreation **(Kondolf and Pinto, 2017).** Hence, they play an important role in shaping the spatial identity and public image of cities **(Avni and Teschner, 2019)**. Despite this, contemporary transformations needs have reshaped the relationship between cities and rivers, with many riverfronts facing a decline in their social functions due to the dominance of traffic infrastructure, development pressures and limited public access to the water **(Pinto and Kondolf, 2020).**

Riverfronts also involve planning conflicts between recreation, transportation, and the public right of access, which requiring a careful balance between different interests **(Avni and Teschner, 2019).** Accordingly, riverfront projects are no longer examined only in terms of economic or aesthetic improvement, but also according to their capacity to generate public value, support equity, and improve quality of life in general.

Recent studies indicate that strengthening spatial identity can enhance the image of a city and its attractiveness to residents and visitors. City branding is closely connected to place identity, collective memory, and the symbolic value of public spaces, all of which influence public perceptions of the city **(Zedan and Al-Moqaram, 2026).** Literature on riverfront development also identifies social sustainability as a major challenge because it depends on the ability of the built environment to support social interaction, foster a sense of belonging, and ensure inclusivity and accessibility. Projects that neglect the social dimension may produce spaces disconnected from the everyday practices of local communities, even when they achieve aesthetic or economic success **(Awwal and Borsi, 2020).** Conversely, human-centered planning can improve the effectiveness of public spaces and increase opportunities for use and social interaction **(Gehl, 2011).**

Within this context, Social Responsibility (SR) provides a theoretical framework for connecting planning and design decisions with their social consequences. In architecture, it is procedurally defined as a framework that balances the factors influencing design throughout different project stages, from the initial concept to occupancy. It includes the decisions of designers, institutions, and other stakeholders, as well as the potential influence of the resulting environment on users (Researcher's procedural definition). The concept extends beyond technical performance to include ethical responsibility, social justice, and environmental justice. Carroll's framework contributed to understanding social responsibility as a multidimensional concept that extends beyond minimum legal and economic obligations **(Carroll, 1991).**

This broader conceptualization has evolved towards Proactive Social Responsibility (PSR), in which planning anticipates future social and environmental needs. In this study, PSR is considered a planning and administrative framework that incorporates social, ethical, and environmental considerations into early planning and design decisions. It aims to encourage public interactions, improve quality of life, support spatial identity, and provide flexible, safe, and inclusive public spatial.

At the user level, Socially Responsible Behavior refers to the ways individuals use, interact with, and respond to shared public spaces. Studies of public-space design indicate that the built environment can influence patterns of use by offering spatial conditions that promote social interaction, place attachment, accessibility, safety, and positive collective activities **(Carmona et al., 2021)**. Space Syntax studies also demonstrate that spatial integration and synergy indicators affect movement patterns and social interaction, highlighting the role of spatial configuration in supporting public life and social connectivity **(Ahmed and Khalfallah, 2026).** Nevertheless, these spatial characteristics should not be considered

direct measurements of socially responsible behavior. Instead, they represent environmental conditions that may encourage such behavior.

The Tigris River has historically formed an important part of the spatial, social, and cultural identity of Baghdad. Its riverbanks provide significant opportunities to restore the relationship between the city and the river; however, unsystematic expansion and the limited integration of public-space planning have weakened their physical and social roles **(Ali et al., 2026)**. Abu-Nuwas Street is one of Baghdad's most prominent riverfront landmarks and has traditionally accommodated cafés, restaurants, recreational activities, and informal social encounters, making it an important part of the city's public life **(Taha, 2014)**. Recent interventions along the street include the rehabilitation of the recreational riverfront and the expansion of the road network. These interventions reveal a tension between the social and recreational function of the riverfront and its increasing role as a traffic corridor. Previous studies emphasize that successful riverfront development requires the integration of environmental, social, and mobility dimensions rather than focusing only on infrastructure or physical appearance **(Smith and García, 2012).**

The reviewed literature provides important insights into riverfront planning, social responsibility, spatial quality, and patterns of public-space use. However, these themes are frequently discussed separately, and limited attention has been given to an integrated evaluative framework that distinguishes proactive social responsibility as a planning approach from socially responsible behavior as a potential outcome supported by spatial quality. This gap is particularly relevant to Abu-Nuwas Street, where recreational development and road expansion represent two different interventions within the same riverfront context. Therefore, this study evaluates the recreational area from the perspective of users and visitors and assesses the road expansion project from the perspective of architects and built-environment specialists. The two assessments are interpreted as complementary evaluations of separate interventions rather than as evidence that the public and specialists inherently have different priorities. The research thus examines how the two interventions respond to social, environmental, functional, and spatial considerations without claiming a direct causal relationship between proactive social responsibility and user behavior.

Riverfront development projects have increasingly evolved to go beyond simply providing physical infrastructure and recreational facilities, aiming to create public spaces that respond to community needs and enhance quality of life, social interaction, and community well-being. However, an integrated descriptive framework is still lacking in distinguishing (PSR) as a planning and administrative approach from responsible user behavior as a potential result fostered by riverfront environmental quality. This gap is particularly relevant to Abu-Nuwas Street, where recreational development and road expansion raise questions about balancing traffic requirements with the riverfront's social, environmental, and spatial functions.

The study therefore aims to evaluate two complementary dimensions of Abu-Nuwas Street. First, to explore users' perceptions of the recreational riverfront's spatial quality and its potential to foster responsible behavior. Second, evaluates the extent to which the road expansion project reflects proactive social responsibility from the perspective of architects and built-environment specialists. Spatial quality indicators are treated as conditions that may support responsible behavior rather than as direct measurements of the behavior itself. The two surveys are therefore interpreted as complementary assessments of separate interventions.

As the study adopts a descriptive-analytical approach, it addresses the following research questions:

- How do users evaluate the recreational riverfront's spatial quality and the potential to foster responsible user behavior?
- To what extent does the road expansion project reflect proactive social responsibility?

2. CONCEPTUAL BACKGROUND

This section differentiates the related concepts explored in the study. Where Corporate Social Responsibility (CSR) represents the management-based literature from which the Proactive Social Responsibility (PSR) was initially derived, while Social Responsibility (SR) refers to the broader ethical commitment to social and environmental consequences. The main concept of this study is (PSR), which is adapted to riverfront planning as an anticipatory planning and administrative framework. Socially Responsible Design refers to designers and planners obligational responsibilities and practices, whereas Socially Responsible User Behavior refers to potential user actions within shared public spaces. Social Sustainability is treated as a broader performance objective, while Human-Centered Planning represents a planning principle that contributes to PSR. Therefore, these concepts are related but are not used interchangeably in this study.

2.1 Proactive Social Responsibility

Proactive social responsibility involves voluntarily integrating ethical, social, and environmental considerations into decision-making processes before external pressures, crises, or regulatory requirements necessitate action. It reflects a forward-looking, values-based commitment to anticipating and preventing problems. Proactive corporate social responsibility is characterized by deliberate and voluntary actions that go beyond legal or regulatory requirements, demonstrating an organization's commitment to stakeholders and long-term sustainability **(Carroll and Shabana, 2010)**. The approach is voluntary and proactive, strategically aligned with the organization's mission, rooted in ethical values and a long-term vision, focused on stakeholder engagement and community building, and often leads to innovation and resilience. For example, a company might implement carbon-neutral operations before being legally required to do so, launch educational programs in underprivileged areas as part of a social mission rather than a public relations strategy, or design comprehensive policies and work cultures without any regulatory coercion **(Porter and Kramer, 2006)**. Proactive social responsibility in architecture involves integrating social justice, sustainability, and ethics into the design process as a fundamental principle, not merely as a reaction to criticism, disasters, or policy demands. As such, "socially responsible design goes beyond mere compliance; it anticipates and addresses the needs of marginalized communities, ecosystems, and future generations **(Bell and Wakeford, 2008)**. Proactive responsibility in architecture includes the following characteristics:

- Design with social inclusion, affordability, and ecological sensitivity in mind from the outset.
- Engage communities in participatory design.
- Create new forms of public spaces, housing, and infrastructure that promote justice.
- Plan for resilience and adaptation to climate or urban challenges.

A prime example of a proactive approach to social responsibility is Alejandro Aravena and his company Elemental in Chile, who are addressing housing inequality by designing phased housing units that enable residents to participate in the growth of their homes, while

balancing cost and dignity. Elemental does not wait for mandates from City Hall or a backlash from the public; they tackle poverty, population density, and urban growth head-on **(Aravena and Iacobelli, 2016)**. Proactive social responsibility in architecture is not just moral but also pragmatic and even revolutionary in nature; and this is significant. Architects and firms can change the built environment from being merely a measure of its failures and towards a more just and resilient force by incorporating social, cultural, and environmental awareness into the design process. The primary difference between reactive and proactive social responsibility boils down to the timing of the response and the depth of engagement. A reactive responsibility tackles any problems that materialize after they occur vs a proactive response being an urgent and preventative intervention as well as including engagement with the stakeholders to prevent further issues **(Windsor, 2006)**. In architectural and urban settings, reactive approaches deal with physical matters in a top-down format to revive a space when it is deteriorating whereas proactive approaches focus on processes in a participatory manner to maintain social life in the long run. This comparison risks only employing reactive stagnation where physical factors are improved but without cultural insight, in fact, the issue frequently escalates into cyclic deterioration **(Gehl, 2011)**. Finally, **Table 1** presents a comparison between the reactive and proactive approaches to social responsibility in architecture.

Table 1. The points of comparison between the reactive and proactive approaches to social responsibility in architecture

Comparison Aspects	Reactive social responsibility	Proactive social responsibility
Timing of intervention	Intervention occurs after a problem or social or spatial deterioration has emerged, often as a reaction to existing pressures or crises.	It relies on early intervention by anticipating potential social and spatial issues before they escalate.
Nature of motivation	The motivation is usually a response to legal necessities, societal demands, or a clear loss of function in the space.	The motivation is linked to a long-term planning vision that aims to integrate social considerations into the design process from the earliest stages.
Scope of architectural intervention	It focuses on direct, physical interventions such as restoration, rehabilitation, and improving the urban appearance of the space.	Spatial planning encompasses shaping social behavior and promoting the future use of the space through design and consultative mechanisms.
Role of users and stakeholders	It is often limited or advisory, with decisions made centrally with partial community involvement.	It is characterized by varying degrees of early and ongoing community participation in shaping design decisions.
Advantages	It is characterized by its ability to address existing and tangible problems and achieve relatively rapid results, especially in emergencies or cases of severe deterioration.	It allows for the reduction of future risks and supports the long-term sustainability of the space's social function.
Disadvantages	Its impact may be limited to the short term if it is not accompanied by a deep understanding of the social dimensions, and it may reproduce the causes of deterioration in the future.	It may require more time and resources, and its results are not immediate or evident in the initial stages of implementation.
Expected outcomes	It results in tangible functional and aesthetic improvements to the space, with the potential for variation in the sustainability of the social impact.	It enhances the space's capacity for social adaptation and continued use, with varying levels of acceptance or practicality.
Contextual relevance	It is appropriate in contexts experiencing actual deterioration or an imminent loss of social or heritage function.	It is used in contexts that allow for advance planning and the availability of a supportive institutional and community framework.

The management and corporate responsibility literature is used in this study only to establish the logic of PSR. Its application to riverfront planning is represented through spatial and planning dimensions rather than corporate practices. Consequently, In the riverfront context (PSR) is operationally defined as the early integration of social, ethical, environmental, and human considerations into planning and design decisions. It is evaluated through six dimensions: proactive vision, spatial connectivity, environmental impact, social sustainability, place identity and pedestrian priority and human-centered design.

2.2 Socially Responsible Behavior

This study distinguishes between socially responsible design and socially responsible user behavior. Socially responsible design refers to the ethical responsibility of designers to create and develop safe, inclusive, sustainable, and equitable environments. Socially responsible user behavior on the other hand refers to how users interact with shared spaces in ways that respect environmental-social responsibility toward public spaces and other users of the space. The present study does not directly observe user behavior; instead, it evaluates spatial conditions that may support such behavior.

Over the past few decades, the mounting environmental, social, and ethical challenges have changed the nature of design from a purely aesthetic and functional activity to a social practice dedicated to human wellbeing and sustainability. Designers and architects are also expected to find the larger human scale implications in their work, thinking of how spaces, products and systems affect human behavior, social interaction and quality of life. As a result of this change, ideas such as social responsible design and social responsible behavior emerged to remind that design is socially embedded and designers and users are ethically responsible with respect to society and the environment **(Melles et al., 2011)**. Socially responsible is when individuals act more wisely towards society by engaging in more social and the environmental positive behavior. Specifically, socially responsible behavior can be interpreted from a position of architecture and design that encompasses two interrelated views. The first relates to designers, and the importance of designing spaces and systems that achieve inclusivity, safety, sustainability, and social equity. The second focuses on users, whose role is to act in ways that honor community values, shared resources, and environmental sustainability in relation to spaces and products **(Corsini and Moultrie, 2021)**. The relationship between design and human behavior has become a major theme in contemporary design theory. **(Tromp et al., 2011)** to assert intentionally designed products and environments facilitate physical, cognitive, and emotional means in shaping user behavior toward socially beneficial ends or missions. The framework for Design for Socially Responsible Behavior, argued that designers are not neutral creators, but actors that can shape social and ethical behavior through design choices. Additionally, socially responsible design extends beyond environmental sustainability and profit maximization to include social justice, participation, empathy, and community. **(Cipolla and Bartholo, 2014)** argue that socially responsible design should foster dialogue, inclusivity, and active engagement between people and their environments. Similarly, Shin and Bull **(Shin and Bull, 2019)** research that falls under the design-for-sustainable behavior umbrella tends to describe a number of techniques aimed at persuading users to engage in less harmful (more sustainable) behaviors by bringing sustainability into the decision-making processes employed when executing everyday activities. In architecture in particular, where the built environment directly determines movement, interaction, accessibility, security and cultural expression, acting responsibly and justly is vital. Architectural spaces can facilitate

collaborative environments, community involvement and awareness to the environment, or they can perpetuate exclusion and social fragmentation. Therefore, comprehending social responsibility on the part of designers and users has become critical for social sustainable urban and architectural development. The following perspectives can be used to see socially responsible behavior:

- Socially Responsible Design: Designers, Planners, and Decision-Makers: refers to the ethical and conscious practice of creating products, spaces, systems, or environments that promote social well-being, equity, sustainability, and positive human behavior, while minimizing harmful social consequences. In design disciplines, SRB involves recognizing that design decisions influence user behavior, experiences, and societal outcomes. Therefore, designers have a responsibility to guide behavior toward socially beneficial outcomes, such as inclusion, safety, environmental awareness, accessibility, and community well-being. Trump, Heckert, and Verbeek define SRB as an approach in which designers intentionally influence user behavior toward socially desirable goals through the designed environment or product **(Tromp et al., 2011)**. It can be said that socially responsible behavior for designers is the conscious and ethical integration of social, environmental and human values into the design process, with the aim of positively influencing individual and collective behavior, and contributing to societal well-being. This understanding is confirmed by studies that emphasize concepts such as justice, participation, sustainability, inclusivity and awareness of the social consequences of design decisions.
- Users: Socially responsible user behavior refers to how individuals interact with products, spaces, and environments in a way that reflects an awareness of the social, ethical, and environmental impacts on others and the community. In architectural and design contexts, users demonstrate this behavior when they engage in actions that support collective well-being, sustainability, respect for shared spaces, social interaction, safety, and the responsible use of resources **(Tromp et al., 2011)**. In behavioral design literature, user behavior is understood as being shaped, in part, by the built environment and design interventions. Therefore, socially responsible users respond to design cues in ways that align with broader societal benefits. Ultimately, socially responsible user behavior can be defined as the practice of interacting with spaces, products, and systems in ways that promote social well-being, environmental sustainability, ethical awareness, and respect for the needs and rights of others. This definition aligns with the social sustainability literature, which links responsible behavior to human well-being, community prosperity, participation, and long-term societal benefit.

Socially responsible behavior in public spaces is not limited to individual actions but also involve how the built environment influences positive social practices and collective responsibility. Recent research in urban and environmental behavior highlights the fact that people's behavior in environments is influenced by their own personal values and the environmental characteristics themselves. The shaping of the public space has the potential to galvanize between cooperation, social interaction, environmental sustainability and the rational use of common resources, which means these physical settings can also contribute directly to the purposes of social sustainability **(Carmona et al., 2021).** Public spaces play an important role in promoting social cohesion through facilitating everyday interactions, community engagement, and space belonging among diverse user groups **(Qi et al., 2024)**. Social responsibility in riverine areas expresses itself through interrelated dimensions (Responsible use of public space, Positive social interaction, Respect to common

environments (infrastructure, Environmental sensitivity, Community participation and Place attachment and appropriation). Such behaviors are of particular relevance to riverine areas, where the behaviors of accessible and environmentally sound use of common-space directly affect the future sustainability of development projects **(Whyte, 1980)**. Research on place-related activities indicates that users who develop emotional and symbolic connections to a place are more likely to engage in behaviors that support its preservation, maintenance, and continued vitality. In this context, place identity and a sense of belonging contribute to fostering collective responsibility and encourage users to care for public environments as shared community assets **(Lewicka, 2011).** Similarly, public spaces that facilitate social interaction and inclusive participation can promote social cohesion and cultivate a culture of mutual respect and shared responsibility among users.

Therefore, socially responsible behavior in riverine areas should be understood not merely as a set of individual actions, but as a potential behavioral outcome that may be supported by the quality of the environment and its capacity to foster positive engagement, environmental responsibility, and collective responsibility. From this perspective, riverine planning interventions can play a crucial role in creating conditions conducive to socially responsible behavior and contributing to the broader goals of proactive social responsibility.

2.3 Riverfront Planning and Public Space

Riverfronts have historically been the focal point of the birth and growth of cities, being centers for trade, transportation, cultural exchange and public life. Riverfronts are coming to be viewed in today's urbanism less as potential economic opportunities and more as critical public spaces contributing to environmental sustainability, local identity, and community life through social interaction. As such, effective riverfront planning must find a delicate balance between conserving the ecosystem, transportation systems, site accessibility, and the incorporation of attractive public spaces that re-establish contact with the river **(Marshall, 2001)**. Safety, comfort, and accessibility are identified as fundamental key indicators affecting users' perceptions of waterfront public space quality **(Shao et al., 2026)**. The relationship between rivers and cities has evolved significantly over time. During the industrialization era, infrastructure, industry, and transportation lines dominated many riverbanks, often leading to environmental degradation and isolating communities from water. However, in recent decades, urban redevelopment strategies have shifted towards reclaiming riverbanks and transforming them into multifunctional public environments that support recreation, social integration, tourism, and environmental restoration **(Hoyle, 2000)**. Contemporary riverfront development focuses on transforming waterfront areas into accessible, sustainable, and socially vibrant urban environments. Successful riverfronts generally emphasize the following **(Wrenn, 1983)**:

- Easy to access on foot.
- Environmental restoration and protection.
- Multi-use activities and economic vibrancy.
- Preservation of cultural and historical identity.
- Integration of green spaces and recreational facilities.

Effective development of riverfronts depends on reconnecting the city to the water through human centered urban design and the provision of continuous public access, and the rehabilitation process must integrate environmental, social, and economic objectives rather than treating them merely as commercial assets **(Marshall, 2001)**.

Despite growing recognition of the importance of riverfronts as valuable public and environmental resources, many contemporary cities still suffer from the dominance of infrastructure, such as transportation, along these areas. In many cases, highways and major traffic corridors have been constructed to improve mobility and connectivity. However, balancing infrastructure with the quality of public spaces is a crucial aspect of riverfront planning, and urban planners and designers have begun to reconsider the role of transportation infrastructure along these areas. While highway networks are essential for urban mobility and economic connectivity, over-prioritizing vehicular traffic often weakens the physical and visual relationship between the city and the river **(Jacobs, 1961)**. Highways built along riverbanks often have significant negative impacts on urban and public quality of life. These impacts include:

- Physical separation between the city and the river.
- Obstruction of waterfront views.
- Noise and environmental pollution.
- Reduced walkability and pedestrian accessibility.
- Fragmentation of the urban fabric and deterioration of the continuity of public spaces.

Therefore, balancing smooth traffic flow with the provision of high-quality public spaces has become one of the most significant challenges in modern riverfront planning. Hence, modern methodologies emphasize improving pedestrian circulation, enhancing a sense of walkability, and building a human scaled public realm in order to recapture social and spatial value in riverfront settings. Consequently, most studies have substantiated that substituting or redeveloping river banked highways has a transformative impact on urban connectivity, environmental performance for such a neglected resource, and social vitality. Neho wever, there are international cases: the removal of the Embarcadero Freeway in San Francisco, the Cheonggye Cheon restoration project, etc. The freeing of public life from excessive highway dominance provides a serious opportunity for the restoration of environmental and social relationships with urban waterways **(Cervero et al., 2009)**.

2.4 Abu-Nuwas Street as a Case Study

Baghdad has been used to define as a unique city with its relationship with the river Tigris, as riverside areas have always been fundamentally important to the city's physical identity and public life. Here Abu-Nuwas street came out the 20th century as one of the largest river roads through city of importance. The former passes through the Rusafa side of Baghdad, along the eastern side of the Tigris River, with those on the Debenham side referring to it as "the street that runs through the city." It starts at the north in Bab al-Sharqi area (the side of Republic Bridge), passes through Batlawin and Karrada Sharqiya, and stops at the end of the road which is also known as the Jadriya Bridge. The complete length of the strip is around 3.5 to 4.4 km (contingent upon expansions and buttons as of late). The first steps in formalizing the street as a proper road began in the late 1920s and early 1930s, which marked the time that Baghdad was sprawling outwards from its historic walls, whilst the newly instilled Roads and Buildings Law No. 44 of 1935 lay down guidelines for thoroughfare. The river embankment, a earthen levee that once sheltered the city from flood, was slowly turned into a street and public promenade **(Taha, 2014)**. The street has undergone several pivotal historical phases that have shaped its architectural identity, beginning with:

- The Royal and Early Republican Era (1930-1968): The street maintained an aristocratic character; Baghdad's elite (Muslims, Christians, and Jews) built distinctive houses and

villas along its length, and it began to gain a reputation as a nighttime haven, complementing Rashid Street.

- 1980s Boom (Abu-Nuwas Development Project): In the 1980s, at the peak of another oil boom era, Baghdad Municipality announced a huge urban and residential redevelopment plan for the street in relation to international consulting firms (such as architect Arthur Erickson and the Planner Office). There are modern, low-rise townhouses, constructed in an Abbasid-based style, for senior officials of the regime, together with large gardens and fountains **(Taha, 2014)**
- Post-2003 Era: Post-American Invasion, the street witnessed its darkest days; It remained shut off entirely with "T-walls" indicating its strategic importance, facing the Green Zone on the other bank, becoming a lone neglected quasi-military zone until only partially opened in 2008 **(Taha, 2014)**

Abu-Nuwas Street is significant in this context because of its historic place as one of Baghdad's most important public spaces for social and recreational interaction, as a linear park by the river — every inch of water-front property always being a vital property. Prior to its decline, the street was famous for its coffee shops and al fresco restaurants, fish markets and performance spaces, nightlife and families with children, and, as such, became an important urban locale for informal cultural and social encounters. There are a number of academic studies which highlight its importance as a symbolic urban public space representing the city of Baghdad and the quotidian public life of its residents. In the last years, Abu-Nuwas Street was subject to intensive restorations and re-explanations, especially as part of the urban projects of Baghdad. Key transformations include:

- Widening roads and developing infrastructure to alleviate traffic congestion
- Reconstructing the waterfront promenade
- Adding green spaces, lighting, and pedestrian walkways
- Developing parallel road networks to reduce congestion

A major government project launched in 2025 included an 8-kilometer expansion plan and the construction of a parallel road under the suspension bridge, aimed at alleviating congestion and improving traffic flow along the riverfront. These interventions are part of broader urban development strategies, such as the "Baghdad is More Beautiful**"(Iraqi News, 2025)** campaign. Despite the physical improvements, the Abu-Nuwas Street expansion raises several urban planning and social concerns, including:

- Deterioration of public space quality
- Fragmentation of social space
- Environmental pressure and riverfront pressure
- Identity and infrastructure conflict

The core issue lies in the conflict between Abu-Nuwas as a heritage and social park, and Abu-Nuwas as a traffic infrastructure corridor. This is what will be addressed and studied in the practical study.

The study indicators were developed and adopted from the literatures on PSR, public space quality and riverfront planning. Hence translated into five-point Likert-scale statements. The public survey examined the recreational area through experiential spatial-quality indicators, while the specialist survey examined PSR related planning dimensions of the road expansion project. The below **Table 2** shows the literature basis, operational meaning, and questionnaire application of each indicator.

Table 2. Derivation and operationalization of the questionnaire indicators from the literature

Main Concept	Measurement Method	Dimension/ Indicator	Questionnaire-Item Focus	Literature basis
Public	5-point Likert; mean and SD	Accessibility and Walkability	Ease of access, pedestrian continuity, and inclusive movement	Based on Marshall's and Wrenn's work on accessibility and riverfronts
Public	5-point Likert; mean and SD	Social Interaction and Public Life	Opportunities for gathering, shared activities, and everyday interaction	Based on Gehl's, Carmona et al.'s, and Whyte's work on public life
Public	5-point Likert; mean and SD	Environmental Quality	Environmental protection, green elements, and the quality of the riverfront setting	Based on Marshall's, Hoyle's, and Wrenn's work on environmental quality and riverfronts.
Public	5-point Likert; mean and SD	Place Identity and Attachment	Belonging and symbolic, cultural, and emotional connection to place	Based on Lewicka's and Taha's work on place identity and attachment
Public	5-point Likert; mean and SD	Safety and Comfort	Perceived safety and physical and environmental comfort	Based on Shao et al.'s and Carmona et al.'s work on spatial quality
Public	5-point Likert; mean and SD	Aesthetic and Visual Quality	Visual attractiveness and the relationship with the river landscape	Based on Marshall's and Shao et al.'s work on visual and spatial quality
Specialists	5-point Likert; mean and SD	Proactive Social Responsibility	Early anticipation of needs, stakeholder consideration, and long-term planning	Based on Carroll and Shabana's, Bell and Wakeford's, and Windsor's work on social responsibility.
Specialists	5-point Likert; mean and SD	Pedestrian Priority and Human-Centred Design	Pedestrian continuity, inclusive access, and balance between traffic and users	Based on Gehl's, Jacobs's, and Cervero et al.'s work on human-centred design.
Specialists	5-point Likert; mean and SD	Spatial Connectivity	Continuity of the riverfront and integration between the city, road network, and river	Based on Marshall's and Cervero et al.'s work on spatial connectivity
Specialists	5-point Likert; mean and SD	Environmental Impact	Ecological protection, pollution reduction, and long-term environmental performance	Based on Hoyle's, Marshall's, and Wrenn's work on environmental quality
Specialists	5-point Likert; mean and SD	Social Sustainability	Social inclusion, public access, interaction, and continued public use	Based on García and Becker's, Carmona et al.'s, and Qi et al.'s work on social sustainability.
Specialists	5-point Likert; mean and SD	Place Identity	Protection of heritage, spatial identity, and the historical city–river relationship	Based on Lewicka's and Taha's work on place identity

2.5 Conceptual Framework

Based on the reviewed studies in the previous sections, the conceptual framework structures the research into two complementary levels of measurement. First, the (PSR) as a planning level (treated as a planning and administrative approach reflected in riverfront planning decisions and evaluated through the specialist questionnaire). Secondly, the

riverfront quality as a spatial-experiential level (evaluated through users' perceptions of accessibility, social interaction, environmental quality, place identity, safety and comfort, and aesthetic and visual quality). These dimensions are treated as spatial conditions that may support responsible user behavior. **Table 2** presents the measurement matrix connecting the main concepts, indicators, questionnaire-item focus, literature sources, respondent groups, and measurement methods. While Proactive Social Responsibility is reflected in planning decisions that shape the spatial and environmental qualities of the riverfront. The framework does not assume that PSR or riverfront quality directly results socially responsible behavior.

Positive evaluations of place identity, social interaction, accessibility, safety and comfort, or visual quality indicate that the environment may provide conditions supportive of responsible behavior. However, they do not demonstrate that users engage in responsible actions. These actual behaviors were not directly observed in the present study. Therefore, the relationships shown in **Fig. 1** are interpreted as conceptual and supportive rather than causal.



Figure 1. Researcher's source of Conceptual measurement framework linking proactive social responsibility, planning decisions, riverfront-quality indicators, and the potential to support responsible user behavior

3. RESEARCH METHODOLOGY

The present research adopts a quantitative descriptive-analytical design based on two structured questionnaires design with its themes and indicators based on literature and previous studies of social responsibility, quality of public spaces and riverfront planning. Responses were then assessed on a five-point Likert scale using the following ratings: (1) Strongly Disagree, (2) Disagree, (3) Neutral, (4) Agree, and (5) Strongly Agree.

The public questionnaire used convenience sampling with voluntary participation because users and visitors formed a mobile population without a complete sampling list. The specialist questionnaire used purposive sampling because participants were selected according to their professional backgrounds in architecture, civil engineering, urban planning, and related fields **(Kumar, 2011).**

The public sample involved 143 respondents (79 females and 64 males). Where the specialist sample involved 47 respondents: 33 architects, five civil engineers, four urban or regional planners, and five respondents classified as "Other."

The public questionnaire evaluated the recreational riverfront through accessibility, environmental quality, social interaction, , place identity, safety, comfort, and visual quality. The specialist questionnaire evaluated the road expansion project through proactive social responsibility, pedestrian priority, spatial connectivity, environmental impact, social sustainability, and place identity.

Because the questionnaires addressed different interventions, samples, and indicators, their results were analyzed separately and interpreted as complementary assessments rather than a direct statistical comparison. Means and standard deviations were calculated for each dimension. The public indicators were interpreted as spatial conditions that may support responsible behavior, not as direct measurements of actual behavior.

one of the most important river streets in Baghdad is Abu-Nuwas Street, which runs along the eastern shore of the Tigris in the neighborhood of Rusafa. A prominent waterfront location, the type of hybrid or mixed-use that combines recreation and pedestrian functions. It is within the core framework of an urban system in the city, being connected along main roads to commercial and residential areas, and is a geographical fixture from a planning perspective, constituting a strategic point for negotiation in the city–river relationship. The study area was divided into two sectors to organize two independent assessments rather than to establish a controlled comparison between them. Each sector represents a separate unit of analysis with a different function, respondent group, and set of indicators. Therefore, their survey results are analyzed separately and are not statistically compared.

3.1 The Recreational Riverfront Zone

This section has been upgraded as an urban recreational area for pedestrians, green spaces and community activities, It starts from the Republic Bridge (near the Eastern Gate + the Sinak area) on the approaches + parked areas until around the edge of the suspension bridge (**Fig. 2**). Key recreational components include.

- Rehabilitating green spaces and median strips by redesigning them with white stone and planting new seedlings and trees to preserve the riverbanks' ecological character.
- Creating dedicated pathways for people with disabilities and long running and brisk walking tracks (river promenade).
- Installing modern, integrated lighting systems and interactive ground fountains (emerging from the ground in the center of the developed squares).

This sector represents the most socially active part. It is a direct extension of the riverine public space, fostering social interaction and encouraging human use of the riverfront. Studies indicate that the success of this type of space depends on several factors, such as walkability, urban environment quality, safety, and sense of place, all of which are directly linked to the level of social use of public spaces **(Gehl, 2011)**. This sector is suitable for assessing indicators such as:

- Accessibility and walkability
- Social interaction and public life
- Environmental quality
- Place identity and attachment
- Safety and comfort



Figure 2. The first section of the study area, specifically the recreational area (researched using Google Earth Maps).

3.2 Road Expansion /Traffic-Oriented Zone

This sector represents the area most affected by modern infrastructure interventions, focusing on improving traffic flow and connecting the street to the main network. It was implemented as a radical solution to traffic congestion, through the construction of a parallel road and overpass within the river basin, as shown in **Fig. 3.** The total length of this axis is 4400 m. The first overpass, 1950 m long and 8.5 m wide (one-way), begins after the Martyrs of Karrada Park and ends after the suspension bridge. The second overpass, located opposite the new Central Bank building, is 873 meters long and 8.5 meters wide (one-way). Both overpasses rest on 753 piers and are connected by a 1570 m-long main road with approaches leading to the existing Jadriya Bridge. In the future, this will connect to the new Jadriya Bridge and Al-Nusour Square via Wedding Island.

Its worth mentioning that riverfront development along Abu-Nuwas Street operates within an institutional-legal context involving the Baghdad Mayoralty, municipal authorities, and the Ministry of Water Resources. The law on the exploitation of shores (No.59 of 1987, as amended by Law No.7 of 1990), regulates development along riverbanks and requires that projects should not obstruct river flow or cause water pollution. It assigns responsibilities to the local-government, relevant water, and Baghdad authorities. Hence, PSR in riverfront development relies on coordination among planning, implementing, and managing institutions. The current study refers to this framework as “contextual background” but doesn’t assess the project’s formal legal compliance Republic of Iraq, 1987; Republic of Iraq, 1990.

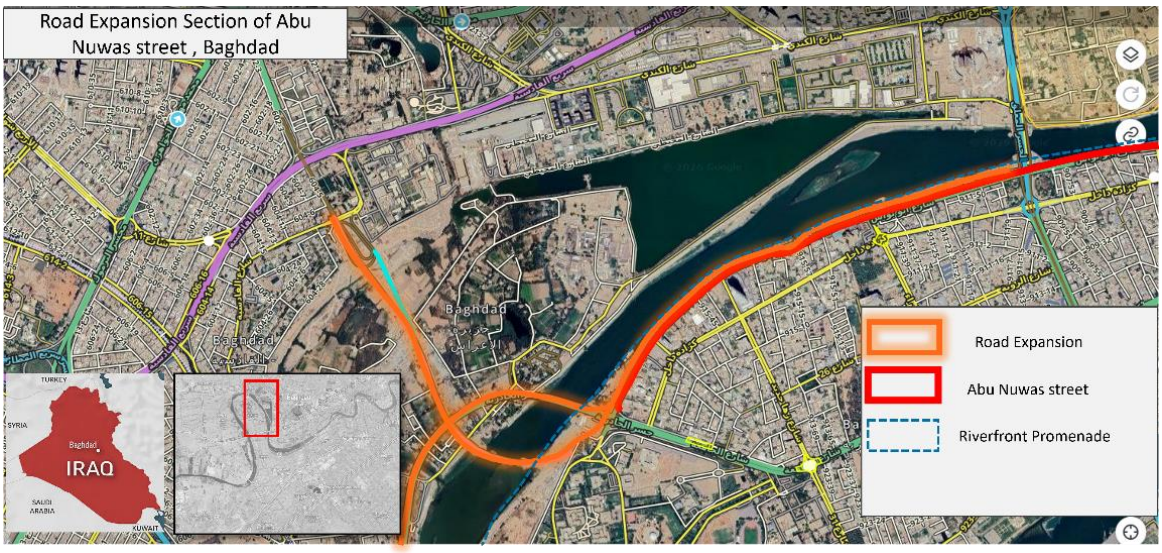


Figure 3. The second section of the study area related to the road widening section (researched using Google Earth maps).

In this sector, it is observed that the priority is shifting from human-centered public spaces to traffic efficiency, which can have direct impacts on the continuity of the riverfront. Recent literature indicates that road widening within riverine urban areas often leads to numerous urban planning problems **(Pinto, 2020)**. In the case of Baghdad, analytical studies using the Space Syntax approach have shown that changes in urban structure along the Tigris River directly affect the level of spatial integration and the potential for urban development within riverfronts **(Ali et al., 2026)** This sector is suitable for assessing indicators such as:

- Proactive Social Responsibility
- Pedestrian Priority and Human-Centered Design
- Spatial Connectivity
- Environmental Impact
- Social Sustainability
- Place Identity

Accordingly, the findings for the road expansion sector are interpreted independently and are not directly compared with the findings of the recreational riverfront sector.

4. ANALYZING THE SURVEY RESULTS

To assess the outcomes of recent interventions along Abu-Nuwas Street from the perspectives of users and professionals, two complementary surveys were conducted. The first survey, targeting the general public, yielded 143 valid responses and aimed to evaluate users' perceptions of the improved riverfront environment in terms of accessibility and walkability, social interaction, environmental quality, place identity, safety, and aesthetic experience. Two surveys were generated, one for the general public (143 valid responses) the second targeting architects and professionals in urban environments (47 valid responses), both surveying aspects of the projects in terms of proactive social responsibility, pedestrian friendly design, spatial coherence, environmental impact, social sustainability, and place identity. We chose two groups of respondents to discover differences between experiential and professional evaluations. Public members often assess urban interventions according to their own experiences and perceived benefits in terms of comfort,

attractiveness and usability, while professionals typically draw upon wider criteria of urban, social and environmental sustainability. This dual approach enables a holistic view of the Abu-Nuwas Street project in terms of its effectiveness and its contribution to socially responsible urban development. Moreover, the professional survey was multidisciplinary (comprising professionals across the built environment), allowing an investigation of professional background differences across evaluation. These comparisons offer further insights into stakeholder perceptions of the project strengths and limitations.

Mean scores were interpreted based on a five-point Likert scale according to the following ranges: 1.00–1.80 = Very Low, 1.81–2.60 = Low, 2.61–3.40 = Moderate, 3.4-4.20 = High, and 4.21–5.00 = Very High.

The statistical analysis of the findings for individual indicators is presented in the subsequent sections, followed by a conceptual ranking comparing public perceptions of, and expert assessments of, project outcomes to show where there is concordance and where there is disagreement.

4.1 Analysis of Public Perceptions

Public perception of the newly built riverfront area, 143 valid responses were conducted from users of Abu-Nuwas Street. The respondents represented a convenience sample of users and visitors who voluntarily completed the questionnaire through Google Forms. Each dimension consisted of three items: accessibility and walkability included access routes, pedestrian continuity, and inclusive use; social interaction included interaction, respect for public space, and activity diversity; environmental quality included cleanliness, thermal comfort, and noise; place identity included the image of Baghdad and the Tigris, psychological attachment, and place distinctiveness; safety and comfort included daytime safety, nighttime safety, and lighting; and aesthetic quality included attractiveness, visual connection to the river, and natural elements. In this regard, a survey was carried out covering six major dimensions reflecting the quality of public space from the perspective of users: The categories are namely accessibility and walkability, social interaction and public life, environmental quality, spatial identity and connection, safety and comfort and aesthetics and visual quality.

They were selected because they best represent the main factors that determine both the successes of the riverfront public spaces and their ability to facilitate daily life. This analysis gives information about the perception of visitors regarding the functional aspect, aesthetics, comfort, and social value of the built space and highlights areas for improvement. To determine strengths and weaknesses of the intervention and the impact on overall user experience along the Abu-Nuwas riverfront, means and descriptive statistics were calculated for each indicator:

- Accessibility and Walkability: M = 3.38
  The results indicated a moderate level of perceived accessibility and mobility. Although users recognized some positive aspects, further improvements are required to strengthen pedestrian continuity and inclusiveness, particularly for older adults and people with disabilities.
- Social Interaction and Public Life Mean = 3.55
  It reached a more favorable value, as this indicator achieves a success of the developed space in being functional, social, recreational and multifunction of improving the chances of interaction of the users. The findings highlight that space serves a dual purpose beyond

its physical form as a public space, promoting social interaction and gathering, which contributes to the activation of the waterfront as a public space.

- Environmental Quality: Mean = 3.32
  This indicator showed a moderate level and recorded the lowest mean among the examined dimensions. The results indicate opportunities to improve shade, landscaping, thermal comfort, and protection from noise to achieve better environmental performance.
- Place Identity and Attachment: Mean = 3.72
  This indicator scored the highest mean of all indicators; thus, users of the tool feel that the development has preserved the semantics of the connection between Abu-Nuwas Street and Tigris River and contributed to the image of the place in the memories of the city and the urban identity of Baghdad.
- Safety and Comfort: Mean = 3.52
  The findings revealed a fairly high degree of safety and comfort, particularly in broad daylight. While concerns over the night-time period—specifically around lighting, continuity, and monitoring a number of responses raised that day time should not be thought of as the only measure of livability.
- Aesthetic and Visual Quality: Mean = 3.55
  The outputs affirm the success of the project in improving the visual character of the riverfront by indicating user satisfaction with the overall character of the space and the visual connection to the Tigris River and natural elements surrounding this area.

The general results show that the Abu-Nuwas Street development project was rated positively by users on four variables: place identity and belonging, social interaction and public life, safety and comfort, and aesthetic and visual quality. On the contrary, the scores of accessibilities, walkability and environmental quality were about moderate indicating a potential for a better performance of the project in its spatial and environmental components. In conclusion, in general the outcomes revealed that the project achieved a higher level of recreational and social programming along the riverfront along with enriching the user experience although certain items regarding environmental sustainability and spatial inclusion needed further work.

4.2 Analysis of Sspecialists Perceptions

A separate questionnaire was conducted through Google Forms to a purposive sample of 47 built-environment specialists. The sample involved (33 architects, 5 civil engineers, 4 urban or regional planners, and 5 respondents who selected “Other.”) Regarding professional experience, ten respondents had less than five years of experience, 16 had 5–15 years, eight had 16–20 years, and 13 had more than 20 years. The “Other” option was included to accommodate related professional fields not listed among the predefined categories. The questionnaire evaluated the road expansion project through six indicators: proactive social responsibility, pedestrian priority and human-centered design, spatial connectivity, environmental impact, social sustainability, and place identity.

- Proactive Social Responsibility: Mean = 2.70
  The results indicated moderate implementation of proactive social responsibility principles. This result suggests that, while experts may perceive the project to have included some future-oriented social considerations, the majority of their attention focused on the immediate utility of the traffic solution over the potential for a far-

reaching forward thinking vision that might have satisfied the social and environmental needs of future generations.

- Pedestrian Priority and Human Centered Design, Mean = 2.66
  The indicator produced moderate results, indicating that the project exhibited limited focus on pedestrians. Experts said that remaining is still largely in the domain of automotive traffic rather than a human-centered river environment, diluting how on point the project is in terms of modern principles of riverfront design.
- Spatial Connectedness: Mean = 2.77
  Among all expert indicators, this indicator had the highest average at moderate level. This is a professional acknowledgment that the project aided in providing better traffic connectivity and urban network integration. But these improvements did not compensate spatially for the road widening or complete continuity in the city-river relationship.
- Environmental Impact: Mean= 2.66
  The moderate level of this indicator suggests that a rather conservative assessment of the project's environmental impact was used. This outcome is associated with fears of losing green areas, the rising noise level, and traffic overriding factors that potentially undermine the quality of the river area over time.
- Social sustainability: mean = 2.72
  The social sustainability index was rated as moderate, meaning that the project supports social use to a certain extent. The experts, however, say it falls short of the long-term social sustainability goals of community inclusion, spatial equity and continuity of social activity in public space.
- Place Identity: Mean = 2.61
  The average lowest score suggests that specialists see the expansion as damaging to the historic relationship of the city and the river and of the special identity of Abu-Nuwas Street as one of the most important public spaces of Baghdad. It is worth noting that there are differences in the answers of specialists according to their specialization, as shown in **Table 3** below.

The overall indicator means were calculated from the 47 individual responses rather than by averaging the four specialty means. Therefore, the “Other” category contributed to the overall results according to its actual sample size (n = 5). Because the disciplinary groups were unequal and some included only a small number of respondents, the subgroup results are presented descriptively and are not used to establish statistically significant differences between professions. As for the results of the experts' evaluation, they indicate that all indicators registered moderate levels with averages from 2.61 to 2.77. That is a prudent professional posture in regard of the project.

Table 3. The average response to the survey indicators by specialization.

Specialty	Proactive social responsibility	pedestrian priority, human-centered design	spatial connectivity	environmental impact	social sustainability	spatial identity
Architect	2.44	2.33	2.43	2.54	2.45	2.25
Civil Engineer	3.27	3.33	3.40	2.73	3.40	3.40
Urban Planner	2.75	2.42	2.75	2.33	2.92	2.67
Other	3.73	4.33	4.33	3.67	3.60	4.13

The experts find some improvements in spatial connectivity and mobility efficiency, but argue that these improvements have yet on the same level been achieved with respect to the attainment of forward-looking social equity objectives, the enhancement of spatial identity and support for sustainable social and environmental development in the long-term. Hence, in terms of delivering partial functional success the project has performed well but when measured against the social and environmental dimensions, it has performed average according to the experts. We highlight further discrepancies among the experts on the following:

- Architects were the most critical across almost all indicators, particularly regarding spatial identity (2.25) and human-centered design (2.33).
- Urban planners expressed clear reservations about the environmental impact and the continuity of the riverfront.
- Civil engineers recorded more positive assessments, particularly for spatial connectivity and traffic-flow efficiency.

The results indicate descriptive variation across professional specializations. Architects and planners recorded lower evaluations of spatial quality, identity, and sustainability, while civil engineers recorded higher evaluations of movement and spatial connectivity. However, these differences were not statistically tested and should not be attributed solely to professional background.

4.3 Complementary Interpretation of the Two Interventions

two functionally and spatially different intervention sectors along Abu-Nuwas Street wear provided through the results by considering two separate descriptive readings. They are interpreted complementarily at the broader planning level rather than as a direct statistical comparison between public and specialist perceptions.

In the (recreational riverfront area) users reported high evaluations of social interaction, place identity and attachment, safety and comfort, and aesthetic and visual quality. However, accessibility and walkability and environmental quality received moderate evaluations. These results describe spatial conditions that may support collective use, social interaction, and place attachment; however, they do not directly measure socially responsible behavior. Separately, the specialist evaluation of the (road expansion area) showed moderate performance across the proactive social responsibility indicators. Spatial connectivity received the highest mean, while pedestrian priority, environmental performance, social sustainability, and place identity revealed areas requiring further attention. These findings describe the perceived planning performance of the traffic-oriented intervention and do not represent the public evaluation of the same sector.

At the broader planning level, the two assessments indicate that riverfront development should not be evaluated only through infrastructure and movement efficiency. It should also consider accessibility, environmental quality, social interaction, place identity, safety, comfort, and equitable public use.

Based on the findings of this study, a set of practical implications proposed to promote the integration of proactive social responsibility (PSR) and strengthen the potential for socially responsible behavior (SRB) in riverfront development projects.

planning level

- Riverfront planning should adopt a proactive, people-centered approach, integrating social responsibility objectives from the earliest stages of decision-making, rather than treating them as byproducts of urban development.

- Future interventions should strive to balance transportation efficiency with the social and environmental functions of public spaces along riverfronts, avoiding any weakening of the relationship between people and the riverfront.
- The public should be involved in all stages of planning and design to ensure that development decisions reflect community needs and contribute to long-term social sustainability.
- Social and behavioral indicators should be incorporated into riverfront assessment frameworks, alongside traditional urban and functional performance metrics design level
- Prioritize pedestrian-friendly environments through interconnected walkways, safe crossings, and easily accessible public spaces, and improve connectivity between the city and the riverfront.
- Design interventions should enhance the place's identity and reinforce the cultural and symbolic significance of riverfront spaces as shared community resources.
- Provide additional landscaping elements, shade, seating areas, and recreational activities to encourage social interaction, public participation, and longer periods of active use.
- Improve environmental quality by increasing green infrastructure, implementing climate-friendly design solutions, and adopting measures that minimize the visual and environmental impacts of traffic-dominated interventions for socially responsible behavior
- The evaluation of riverfront projects should shift from focusing solely on physical and functional outputs to assessing their ability to promote socially responsible behavior. This can be achieved by measuring indicators such as social interaction, sense of belonging, a sense of collective responsibility, and levels of community engagement.
- Riverfronts should be designed as environments that foster positive behavior, encouraging users to respect shared spaces, preserve public property, interact positively with others, and contribute to the long-term sustainability of the area.
- A sense of belonging should be fostered by preserving the cultural and symbolic identity of the riverfront. Literature suggests that individuals are more likely to adopt responsible behaviors toward places to which they feel connected and a sense of belonging.
- Providing ongoing opportunities for interaction and community participation within public spaces is crucial, as active collective use of space contributes to a sense of social ownership and shared responsibility for the surrounding environment.
- Encouraging environmentally conscious practices can be achieved by integrating design and awareness elements that help users understand the impact of their behavior on the conservation of natural resources and public spaces, thus strengthening the link between environmental responsibility and users' daily behavior. Integrating the behavioral dimension into decision-making processes and subsequent evaluation of urban projects, by studying how the characteristics of the built environment influence patterns of space use, social interaction, and a sense of responsibility towards it.
- Developing future evaluation frameworks based on the relationship between the quality of public space and socially responsible behavior, using indicators such as spatial identity, social interaction, accessibility, safety, and environmental quality as predictive indicators to help assess a project's ability to support positive social behavior.
- Encouraging future studies to develop direct measurement tools for socially responsible behavior in public spaces, allowing for a shift from assessing the conditions that support behavior to quantitatively measuring the behavior itself in a comparable manner across different projects.

5. CONCLUSIONS

This study examined how PSR is reflected in riverfront planning and how spatial-quality indicators may create conditions that promote responsible user behavior, using Abu-Nuwas Street in Baghdad as a case study. Concerning the recreational riverfront area, users reported high levels of social interaction, place identity and attachment, safety and comfort, and aesthetic and visual quality, while accessibility and environmental quality received moderate evaluations. These findings demonstrate that the recreational area provides spatial conditions that may support positive place attachment and collective use; however, they do not demonstrate actual socially responsible behavior. Independently, specialists' evaluation of the road expansion area revealed moderate performance across the (PSR) dimensions. Spatial connectivity received the highest evaluation, while pedestrian priority, social sustainability, environmental performance, and place identity required more attention. These results suggest that the intervention assigned greater emphasis on traffic and functional requirements than on broader social and environmental objectives. Overall, evaluating riverfront development requires more than considering physical infrastructure, visual improvement, or traffic efficiency, it should also consider environmental quality, safety, comfort, accessibility, social interaction, place identity, and equitable public use from the early planning stages. The study therefore provides a descriptive framework for evaluating planning and spatial conditions that may support responsible collective use rather than establishing a causal relationship between PSR and user behavior.

NOMENCLATURE

Symbol	Description	Symbol	Description
A	area, m^2.	α	altitude angle, deg.
t	time, s	β	factor of variation, dimensionless.
T_a	ambient temperature, ^oC		

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Credit Authorship Contribution Statement

Sarah W. Khalid: Conceptualization, Methodology, Investigation, Data curation, Formal analysis, Writing – original draft. Asmaa M. H. Al-Moqaram: Supervision, Conceptualization, Methodology, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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تقييم المسؤولية الاجتماعية الاستباقية وإمكانية تعزيز سلوك المستخدم المسؤول في تطوير واجهات الأنهار: شارع أبو نواس، بغداد، كدراسة حالة

سارة وليد خالد*، اسماء محمد المقرم

قسم العمارة، كلية الهندسة، الجامعة التكنولوجية، بغداد، العراق

الخلاصة

تُعدّ واجهات الأنهار مساحات عامة هامة، تُعزز الانتماء والتفاعل الاجتماعي والاستخدام الجماعي. تسعى هذه الدراسة إلى تقييم كيفية انعكاس المسؤولية الاجتماعية الاستباقية في تخطيط واجهات الأنهار، وتقييم كيف يمكن لمؤشرات الجودة المكانية أن تُهيئ الظروف الداعمة لسلوك المستخدم المسؤول، مع التركيز على شارع أبو نواس في بغداد كدراسة حالة. تُعتبر المسؤولية الاجتماعية الاستباقية إطارًا تخطيطيًا وإداريًا مُدمجًا في قرارات التصميم، بينما يُعدّ سلوك المستخدم المسؤول نتيجة محتملة. اعتمدت الدراسة منهجًا وصفيًا تحليليًا كميًا من خلال استبيانين باستخدام مقياس ليكرت خماسي النقاط. شمل الاستبيان الأول مستخدمي وزوار منطقة الواجهة النهرية الترفيهية (ن=143)، بينما شمل الاستبيان الثاني مهندسين معماريين ومتخصصين في البيئة العمرانية فيما يتعلق بمشروع توسعة الطريق (ن=47). تم تحليل البيانات باستخدام المتوسطات والانحرافات المعيارية. أفاد المستخدمون بمستويات عالية من الهوية المكانية والارتباط، والأمان والراحة، والتفاعل الاجتماعي، والجودة الجمالية والبصرية، في حين حظيت سهولة الوصول، وإمكانية المشي، والجودة البيئية بتقييمات متوسطة. أفاد المختصون بأداء متوسط في جميع مؤشرات برنامج الشراكة بين القطاعين العام والخاص، مع ترابط مكاني أقوى ولكن هوية مكانية أضعف، وأولوية للمشاة، وتأثير بيئي أقل، واستدامة اجتماعية طويلة الأجل أقل. تشير النتائج إلى أن الواجهة النهرية الترفيهية توفر ظروفًا مكانية قد تدعم الاستخدام الجماعي الإيجابي والارتباط بالمكان، في حين أن مشروع توسيع الطريق يعطي الأولوية للأداء الوظيفي المروري على حساب الأهداف الاجتماعية والبيئية. تطور الدراسة إطارًا وصفيًا تحليليًا لتقييم كيف يمكن للتخطيط الاستباقي وجودة البيئة على الواجهة النهرية أن يعززا الظروف الداعمة لسلوك المستخدم المسؤول اجتماعيًا.

الكلمات المفتاحية: شارع أبو نواس – بغداد، المسؤولية الاجتماعية الاستباقية، السلوك المسؤول اجتماعياً، تخطيط وتطوير الواجهة النهرية