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# Trends in Spatial Justice in Urban Space Planning: A Study of Selected Urban Spaces in 1st Kinda Neighborhood in the City of Kufa–Iraq

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**ABSTRACT**

The concept of spatial justice is an effective concept that researchers have begun to study to improve urban environments. All authorities seek to achieve this concept at the national, regional, local, and even urban levels. Based on this, the study aimed to derive effective indicators that can be applied to urban space planning, whether at the level of green spaces, open recreational areas…. etc. Based on a study of the literature, a set of factors was identified: spatial security, community rights, diversity of activities, spatial empowerment, spatial resilience, accessibility, and social interaction. Several indicators were then derived, like the presence of cameras, participation, and fairness, in addition to the diversity of commercial, recreational, and cultural activities, the presence of training courses and community development programs, adaptability and spatial proximity, as well as the presence of benches, umbrellas, restaurants, and kiosks…etc. The study then focused on selected urban space in 1st Kinda neighborhood in the city of Kufa, Iraq, where indicators were measured using Geographic Information Systems (GIS), field surveys, and questionnaire results using a five-point Likert scale, in addition to other statistical methods to quantitatively measure some indicators. The results indicated that the spatial security, spatial resilience, accessibility, and social interaction indicators achieved high levels of satisfaction, while the community rights indicators showed that the participation rate was low and unsatisfactory. However, the justice indicator achieved a high level of satisfaction, while the diversity results were very weak compared to the other indicators.

## 1. INTRODUCTION

The concepts of spatial transformation have led to an expanding focus on the spatial justice approach, particularly within the wider context of our philosophical views on democracy and human rights. Today, it has attracted the attention of many researchers from related disciplines in geography, architecture, and urban and regional planning [1]. Spatial justice means respecting the fundamental human rights of every member of society. To reduce social polarization and economic inequality caused by the nonlinearity of urban development, it also involves promoting inclusive spatial development [2]. If space is organized and resources are distributed in a way that respects justice and human rights, spatial justice can be achieved [3]. Given the importance of urban space planning, it can permeate everything and provide the framework for our existence. It is here that communities emerge, social interactions occur, and growth takes place [4].

Three aspects participate in shaping urban space: the social, the physical, and the mental. Lefebvre argues that space is not a thing but rather a continuous system of interactions between material forms, social activities, and cognitive processes [5].

Therefore, if this spatial creation of justice is to be authentic, justice theory aims to cultivate and apply knowledge on space planning. Recent years have seen a significant change in how people think about space. Instead of focusing on flat, cartographic ideas of space as a stage and container of human activity, or simply the static measurements of a defined structure, space is now seen as a dynamic force that actively affects human existence. Urban spatial causality—the study of how cities produce consequences that go beyond everyday activities to influence economic growth, creative expression, technological advancement, and societal transformation—has gained popularity as a result of this change. Urban agglomerations also contribute to issues like social division, economic inequality, environmental degradation, global political dynamics, and—most importantly—the establishment of justice and injustice [6].

Urban space is permeated by unequal power relations, practices, and interactions [7]. In a world marked by growing inequality, resource scarcity, and climate emergency, this concept fuels growing uncertainty about how the burdens and benefits of our coexistence are fairly distributed among us and whether there is a spatial side to social justice. At the same time, it leads to deeper reflection on how to foster spaces of genuine democracy and participation in deciding how those burdens and benefits are distributed [8].

The literature has addressed attempts to integrate the

concepts of spatial justice into city planning in general and urban space planning in particular, where:

Finn and Cobbinah [9] dealt with the issue of spatial justice by focusing on pedestrian accessibility and progressive planning in African cities. The study problem was how to improve pedestrian accessibility in urban environments that have historically focused on vehicle travel. The study sought to draw attention to demographic groups that are particularly at risk, including women, children, and the elderly. To improve mobility and spatial justice for these groups, it is suggested to implement urban interventions. The study concluded that enhancing pedestrian accessibility necessitates a sophisticated and all-encompassing approach to urban planning. It suggested implementing planning laws and initiatives that combine progressive planning with spatial justice. Accessibility and fair distribution of urban resources and services were the study's determining factors [9].

Wang and Gu [10] tackled spatial justice in a city context, by focusing on the role of urban planning in the relationship between social justice and spatial planning. The problem study was focused on the question of spatial justice in the context of challenges from social and economic contexts. The research attempted to develop a model that can be applied to the analysis and measurement of spatial justice in urban plans. The determinants were access to urban inputs, management of public spaces, social diversity, and inclusiveness. As well as people's participation in the planning process to activate spatial justice.

In her study of traditional Islamic cities in Iraq, Alrobaee [11] identified common social and spatial characteristics. By using a structured methodology that evaluated important indicators such as spatial diversity, connectivity, resilience, security, and empowerment, the study examined whether these cities could achieve spatial justice. The results showed that while mixed residential patterns and spatial empowerment received low scores, mixed land use, spatial connectivity, and security all performed well. Furthermore, changes in land use concerning spatial resilience were noted.

Jian et al. [12] pointed out the impact of public open space (POS) as a necessity that everyone should enjoy. The problem was that some critics consider public open spaces in private development projects (POSPD) as spaces that are overly controlled and exclusive, raising concerns about justice regarding people's equal rights towards public space. The study aimed to investigate the actual spatial justice status of POSPD to ensure a strong framework that supports diverse activities for all. The most prominent indicators were safety, capacity, and diversity.

Shamaei et al. [13] evaluate spatial justice in different dimensions (physical, social, economic, and environmental) to achieve balance in four regions of Shahriar City. The problem was material and spatial inequality in the distribution of services and facilities. The study aimed to use the spatial justice approach. To achieve balance concerning the four regions of Shahriar City, this study was conducted through the analytical exploratory research method that used two models of analytical hierarchy and shortest distance. The indicators were social, economic, physical, and environmental indicators.

In the context of addressing the knowledge gap, some literature has pointed to the impact of design and planning processes on achieving spatial justice in cities, especially in developing countries. Other literature has added to these factors, such as spatial empowerment, spatial flexibility, community rights, diversity, accessibility, and social interaction. Furthermore, the literature on deriving and measuring spatial justice indicators in traditional cities has sought to expand the scope of these indicators and measure their application within the framework of specialization in traditional cities such as Najaf in Iraq. Alternatively, it has addressed the concept of spatial justice through health considerations. Based on the above, this article aims to address social, economic, and environmental considerations by specializing in the study of an important aspect of the city: integrating the concept of spatial justice and the extent to which it is achieved in urban space planning. This is achieved by incorporating all aspects of the literature, with some differences in the basic dimensions, and employing a holistic approach that focuses on all groups working in the public and private sectors, as well as groups from all classes affected by urban space planning, whether at the level of interaction, entertainment, or movement, such as on the street, according to spatial planning data.

## 2. THEORETICAL FRAMEWORK

### 2.1 The concept of spatial justice

Spatial justice can be defined in urban planning as how benefits (such as economic opportunities, public services, and amenities) and burdens (such as traffic congestion and air pollution) are distributed equally across different socio-economic groups in a city. It also aims to ensure that all city residents, regardless of their socio-economic backgrounds, have equal opportunities to benefit from urban improvements [3].

Therefore, spatial justice can also be defined as involving rethinking urban forms, spatial structures, (re)development processes, and policies in cities and urban areas, to ensure the achievement of social and spatial justice. This requires a critical and multidisciplinary approach to understanding the complex relationships between justice, society, and place [14].

Spatial justice in sustainable urban planning refers to the fair and equitable distribution of urban parks and green spaces. The definition focuses on how these green spaces are distributed within a city to ensure equal access for all residents, thus enhancing the social and environmental well-being of the community [15].

Spatial justice as distributive, procedural, and recognitional justice: Spatial justice in urban planning encompasses three key dimensions: distributive justice, concerning the fair allocation of benefits and burdens; procedural justice, involving inclusive participation in decision-making processes; and recognitional justice, ensuring all groups are acknowledged in their right to access and influence urban spaces (Figure 1).

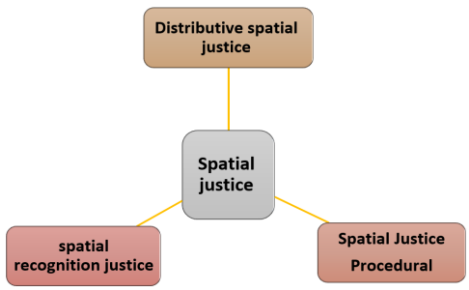


**Figure 1.** Key dimension of spatial justice

## 2.2 Urban spaces planning

Urban space constitutes the physical and social framework within which individuals interact, where economic and social factors intersect with other urban factors to form a dynamic society composed of interacting physical and sensory elements shaped by the cultural, intellectual, and religious context of the society within which it is formed [16]. Concepts of urban space have evolved over the ages, from ancient cities that focused on basic functions such as housing and commerce, to modern cities focused on sustainability and artificial intelligence. The UN-Habitat notes that urban space is a crucial element in achieving the Sustainable Development Goals, especially in light of the rapid urban expansion witnessed in developing countries [17]. There are several definitions of urban space according to theorists. Krier defined urban space as including all types of spaces located between buildings that are associated with various activities, such as going to work or shopping [18].

Urban spaces are essential in city planning, as they offer venues for social engagement, leisure, and cultural expression. By strengthening community bonds, maintaining cultural identity, supporting health and wellness, and encouraging social unity, these spaces significantly improve the quality of life and overall well-being of urban residents [19].

The relationship between mass and space is determined by determining the location of the mass as the generator of diverse formative patterns. This relationship is defined by:

1) The masses within the space. This relationship takes various forms. The mass is surrounded by the street and includes an internal courtyard, which represents a "public space," in addition to providing ventilation and lighting. Consequently, the building takes the form of a three-dimensional mass with facades separated from each other by wide spaces, which weakens cohesion and continuity.
2) Reinforcing the significant mass by changing the direction of the street toward it and giving the mass a facade distinct from other facades by placing a distinctive landmark. This relationship also creates open spaces on all four sides of the mass, separating it from the surrounding areas.

Urban space consists of several interconnected elements that can be summarized as follows (Figure 2):

1) Physical elements include infrastructure represented by transportation systems, streets, roads, and bridges [20]. In addition, open spaces are represented by squares and parks, which are the vessels for social interaction of individuals and life functions such as walking, movement, interaction shopping, etc [21].
2) Functional elements, including residential and commercial areas: These are regulated by zoning laws, as well as service areas such as schools and hospitals, which impact the quality of life and the interaction between these elements [22].
3) Social and cultural elements are represented by the visual identity formed by distinctive landmarks such as towers, monuments, and signs [23]. In addition, social and cultural diversity casts a shadow over the city's dynamics [24].
4) Environmental element, represented by the function of green spaces performs in reducing pollution and enhancing the mental health of users [25, 26], in addition to sustainable energy systems that may be used in space, such as solar panels and others [27, 28].

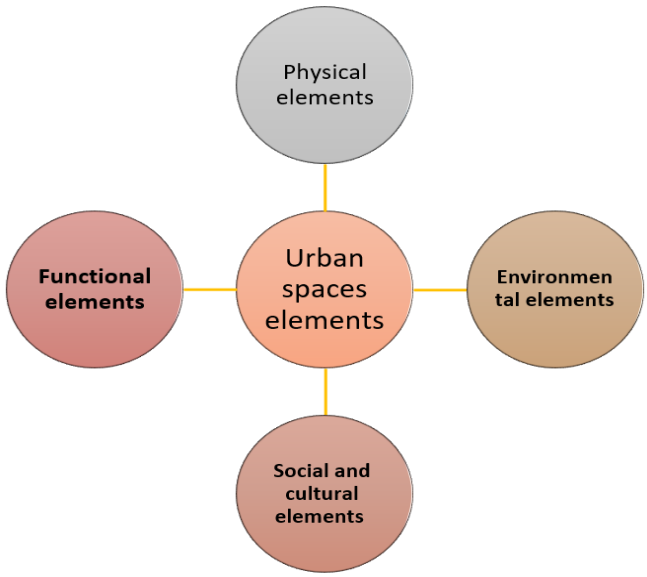


**Figure 2.** Elements of urban spaces

## 2.3 The relationship between the concept of spatial justice and urban space

Spatial justice in the field of urban space planning is also broadly linked to considering spatial justice as a set of locations and relationships, and the way these relationships allow or prevent the realization of rights [29]. It can also be expressed in the context of sustainable urban planning as justice in the distribution of urban parks and access to them. A fair and equal organization of urban parks and green spaces focuses on how these spaces are distributed in the city to ensure equal access to them for all residents, which enhances the environmental and social well-being of the community [15]. Spatial justice is based on an understanding of space as a social and physical element, considering space not merely a background but rather a dynamic, socially constructed element that significantly influences human experiences, possibilities, and interactions in urban environments. It is therefore expressed as both a process and an outcome. In terms of process, spatial justice involves organizing space in a way that enables the equitable distribution of resources. In terms of outcome, spatial justice refers to achieving outcomes that are consistent with standards of justice and equity in the spatial distribution of potentials and services [30].

Effective urban space planning should incorporate participatory approaches to engage residents in decision-making, alongside leveraging spatial analysis technologies such as GIS to assess disparities in service and infrastructure allocation. This requires a reassessment of urban space infrastructure in cities by examining indicators specific to urban space planning and integrating them with concepts of spatial justice according to their derived elements. Accordingly, planning practices that do not take spatial justice into account contribute to the production of unequal cities, where services are concentrated in certain areas and deprived of others, leading to the marginalization of certain social groups. This principle is similarly reflected in urban space planning. The importance of embracing spatial justice is highlighted in developing countries, where urban disparities are exacerbated by the uncontrolled growth of cities. Within

this framework, it is critical to recognize that the 'right to the city' extends beyond mere habitation—it must also encompass active participation in its production, particularly in the design and configuration of urban fabrics and public spaces. This can lead to pivotal steps toward achieving more inclusive, sustainable, and just cities. Based on what has been discussed in the literature and the theoretical framework, the factors specific to this study can be extracted by spatial security, community rights, diversity, spatial empowerment, spatial resilience, accessibility, and social interaction (Figure 3).


**Figure 3.** The main characteristics of spatial justice in the planning of urban spaces

## 3. MATERIALS AND METHODS

### 3.1 Case study

The city of Kufa is one of the Islamic cities that played a pivotal historical role in Islamic history. The city of Kufa is geographically located at the intersection of longitude 44°19' East and latitude 32°59' North. It is located on the Euphrates River and is about 180 km from the Iraqi capital, Baghdad. Its center is the Kufa District, which is considered one of the districts of the Najaf Governorate in Iraq. Kufa is one of the Islamic cities that played a pivotal historical role in Islamic history and contains many landmarks such as the Kufa Mosque and the Sahla Mosque, in addition to many shrines of prophets and righteous people. It is located on the Euphrates River and is about 180 km away from the Iraqi capital, Baghdad. Its center is the Kufa District, which is considered one of the districts of the Najaf Governorate in Iraq. It includes approximately 300,000 people, according to data from the Najaf Statistics Directorate. The area of the city of Kufa within the administrative borders of the city is 4914.04 ha and is also divided into 5 sectors, which in turn are divided into 21 residential neighborhoods as shown in Figure 4. The spatial boundaries of the study area are selected neighborhoods of the city of Kufa, 1st Kinda neighborhood, based on a study of the data of the basic plan for the city of Kufa for the year 2007-2030) As for the temporal boundaries of the research, they are for the year (2024-2025). The reasons for choosing the study area are several.

1) Kufa is a religious and cultural center, containing religious and historical landmarks, including the Kufa and the Sahla Mosques, in addition to tourist and recreational sites.

2) The increase in the population of Kufa, and consequently the increase in the number of residents of neighborhoods in the study area and the increase in housing units, leads to a decline in the level of services and encroachment on urban spaces, which may not be planned under the concept of spatial justice.

3) The study area encompasses all groups, as well as all material, social, and cultural levels.

4) The spaces of the study area are clear and can be identified and analyzed according to the concept of spatial justice.

1st Kinda neighborhood is considered one of the important neighborhoods, as its population is 3666 people and the total area is 71.53322 hectares. It contains a group of land uses, encompassing both designated green areas and streetscapes as constitutive elements of urban spatial systems, which shows the urban spaces of 1st Kinda neighborhood. The total area of the urban spaces imposed according to the planning of 1st Kinda district is 11.5 hectares. The elected urban space in 1st Kinda is 10,200 $m^2$ as shown in Figure 5:

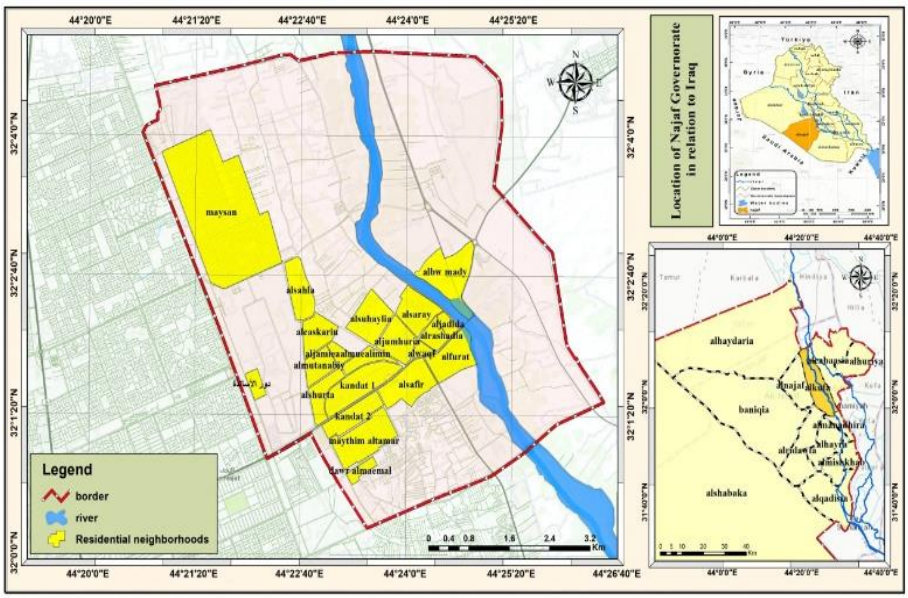


**Figure 4.** The boundaries of the master plan for the city of Kufa

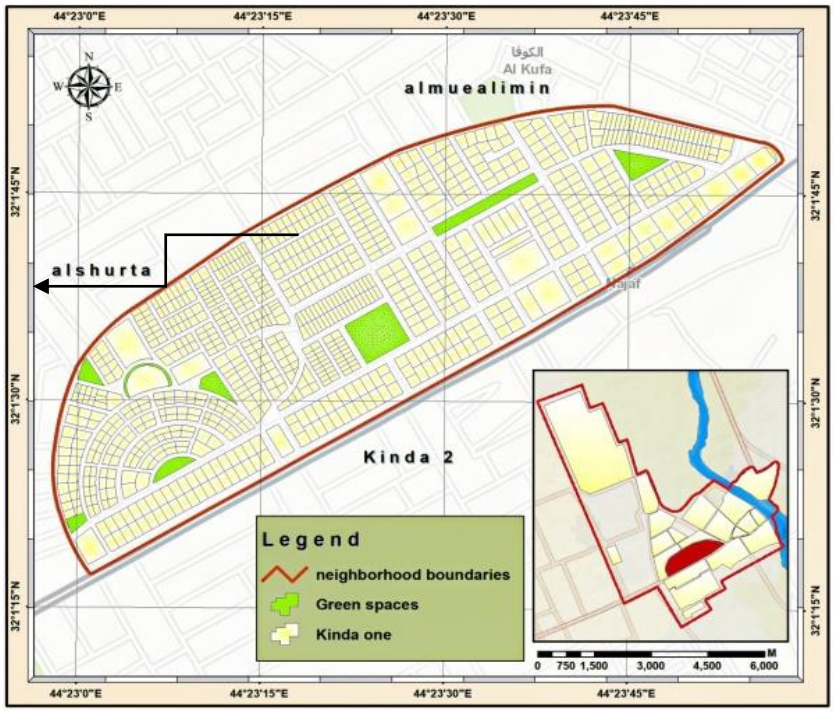


**Figure 5.** The boundaries of 1st Kinda neighborhood

### 3.2 Methodology

The methodology relied on studying many literatures related to urban spaces and the concept of spatial justice in an attempt to find a relationship between urban space planning and spatial justice and 6 recent literatures were presented in the introduction. To identify their respective factors, which included 7 factors, and then to derive indicators for evaluating the condition of urban spaces, whether they were green and recreational areas or even streets. Then identify the spaces in the study sample as urban spaces, explain the reasons for their selection, and identify the temporal and spatial boundaries within which the indicators can be applied, this is accomplished through a field survey of the study area and the preparation of maps using GIS represented by a questionnaire of five points Likert scale (FPLS) In descriptive indicators that require a questionnaire for the study sample. The Steven Thompson equation was used to calculate the sample size as follows:

$$n = \frac{N * p(1-p)}{\left[(N-1)\frac{d^2}{z^2} + p(1-p)\right.}$$

where, *n*=sample size, *N*=population size, *p*=probability value=0.5, *z*=standard deviation corresponding to the 95% confidence level=1.96, *d*=acceptable sampling error at the 95% confidence level=0.05.

The population size was 29,538 people, and the probability value (p=0.50), and the 95% confidence level was determined (d=0.05) and the standard score (z=1.96) was used to match the 95% confidence level in the standard normal distribution and according to the following equation, and when applying the equation the sample size was 379, which represents the number of questionnaire forms for the study area. Which were distributed to the sample community.

While the directions of the answers in the FPLS were adopted according to the arithmetic mean values, and according to the standard (Table 1).

Important illustrative images were also taken for documentation purposes. Statistical data collected from the Kufa Municipality, the Regional Development Department/Najaf Planning Directorate, and other institutions. The questionnaire was also used for the study sample, as well as SPSS to verify internal consistency and standard deviation of the questionnaire was calculated using Cronbach's Alpha method for the descriptive data of the respondents, as shown in Figure 6.

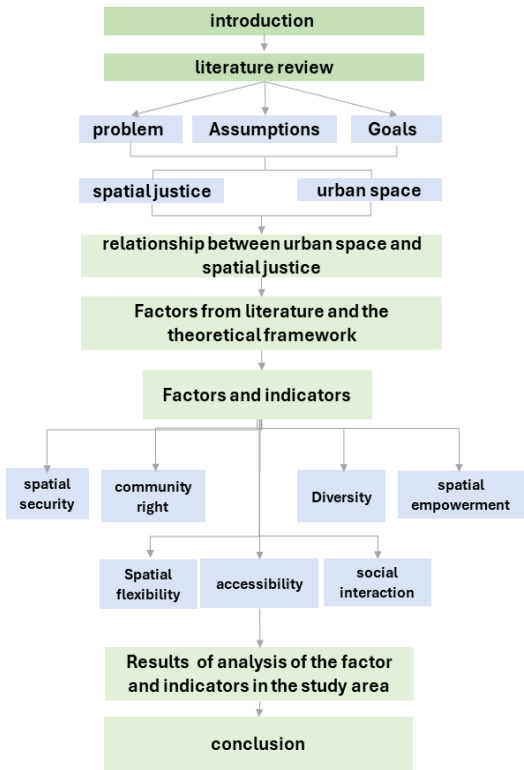


**Figure 6.** Methodology of the research

**Table 1.** Five point Lekert scale

| No. | Weighted Average | Response | Level |
|---|---|---|---|
| 1 | 1-1.80 | Strongly disagree | Very Low |
| 2 | 1.81-2.60 | Disagree | Low |
| 3 | 2.61-3.40 | Neutral | Medium |
| 4 | 3.41-4.20 | Agree | High |
| 5 | 4.21-5 | Strongly agree | Very High |

## 4. ANALYSIS AND DISCUSSION

Based on the factors that were challenged and with the help of literature and the characteristics of the study area, a set of indicators was derived to measure the efficiency of spatial justice in urban space planning for the city of Kufa with practical application on the study area of the first Kinda neighborhood, as shown in Figure 7.

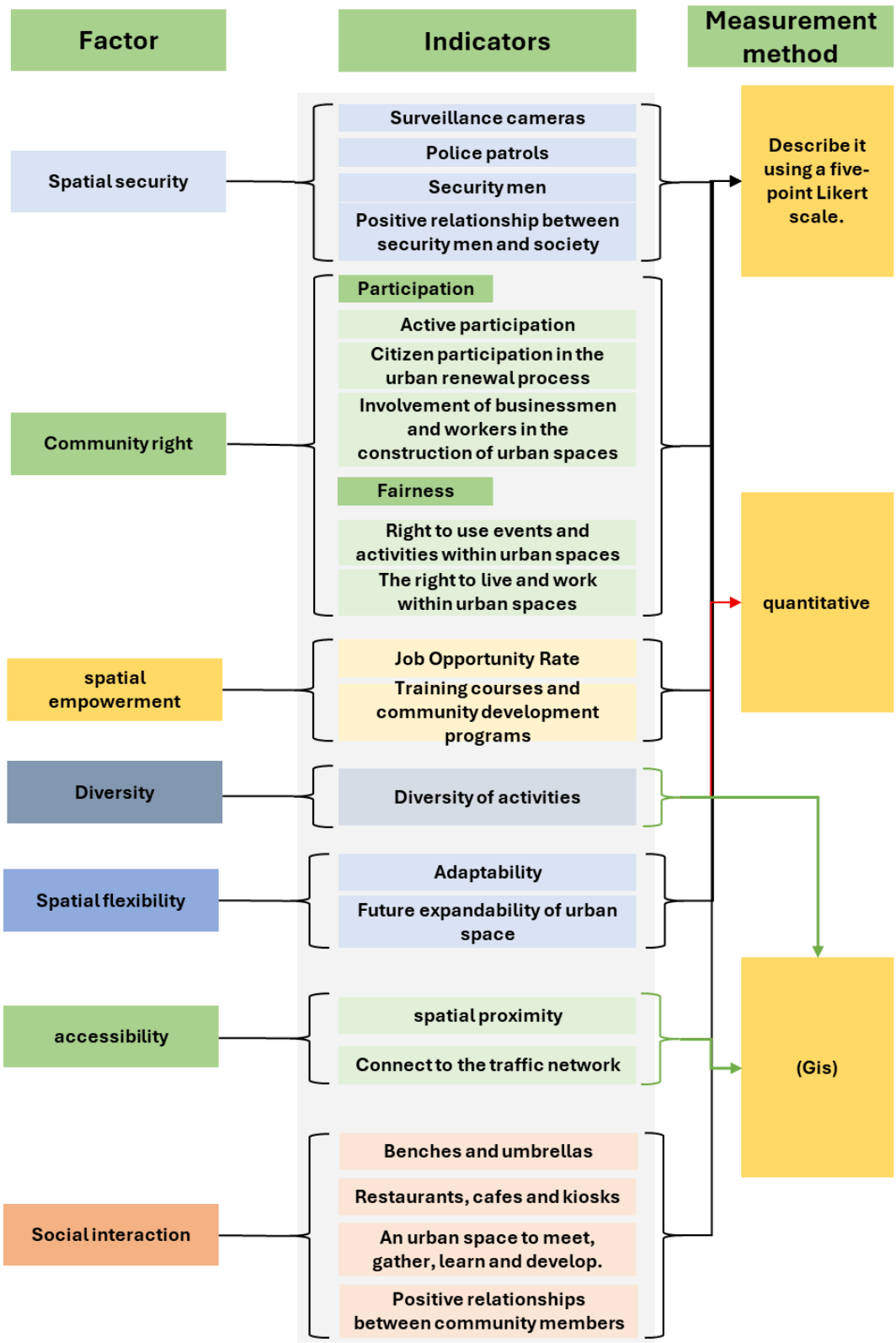


**Figure 7.** Indicators of spatial justice in urban spaces planning

These indicators will be explained during their analysis in the practical part.

### 4.1 Spatial security

Spatial security refers to providing a safe and stable urban environment through urban design and planning that prevents crime, reduces fear, and ensures protection from natural and human-made hazards [31, 32]. It is directly linked to spatial justice. The unequal distribution of security resources turns some areas into hotspots of marginalization, deepening social disparities. Equitable urban planning must make security accessible to all, regardless of economic or social status. This factor contains several sub-indicators through which spatial security can be known and evaluated. These are four indicators: the presence of surveillance cameras, the presence of police patrols, the presence of security personnel, and the presence of positive relationships between police personnel and members of society, as follows.

4.1.1 Presence of surveillance cameras

Surveillance cameras are the most common global means of deterring crime and violations in public and private places, but most of them help in solving crimes after they occur or in arresting their perpetrators. Therefore, the need for more advanced and intelligent means of monitoring violations and preventing crimes is growing [33]. This indicator can be measured by a field survey on a FPLS.

Through a field survey of the presence of surveillance cameras in the study area (green spaces as urban spaces), which represents an element of spatial security. The field survey and questionnaire statistical analysis revealed that surveillance camera implementation in the study area contributes significantly to enhancing spatial security, as the arithmetic mean of FPLS reached 3.72. This high mean indicates a strong positive trend among participants towards the effectiveness of surveillance cameras in improving spatial security. This effect is attributed to the role of this technology in reducing criminal behavior, enhancing the sense of security among residents, and facilitating operations.

4.1.2 Presence of police patrols

Patrols means an active observation of an area by walking or traveling around it at regular intervals. The security guard center's most basic service is to perform security patrols. Patrolling is a core responsibility of police and security jobs [34]. This metric can be assessed by field survey with the adoption of questionnaires based on FPLS.

This variable indicates the existence of the patrol police, who form part of the most elementary functions by means of field survey. The results of the survey form also indicated that the spatial security level was significantly higher when the study area was patrolled by the police. The mean random answer of the participant was 4.47 (on a FPLS). This high mean indicates a strong consensus among the participating people about the effective role of security patrols in improving the sense of security in the area. This positive impact is attributed to several factors, including the intensive police presence that acts as a deterrent to crime, in addition to enhancing trust between the community and law enforcement agencies. However, these results highlight the need for integrated strategies that include enhancing community participation and improving coordination between security agencies and the local community to ensure the sustainability of these results. As well as conducting further studies to measure the long-term impact of these measures, taking into account the economic and social aspects associated with enhancing spatial security, see Figure 8.

**Figure 8.** Presence of police patrols in 1st Kinda neighborhood

4.1.3 Presence of security personnel

The presence of security personnel main responsibilities of the security guard are to monitor the entrances and exits of urban spaces, protect society and the environment, perform duties and tasks, implement laws to monitor the entire urban space, and ensure that it is free of any security risks [35]. The indicator is measurable via on-site surveys employing questionnaire formats based on the FPLS.

This indicator expresses the main responsibilities of the security guard in monitoring the entrances and exits of urban spaces, protecting society and the environment, performing duties and tasks, and implementing laws within the study area [36]. After conducting a field survey questionnaire on the FPLS regarding the presence of security personnel, the results showed that the security personnel in the study area contribute significantly to enhancing spatial security, as the average of FPLS was 2.90. This average indicates a moderate level of the role of security personnel in improving spatial security. See Figure 9.

**Figure 9.** Presence of security personnel in the Najaf Street-Kufa axis surrounding the neighborhood

4.1.4 The existence of positive relations between the two parties (security men and society)

The function of security institutions typically lacks the public acceptance and goodwill afforded to other civic bodies, as security personnel directly represent state authority—often

perceived by citizens through restrictive directives that curtail personal freedoms. Consequently, these institutions depend fundamentally on public cooperation and mutual understanding to fulfill their duties effectively [37]. This indicator can be quantitatively assessed through field surveys employing FPLS questionnaires. The indicator captures the constructive rapport between security personnel and local community members, reflecting how fostering a favorable perception of security institutions—and their officers—enhances collaborative engagement. Such mutual trust directly correlates with improved security outcomes. Quantitative results demonstrated a mean rating of FPLS was 3.61, indicating statistically significant consensus among respondents about the critical role of constructive police-community interactions in enhancing security effectiveness.

### 4.2 Community rights

This factor contains two main indicators, which are participation and equity, and several sub-indicators through which community rights can be known and evaluated [38]. The participation index includes several indicators, as follows:

4.2.1 Participation

The principle of participatory rights in urban development guarantees all individuals the opportunity to meaningfully engage in planning processes that shape public spaces, grounded in spatial justice theory and the enhancement of communal life. This democratic entitlement encompasses [39].

4.2.2 Effective and successful participation

It refers to the enhancement of the citizens' responsibility towards society and their belonging to it in developing urban spaces and managing them [40].

The results of the field survey and statistical analysis of the questionnaire of FPLS mean (2.08) and this relatively low average indicates a weak or limited level among participants toward the effectiveness of community participation in enhancing community rights. This decline may be due to several factors, including a lack of awareness of the importance of community participation. This means that effective and successful participation among the various community groups in the study area contributes to enhancing community rights.

4.2.3 Involving citizens in the urban renewal process

Guaranteeing participatory rights across both public and private sectors strengthens citizens' capacity to effectively articulate policy recommendations to governing authorities [40]. The results of the field survey showed that the mean of FPLS reached 2.15. This showed the effective involvement of citizens in the urban planning and development processes in the study area contributes to strengthening community rights.

4.2.4 Fairness

It means the right to use events and activities within urban spaces [41]. Since it illustrates the significance of using events in urban spaces within the study area, the field survey FPLS mean of 4.31 indicates that there are equal opportunities to use events and activities available within urban spaces without restrictions or discrimination in the study area. This helps to promote equity in community rights. This effect is ascribed to how these policies support social justice and allow all facets of society to take advantage of public services and facilities without facing discrimination, which strengthens a feeling of equality and belonging. These findings also show that these policies need to be strengthened by implementing measures to guarantee the sustainability of these activities and putting in place regular monitoring and assessment systems to make sure no unnoticed barriers are preventing certain groups from using these areas. To further inform the public about the value of fairness in community rights, awareness programs ought to be planned.

### 4.3 Diversity

It means the distribution and integration of various activities and uses within a specific geographic area to achieve balanced economic, social, and environmental goals. This concept is one of the fundamental pillars of urban planning to ensure the sustainability of cities and improve the quality of life [42, 43]. The results of the field survey showed that recreational use largely dominates the green spaces within the study area, with the entropy index that can be calculated by the following equation:

$$\mathrm{ENT} = -\left[\sum_{j=1}^{k} P^j \ln(P^j)\right] / \ln(k)$$

where, $k$ is the number of uses, and $P^j$ is the ratio of the area of each type of use within the urban space. Its value ranges between 0 and 1, where an increase indicates a high diversity and vice versa.

As shown in Figure 10, 1st Kinda neighborhood recorded a value of about 0.592, which is above average, indicating a somewhat acceptable diversity in the study area after applying the entropy equation to measure the degree of diversity, as it is characterized by a large concentration of residential use and roads at the expense of other uses, which limits functional diversity (Table 2).

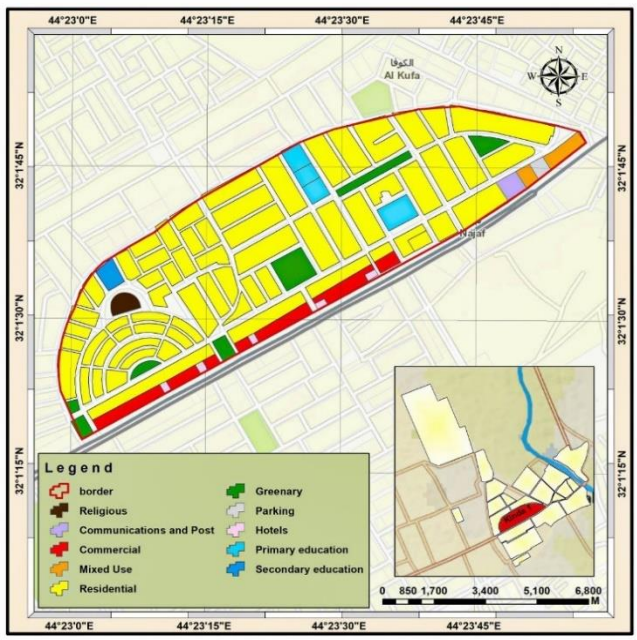


**Figure 10.** Diversity of land uses in 1st Kinda neighborhood

**Table 2.** Land use areas and their percentage for 1st Kinda neighborhood

| Land Uses | Area (hectare) | % | Pj | Pj ln(Pj) |
|---|---|---|---|---|
| Religious Use | 0.43 | 0.67 | 0.007 | 0.035 |
| Educational Use | 2.25 | 3.47 | 0.035 | 0.120 |
| Residential Use | 36.78 | 56.76 | 0.568 | 0.300 |
| Communications and post office | 0.44 | 0.68 | 0.007 | 0.036 |
| Commercial Use | 2.90 | 4.47 | 0.045 | 0.133 |
| Public Services | 0.81 | 1.26 | 0.013 | 0.059 |
| Hotels | 0.34 | 0.53 | 0.005 | 0.030 |
| Parking Areas | 0.24 | 0.36 | 0.004 | 0.026 |
| Green Areas | 2.78 | 4.29 | 0.043 | 0.129 |
| Roads | 17.83 | 27.52 | 0.275 | 0.346 |
| Total | 64.80 | 100% | 1 | 1.213 |

### 4.4 Spatial empowerment

Spatial empowerment refers to the process of providing the tools and opportunities for communities and individuals to actively participate in shaping and improving urban spaces, ensuring their needs and well-being are met. It focuses on providing equitable access to urban resources (such as services, infrastructure, and public spaces). It also promotes community participation in planning decision-making, thereby improving the quality of the built environment to empower marginalized groups (such as low-income people, people with disabilities, and minorities) [44]. It consists of two indicators.

4.4.1 Determining the percentage of access to job opportunities

This indicator can be identified by knowing the percentage of workers and citizens who get job opportunities in urban areas [45]. The data revealed that the mean of FPLS was 2.27. This value refers that urban spaces play a pivotal role in strengthening the labor market by providing appropriate and diverse job opportunities, which contributes to meeting the needs of a wide segment of the population, indicating a low level of acceptance of the impact of these spaces on job creation. These results confirm the importance of effective urban planning in supporting the local economy and improving the quality of life for citizens, as urban spaces contribute not only to providing direct job opportunities but also to enhancing indirect economic activity by attracting investments and stimulating related sectors.

4.4.2 Availability of training courses and community development programs

The purpose of these courses and community development programs is to develop entrepreneurial skills to create jobs and opportunities and develop community awareness and care for the existence of disadvantaged groups in the mainstream of development programs; The training of trainers for workers in the field of value chain development [46]. This indicator can be measured using a FPLS. The results of the field study questionnaire reached 3.24 according to the mean of FPLS. This indicates that training and development programs contribute to improving professional skills and promoting development in the study area. Although the mean of the FPLS indicates an average level of satisfaction or support, it demonstrates the impact of these programs, albeit limited, in developing professional competencies and raising the level of job performance. This result indicates that current training programs need further development and improvement to enhance their effectiveness and ensure that their objectives are achieved more comprehensively. These programs should also be periodically evaluated and modified by local and global requirements.

### 4.5 Spatial resilience

It refers to the ability of urban spaces to adapt to changes and pressures (such as natural disasters, climate change, population growth, or economic crises) while maintaining their basic functions and quickly restoring their balance. It ensures that crises do not deepen existing inequalities. Without equitable resilience, disasters become a multiplier of spatial injustice, while comprehensive resilience planning promotes equality in resilience to challenges and accommodates future expansion [47]. It consists of two indicators:

4.5.1 Adaptability

Adaptation refers to the ability of urban systems to proactively or reactively adjust to changing challenges (such as climate change, disasters, or social transformations) while ensuring a fair distribution of opportunities and risks among all societal groups [48]. The results of the field study showed that the study area enjoys a high degree of resilience and the ability to adapt to economic and environmental changes. The result of the questionnaire mean was 4.14. A high Likert level indicates a strong and positive attitude among sample members toward assessing the region's ability to confront rapidly changing challenges. These results reflect the success of policies and strategies implemented to enhance urban resilience, which include adopting innovative solutions to improve infrastructure, enhancing community participation, and integrating environmental considerations into development planning. The study also highlights the importance of continuously enhancing this resilience by adopting a participatory approach between government agencies, the private sector, and the local community, capable of withstanding future changes.

4.5.2 Future expansion capability

It means the spatial ability to accommodate an increasing number of urban residents, so future expansion arises due to the need to expand the spaces of urban spaces to be able to accommodate the increasing number of residents [49]. This indicator can be measured through the index of the questionnaire according to the FPLS. The results of the field survey and statistical analysis of the questionnaire was 4.27, which indicates a high level of satisfaction and support among respondents regarding the efficiency of urban design and its ability to expand in the future. In addition, the design of the design of urban spaces takes into account the possibility of future expansion in the study area, allowing for the accommodation of the growing population's needs and diverse economic and environmental activities. The results also indicate that the thoughtful design of urban spaces not only meets current needs but also ensures the continuity of development without harming the environment or natural resources. Attention must be paid to the continuity and enhancement of these planning practices, with a focus on the integration of smart infrastructure and environmental sustainability, to ensure balanced and sustainable urban development in the long term.

### 4.6 Accessibility

Accessibility in urban planning refers to the extent to which

individuals can access basic services and public facilities (such as transportation, education, healthcare, green spaces, and markets) efficiently and without barriers [50]. It is based on the spatial dimension represented by the proximity of services to users, the time and cost required to reach them, and the removal of barriers for marginalized groups (people with disabilities, the elderly, and the poor) [45].

4.6.1 Spatial proximity

This means that all residents of the area can easily reach these urban spaces, by walking, within a distance of 800 meters. Using GIS, the distance to urban spaces in the study area was measured, and the results showed that the selected urban space was served by 100%, and the area is served by 100% in terms of ease of access and spatial proximity to urban spaces, as shown in Figure 11.

4.6.2 Connecting to the traffic network

Applying the alpha scale to the pedestrian and bicycle traffic index in the study area, Kinda 1st District. The alpha equation was adopted, which represents a measure of the pedestrian and bicycle traffic index.

$$\text{Alpha Index}=((\text{Links}-\text{Nodes})+1)/(2(\text{Nodes})-5)$$

where, *Links*: The number of links in the road network. *Nodes*: The number of nodes or intersections in the road network.

Alpha index values range from 0 to 1, with higher values indicating a more connected network. According to the standard, the acceptable ratio is between 0-1. 1st Kinda neighborhood's traffic network comprises 112 nodes and 78 links, which were extracted through network analysis using a GIS. The alpha equation was then applied to measure the network's connectivity. The index value was 0.5, indicating relatively average connectivity, meaning there is a relative balance between intersections and connecting roads. The traffic network reflects good accessibility between different points, but it still needs additional improvements to enhance urban mobility efficiency. From a planning perspective, this value indicates that the neighborhood has an acceptable capacity to provide alternative routes, but this could be improved by enhancing connectivity between its internal components and reducing reliance on main streets, which would reduce traffic congestion and enhance the neighborhood's sustainability (Figure 12).

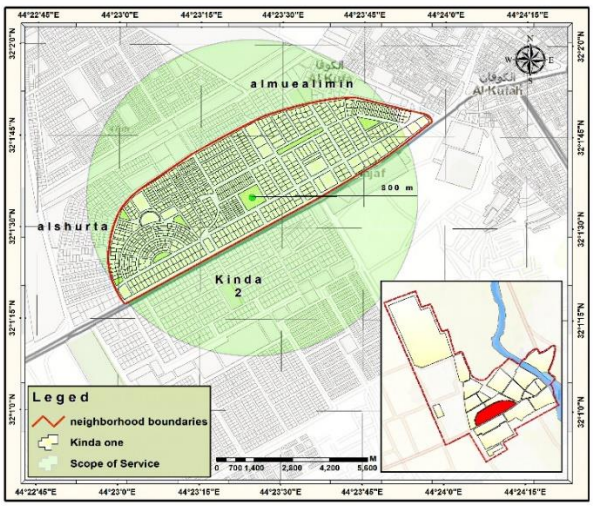


**Figure 11.** Spatial proximity for 1st Kinda Park

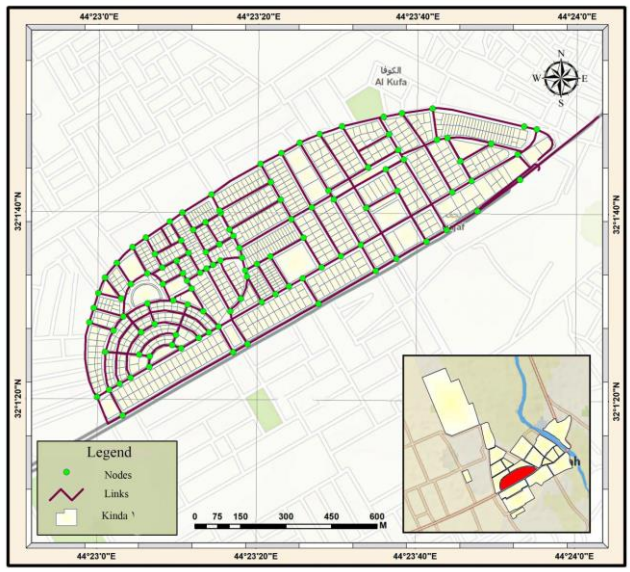


**Figure 12.** The nodes and links for the network of 1st Kinda in Kufa City

**4.7 Social interaction**

4.7.1 The presence of benches and canopies

The results of the field study and the statistical analysis mean of the questionnaire of FPLS was 4.41 regarding the presence of benches and canopies indicator, which is a clear indication of a high level of satisfaction and support among the sample members regarding these services and facilities. And the enhancement of the space through ecological diversity and what it can provide in terms of psychological comfort and social interaction through its advantages [51]. These results express the importance of designing spaces in a way that takes into account the needs of users, as these elements contribute to improving the quality of daily life and encouraging social interaction. The study area is characterized by the provision of benches and canopies that provide comfort to the residents of the study area, which enhances the quality of urban spaces and raises the level of user experience (see Figure 13).

**Figure 13.** The presence of benches and umbrellas in 1st Kinda neighborhood park

4.7.2 The presence of restaurants and kiosks

Places for eating food, drinks, and shopping, and this indicator can be measured through field surveying. The results

of the field study and the statistical analysis mean of the questionnaire of FPLS was 1.60 regarding the presence of restaurants and kiosks in urban spaces in the study area. According to the study participants, there are either few, insufficient, or nearly no restaurants and kiosks in the urban areas of the study area, as indicated by this comparatively low mean. Adopting policies that encourage the growth and diversification of these services while taking into consideration the aesthetic and practical qualities of metropolitan areas is important. Which calls on the relevant authorities to work on encouraging investment in these activities by providing the facilities needed to encourage this type of investment, given the people's need for it in the area.

4.7.3 The presence of urban spaces for meeting, gathering, learning, and positive relationships among community members

Urban spaces are essential for fostering social cohesion because they facilitate interaction between various societal segments, empower people by offering chances for informal education and skill development, and promote spatial justice in the distribution of urban spaces by guaranteeing that everyone, regardless of location or social standing, has equal access to these spaces [52, 53]. The field study's findings and the statistical analysis of the survey indicated that there are plenty of urban areas in the study area that promote social contact, meeting, and gathering opportunities while also promoting learning and growth. The sample members' high degree of support and pleasure with the quality of these places was shown by the mean of FPLS was 4.31. These findings highlight how crucial it is to plan urban areas to foster community engagement and satisfy the social and cultural demands of the local populace in order to create unified and lively communities. The findings also show how important these areas are for learning and growth since they offer encouraging settings for innovation and information sharing. To guarantee the continuous improvement of social interaction and support for human development in the area, it is advised that these areas be developed further and expanded, with an emphasis on implementing clever and sustainable designs. See Figure 14.


**Figure 14.** The presence of comfortable sidewalks encourages meeting, and gathering in the streets of 1st Kinda neighborhood

## 5. CONCLUSION

In light of rapid urban transformations, spatial justice has to be seen as a framing tool to make urban spaces more just and humane. This is not just about distributing services and amenities proportionally but about guaranteeing each person's right to participate in the making of their world. Equitable urban planning isn't a luxury —; it is an investment in social peace and sustainable development. Attending to the participative and inclusive methods, it is possible to reshape the city in places coherent with human dignity and inordinate the distances between the center and the periphery, between rich and poor, and between valid and special people.

Notwithstanding theoretical advances in spatial justice, some challenges are still very concrete, especially within traditional planning models that generate inequalities. Achieving equitable cities is hampered by a lack of political will, the predominance of the profit-driven planning process, and the underfunding of underserved communities. Nonetheless, effective global models show that incorporating spatial justice into urban strategies can bring about change. More egalitarian urban areas can be achieved by implementing cutting-edge planning methods like rights-based planning, empowering local communities, and using artificial intelligence approaches to detect gaps.

Reaching spatial justice is a continuous process that necessitates the continued dedication of all parties involved, including local communities, planners, and decision-makers. A just city acknowledges the diversity of its residents and inclusively provides for their various needs. In this sense, urban space ceases to be only a place for roads and buildings and instead becomes a means of empowering people and expressing their shared identity. By making investments in spatial justice now, cities will be more robust in the future and equipped to handle social and environmental issues. Since only cities founded on equity principles can be a home for everyone, it is important to think about spatial justice as an essential foundation for any development project.

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