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The Effect of Security on the Process of Urban Planning

the Comparison Study Between Traditional and New Residential Districts
Sulaimani City – KRG/Iraq as a Case Study

Rebaz Ahmed Majid[1], Alan Faraydoon Ali[2]

[1] City Planning Department, Technical College of Engineering, Sulaimani Polytechnic University, Sulaimani, Iraq
[2] College of Engineering, Department of Architecture, University of Sulaimani, Sulaimani, Iraq

Email: rebazarch@gmail.com[1], alan.faraydoon.ali@gmail.com[2]

Abstract:

Security is one of the most critical factors that impacts urban spaces in cities. It contributes to meeting the needs of city dwellers by instilling a sense of calm inside the individual. The guidelines and standards of security serve as the foundation for urban development efforts. Security in any urban place requires careful planning and design. The study of security that is related to planning and design in urban spaces is uncommon and rare in the context of the Kurdistan Region and the rest of Iraq. The improper use of public spaces, low-quality urban spaces, and lack of guidelines and criteria can lead to a sense of insecurity and are among the main problems to which this study attempts to find solutions. This paper seeks to investigate and find the most important criteria associated with increasing the sense of security in urban spaces in the neighborhoods of Sulaimani city of Iraq.

Hence, the concepts and parameters for assessing security rates and figuring out the factors that influence security levels would be taken into consideration after examining the theories, concepts, techniques, and international experiences.

The study compares two neighborhoods (a traditional and a modern neighborhoods) in Sulaimani city in terms of security levels using security-related criteria. Data collection was performed through a questionnaire which 356 of its copies were distributed to experts and residents. The security assessment considers seven criteria, including diversity, access control, lighting, natural surveillance, territorial reinforcement, maintenance. According to the study's findings, security would be enhanced by activities such as providing adequate diversity, mixed-use, accessibility, sufficient lighting, enhancing natural surveillance, and territorial reinforcement. And the urban spaces will be promoted by boosting the quality of those spaces and managing them with proper maintenance. Moreover, the results show that the traditional neighborhood meets most of the criteria related to security.

Keywords: Security, Urban spaces, Security criteria, Diversity of activity, Access control, Lighting, Natural surveillance, Territorial reinforcement, Image.

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الملخص:

يعد الأمن أحد أهم العوامل التي تؤثر على مدى فعالية عمل المساحات الحضرية في المدن. يساهم في تلبية احتياجات سكان المدن من خلال غرس الشعور بالهدوء داخل الفرد. إنها مجموعة من المبادئ التوجيهية والمعايير التي تعمل كأساس لجميع جهود التنمية الحضرية. يتطلب الأمن في أي مكان حضري تخطيطًا وتصميمًا دقيقين. إن دراسة الأمن المتعلقة بالتخطيط والتصميم في المساحات الحضرية نادرة في العراق وإقليم كوردستان خاصةً. يمكن أن يؤدي الاستعمال غير السليم للأماكن العامة، والمساحات الحضرية منخفضة الجودة، والافتقار إلى الإرشادات والمعايير إلى الشعور بعدم الأمان وهو من بين المشكلات الرئيسية التي تحاول هذه الدراسة إيجاد حلول لها. تسعى هذه الدراسة إلى تقصي وإيجاد أهم المعايير المتعلقة بزيادة الشعور بالأمن في الفضاءات العمرانية في أحياء مدينة السليمانية- العراق. ومن هنا، فإن مفاهيم ومعايير تقويم معدلات الأمن ومعرفة العوامل التي تؤثر على المستويات الأمنية ستؤخذ بالحسبان بعد دراسة النظريات والمفاهيم والتقنيات والتجارب الدولية.

تقارن الدراسة بين حيين (حي تقليدي وآخر حديث) في مدينة السليمانية من حيث المستويات الأمنية باستعمال المعايير الأمنية. تم جمع البيانات النوعية والكمية من خلال مسح واستبيان بإجمالي 356 نسخة من الاستبانة تم توزيعها على المختصين والساكنين فضلاً عن الملاحظة والمقابلات التي أجريت مع المختصين وسكنة تلك المناطق. يأخذ التقويم الأمني في الحسبان ستة معايير، بما في ذلك التنوع، والتحكم في الوصول، والإضاءة، والمراقبة الطبيعية، والحيزية، والصيانة.

وفقًا لنتائج الدراسة، سيتم تعزيز الأمن من خلال أنشطة مثل توفير التنوع الكافي والاستعمال المختلط وإمكانية الوصول والإضاءة الكافية وتعزيز المراقبة الطبيعية وتعزيز الأراضي. وسيتم تعزيز المساحات الحضرية من خلال تعزيز جودة تلك المساحات وإدارتها من خلال إجراء الصيانة المناسبة لها. كما أظهرت النتائج أن الحي التقليدي يلبي معظم المعايير المتعلقة بالأمن. لذلك تقترح الدراسة ضرورة تطبيق مفاهيم التخطيط والتصميم التقليدية في المناطق السكنية الحديثة الجديدة من أجل تعزيز مستوى الأمن والاحساس بالأمان والارتقاء بهما.

الكلمات المفتاحية: الأمن، التنوع، التحكم في الوصول، الإضاءة، المراقبة الطبيعية، الحيزية، الصيانة

پوختە:

ئاسایش یەکێکە لە هۆکارە هەرە گرنگەکان کە کاریگەری زۆری هەیە لەسەرکارکردنی فەزای ناوشارەکان. هەروەها بەژدارە لە دابینکردنی پێداویستیەکانی دانیشتوانی شار بەچاندنی هەستێکی ئارام لەناو تاکەکانی گۆمەڵگادا. ڕێنمایی و ستانداردەکانی ئاسایش وەك بناغەیەك بۆ هەوڵەکانی گەشەپێدانی شارەکان کاردەکەن. ئاسایش لەهەر شوێنێکی شاردا پێویستی بە پلان و دیزاینی ورد هەیە. لێکۆڵینەوە لە ئاسایش کە پەیوەندی بە پلاندانان و دیزاینەوە هەیە لە فەزای شارەکاندا زۆرکەم و دەگمەنە لە چوارچێوەی زۆرێك لە وڵاتان.

بەکار هێنانی نادروستی فەزای گشتی و فەزای کوالێتی نزم لەناوگەرەکەکاندا، هەروەها نەبوونی ڕێنمایی و پێوەری گونجاو سەبارەت بە پارێزگاریترین و پارێزراوترین دیزاین و پلاندانانی فەزای شار، هەموویان کاریگەریان لەسەر هەستی نائەمنی مرۆڤ هەیە و لە کێشە سەرەکیەکانن کە لەم توێژینەوەیەدا هەوڵدرێت چارەسەری بۆ بدۆزرێتەوە. ئەم توێژینەوەیە هەوڵدەدات بە دواداچوون ودۆزینەوەی گرنگترین پێوەرەکانی پەیوەست بە زیادکردنی هەستی ئاسایش لە فەزای شارەکاندا بکات. بەم شێوەیە دوای لێکۆڵینەوە لەو بیردۆزو چەمکو ڕێبازو ئەزموونە نێودوڵەتیانەی کە کارگەرییان لە زیادبوونی هەستی ئاسایش و ئارامی لە فەزای شارەکاندا هەیە باس کراون و ئاماژەیان پێدراوە لەم توێژینەوەیەدا.توێژینەوەکە دوو گەڕەکی (گەڕەکێکی کۆنی تەقلیدی و گەڕەکێکی تازەی مۆدێرن) ی دیاری کردووە لەناو شاری سلێمانی، کە لە ڕووی ئاستی ئاسایش و پێوەرەکانی پەیوەست بە ئاسایشەوە هەڵسەنگاندن و بەراوردیان دەکات.

کۆکردنەوەی زانیاری و میتۆدی توێژینەوەکە بە چەند ڕێگایەکە کەبریتین لە پرسیارنامە، کە (356) خەڵك وەرگیراوە لە هەردوو گەرەکەکە. بۆ هەڵسەنگاندنێکی زانستیانە، شەش فاکتەری سەرەکی بەکارهاتووە کەلە توێژینەوەکانی پێشوو وەرگیراون کە بریتین لە (هەمەجۆری چالاکی، کۆنترۆڵکردنی دەستڕاگەیشتن، ڕووناکی گوونجاو، چاودێری سروشتی، بەهێزکردنی خاوەندارێتی، صیانە). بە پێی ئەنجامەکانی توێژینەوەکە، ئاستی ئاسایش بەرزتر دەبێتەوە بە هۆی چالاکیەکانی وەك دابین کردنی هەمەجۆری گوونجاو بە بەکارهێنانی بینای تێکەڵاو، دەستڕاگەیشتن، ڕووناکی پێویست، بەرزکردنەوەی چاودێری سروشتی،

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بەهێزکردنی خاوەندارێتی و باشترکردنی کوالێتی ئەو فەزایانەو صیانەی دروست و پێویست. هەروەها ئەنجامی توێژینەوەکە دەریدەخات کە فەزای تەقلیدی زۆربەی پێوەرەکانی پەیوەست بە ئاسایش بەدی دەهێنێت. بۆیە توێژینەوەکە پێشنیاری ئەوە دەکات کەپلاندانان و دیزاینی فەزای تەقلیدیە کۆنەکانمان پێویستە لە دیزاین و پلاندانانی ناوچەی نیشتەجێبوونی مۆدێرن و نوێدا بەکار بهێنرێت بە مەبەستی بەرزکردنەوەو بەرەو پێشبردنی ئاسایش و سەلامەتی لەناوچە نیشتەجێبوونی مۆدێرنەکانماندا.

کلیلە وشە: ئاسایش، هەمەجۆری چالاکی، کۆنترۆڵکردنی دەستڕاگەیشتن، ڕووناکی گوونجاو، چاودێری سروشتی، بەهێزکردنی خاوەندارێتی، صیانە.

1. Introduction

According to the United Nations, nowadays the universe is going through an expanding community. About half of the earth's population now lives in towns and urban centers, says (UNFPA, 2016). The United Nations estimates that 55 percent of the world's population or 4.1 billion people live in cities today, and will reach 68% by 2050 (Ritchie & Roser, 2018). The Kurdistan region is also going through an expanding community. According to the Kurdistan region statistics office, the population in the Kurdistan region is growing from 4.5 million to more than 6 million. The data also estimated that the number will reach 8.8 million by 2040 (planning, 2014).

This rapid urbanization has given birth to the widespread conditions of insecurity and problems in urban settlements, amongst which are: diverse growth, greater challenges to infrastructure, lack of services, fear of crime and violence (Bako, Bello, Abdulyeken, & Balogun, 2018).

With the expansion of the city in the modern era and complications arising from urbanization, the urban security phenomenon was the subject of scientific research, and various views were expressed on this issue. Some, like the Chicago School, directly note how the density and mobility of the population and cultural diversity are influencing social disorganization, while others, such as Oscar Newman, Ray Jeffery, and Jane Jacobs, focus on aspects of urban design and planning to develop solutions to improve the quality of urban spaces and enhance a sense of security between individuals (Mohseni, Talebpour, & Mikaeli, 2016), (S. A. A. Yazdanfar & Nazari, 2015) The cities with all its layers (physical form, space, movement and access bones of public spaces) can help to create a safe and secure environment and create social space oriented encourage citizens for gathering (Mohseni et al., 2016).

Security for the community in urban spaces or the residents in neighborhoods is one of the necessary needs of human beings; failure to provide security for the environment can lead to various negative consequences.

Dealing with fear and insecurity can include antisocial behavior and attitudes. Security is one of the crucial elements that complement the needs of human life (Lawson, Gilmour, & Milligan, 2012).

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1.1 Problem Statement

The lack of clarity regarding the role of urban planning in achieving and assessing the sense of security in residential neighborhoods poses challenges for urban planners, policymakers, and community members. It hinders the development of comprehensive strategies that can effectively address security concerns and create neighborhoods where residents feel safe and secure.

1.2 Research Questions

This research aims to answer the following research questions: What are the most influential design and planning criteria that influence the sense of security in urban spaces? What is the level of security according to residents' satisfaction in traditional and new residential neighborhoods in Sulaimani City?

1.3 Research aim and objectives

This study aims to determine guidelines and criteria regarding the most protective and secure urban space' design and planning, and to investigate the degree of security in traditional and modern residential areas in the city of Sulaimani. To address the aim, following objectives are identified: Reviewing and determining the components and main criteria of security in urban spaces by examining the related literature. Identifying the most influential criteria for and assessing security in urban spaces based on resident's satisfaction.

2. LITERATURE REVIEW

2.1 Security Concept

Security is one of those difficult topics for which a single definition is difficult to come by. Security is more of a perceptual and visceral experience than a concrete idea. It implies that essential insurance must be built into the minds of individuals, legislators, and decision-makers so that they can keep living their lives without fear (Velashani, Madani, Azeri, & Hosseini, 2015). As per Merriam-Webster Online Dictionary 2022, security is the condition or state of being safe, including freedom from dangers, worry or anxiety, or the threat of being laid off (Dictionary, 2022). Before A.D. 1050, the word security was first employed in popular English literature (Purpura, 2011). Security in the Arabic language means saving reassurance, protection, and safety, for all members of society, from the occurrence of a danger that can be realized or expected (al-Jawhari, 1987). Security is a mental and physical concept that relates to calmness and well-being in the construction of the surroundings.

Whatever is regarded as safe should be capable of allowing relaxation and mental release. It means that it should give a human being the senses to direct him or her away from dread and panic (Bemanian & Mahmoodinezhad, 2010, p. 22). Eric Forum, John Ashton, and Leonard Dohel have proposed that security is in order, the mental health of individuals in society, a non-alternative characteristic in a healthy society, and a basic requirement for urban space (Hoseinzade, 2015). Patrick Morgan (2006) expresses, "security is a condition as to health or dignity that is not simply defined or analyzed"(Morgan, 2006), he defines security as "the quality of being and feeling safe

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from harm"(Morgan, 2006). Ullman (1983) suggested that security means decreased vulnerability (Ullman, 1983).

One of the prominent strategic thinkers and former secretary of defense Robert McNamara (1968) viewed security as beyond individual safety but rather means development "security is development." Security is not military equipment, even if it might contain it; security is not military force, though it may provide it; and security is not a conventional military activity, though it may include it. Security is progress and there is no progress without security (McNamara, 1968).

2.2 Urban Security Concept

It is a concept that emerged during the outbreak of the Cold War; it is related to the social needs, economic, cultural, and political people of the city. It is a comprehensive concept related to crime prevention, type of planning, and urban design.

It is also concerned with land uses in the city. Insecurity does not relate only to fear of crime such as burglary and theft, however, it is related to other issues such as traffic, deterioration of public spaces, fear of the absence of help, and lack of protection services necessary when needed and other service problems that affect the lives and destabilize of city dwellers, and not meeting their needs and requirements (Hassan & Mohammed, 2020),(Muhamad, 2007).

Subsequently, urban security refers to a planning process that works to reduce the spread of crime through the optimal distribution of land and the provision of all necessary services for citizens to live in dignity and freedom (El-Mougher, 2012).

2.3 Urban Planning Theories Related to Security

As previously stated, one of the most basic human needs is security. Per the social science and sociology research, there is a clear link between environmental security (safe urban spaces) and security consciousness, (Almasifar & Ansari, 2010).

Therefore, it is essential to develop safe urban spaces that provide a calm feel for inhabitants through professional planning, design, and social aspect. Numerous architects and social scientists collaborated with other professionals to complete numerous investigations that contributed to the formation of ideas.

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Therefore, this research will present the most important theories related to security and the urban environment in chronological order (See Figure 1).

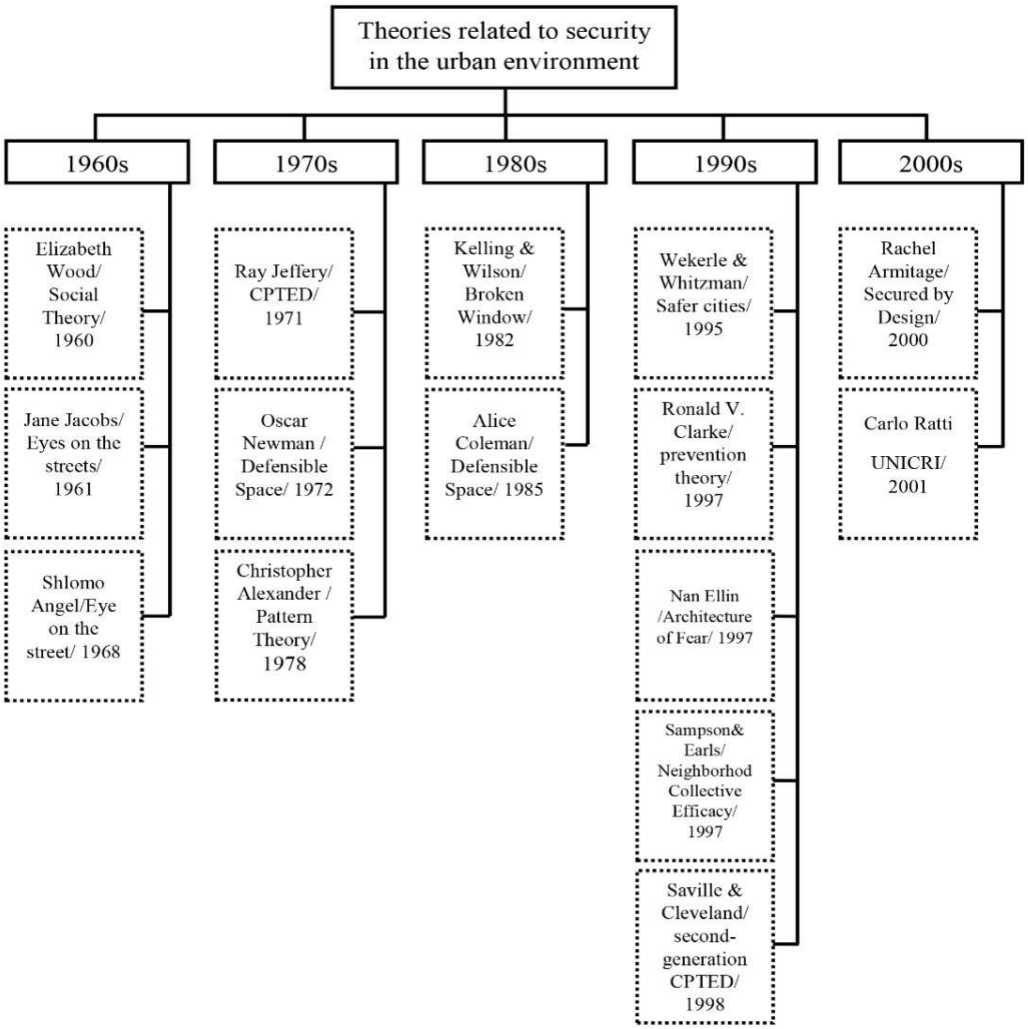

Figure 1: Evolution of theories related to security in the urban environment (Al-Ghiyadh & Al-Khafaji, 2021), (Naghibi, Faizi, Khakzand, & Fattahi, 2015), (Kahkha & Kahrazeh, 2014), (Kameli, Fallah, & AsgShahr, 2016), (Daroudi & Sami, 2017).

From a theoretical standpoint, the city of Chicago and the Chicago School in the 1920s and 1930s were the first to conduct a major study of "security" in the urban environment. The scientists at this institution investigated the physical and sociological elements of urban insecurity and urban settings in various regions of the city. They felt that the conduct of urban people could be studied with the urban environment and that the region's social, economic, and physical qualities would influence regional insecurity. Robert Ezra Park, one of the researchers at Chicago School in 1925, introduced several aspects of urban structure that are predictor factors related to security in neighborhoods. Density, poverty, high levels of population movement, population instability, immigration, the anonymity of individuals, crowds, weakened local institutions, continual displacement, destruction, and collapse of buildings are some of these aspects (Daroudi & Sami),(Kahkha & Kahrazeh, 2014), (Hardyns & Pauwels, 2017). Several years later, in the early 1960s, American sociologist Elizabeth Wood and American-Canadian journalist, author, theorist, and activist Jane Jacobs worked on the

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relationship between the physical environment and security, and their findings became the foundation for subsequent studies by Angel, Newman, and other theorists, some of whom were mentioned in this paper as a list (see table 1) ((S. A. A. Yazdanfar & Nazari, 2015), (Mohseni et al., 2016).

Table 1, Presents the list of theorists and their principles and solutions that are related to enhancing security in urban spaces **(Rahmania & Zarandib, 2015), (S. A. A. Yazdanfar & Nazari, 2015).**

School/theory	Year	Theorists	Principles	Solution
1960s period				
Housing design	1960	Elizabeth Wood,	-Physical design to reach social aims. -Relationship between security and physical design, enhancing the quality of life.	-Increasing the aesthetic qualities of the residential environment. - Residents presence and surveillance. - Improving the facades of buildings. - Creating gathering places. - Supervision of the area by inhabitants.
Eyes on the streets	1961	Jane Jacobs	-Relationship between security and physical environment spaces. -Emphasizing the diversity of activities. - Emphasizing Street neighborhoods self-government if they are physical, social, and economic continuities.	-Control over urban spaces by having a view of these spaces. - Creating different usages (mix use). - Clear differentiation between private and public spaces. -Sufficient dense concentration of people. -Enhancing the feeling of belonging and sense of place. -Strengthening the bonds between communities.
Eyes on the streets	1968	Shlomo Angel	Emphasize the importance of the physical environment in creating secure places.	-Mixed use - high intensity use of a location - specify ownership -Diverse activity.
1970s period				
CPTED	1971	Ray Jeffery	-Effects of the physical environment on security creation. -Emphasizing the social interaction between the users of spaces.	-Natural surveillance. -Natural Access control points by reducing isolated spaces. -Territorial reinforcement. -Image. -Legitimate activity support. -Target hardening. -Management and maintenance (green area, good lighting), (preserving the city façade, selection of suitable finishing materials, achieving social justice, strengthen social relation). -Enhance social cohesion.

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School/theory	Year	Theorists	Principles	Solution
Defensible Space	1972	Oscar Newman	-Modification of the physical structure of a residential area (physical arrangement), including streets, open spaces around buildings, and interior spaces. -Emphasis on public participation. -Social interactions among residents.	-Hierarchy of spaces from public down to private spaces. -Natural surveillance. - Creating play areas and places for social gatherings. - Territoriality -Creating sense of ownership.
Pattern language	1978	Christopher Alexander	Relationship between security environment and physical design, emphasizing to control the spaces.	-Mixed land use. - Hierarchy of spaces. -Social interaction.
1980s period				
Broken Window	1982	George Kelling & James Q. Wilson.	-Focus on the inhabitants' awareness of suspicious behaviors; protection of the environment; Environment as an indicator for social cohesion and unofficial control. -Emphasizing maintenance.	-Importance of lighting and protection of signs in the area. -Regard for the quality of living environment. -Increasing spatial territory, social wealth, as well as a public sense of environmental protection among the inhabitants.
Defensible Space	1985	Alice Coleman	The relationship between building design, human behavior, and sense of security. It was about the land use and the principles of designing secure and safe.	-Hierarchy of spaces from public down to private spaces. -Natural surveillance. -Mix use.
1990s period				
Safer cities	1995	Wekerle and Whitzman	The evolution of CPTED from ‘‘defensible space’’ architecture and physical security into more of an urban planning approach.	- Awareness of the environment. - Visibility by others. - Appropriate lighting. - Promoting sightlines. - Land-use mix. - Sense of ownership.
Prevention theory	1997	Ronald V. Clarke	Emphasize the importance of the physical environment in creating secure places.	Access control, controlling facilitators, entry/exist screening, natural surveillance, identifying property, controlling

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School/theory	Year	Theorists	Principles	Solution
				disinhibitions, facilitating compliance.
Architecture of Fear	1997	Nan Ellin	Emphasize the improving positive sense of community.	-Sense of attachment. -Interaction between individuals.
Neighborhood Collective Efficacy theory:	1997	Robert Sampson and Felton Earls	Controlling neighborhood structural characteristics.	-Social cohesion. -Social Interaction. - Cleaning up litter and graffiti. -Repairing and restoring dilapidated houses.
second generation CPTED	1998	Greg Saville & Gerry Cleveland	Emphasizing social, culture, emotional needs of people.	-Social cohesion. -Connectivity. -Community culture. -Threshold capacity.
Secured by Design	2000	Rachel Armitage	Emphasize the importance of the physical environment in creating secure places.	- Surveillance - Access/Egress - Territoriality -Management and Maintenance.
Improving Urban Security through Green Environmental Design	2011	UNICRI. Carlo Ratti ,Maurizio Cadeo ,Francesco Cappè, Alberto Contaretti	The relationship between security and city image, emphasizes the need to provide a secure environment through environmental design.	-Design adequate public spaces for gathering and activities. -Provide sufficient green spaces. - Mixed-use instead of single-use. -Management and maintenance -Natural surveillance by providing streetlight at night. - Providing an adequate and efficient service facilities. -Enhancing natural surveillance.

2.4 Planning, design criteria for assessing security in urban spaces

Researchers suppose that the surrounding environment is one of the most crucial and influential aspects influencing security (Rahmania & Zarandib, 2015). U.N. Habitat (2007) claimed that bad urban planning, design, and administration are increasingly being blamed for generating metropolitan settings that put residents and property in danger (Habitat, 2007). All the theories that have been researched and developed by urban planners, architects, and sociologists, who have studied urban problems, have tried to find solutions and apply them realistically to the urban spaces that make up the urban fabric of the city as they solve common problems regarding crime prevention in cities and find successful design, planning, and social solutions that lead to the availability of security and a sense of safety. All theories and propositions presented solutions in order to prevent crime by evaluating criminal behavior through design, planning, and social analysis for urban spaces, and they are done through the following: **Diversity of activity, Accessibility (access control), Adequate lighting, Natural Surveillance, Territorial Reinforcement and Maintenance.** Thus, the most

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important criteria and sub-criteria that are related to security in urban spaces are shown in the table (See Table 2):

Table 2: Summary of the most effective planning and design criteria for improving security in urban spaces according to the previous studies (Source: Researcher).

No	Criteria	Sub-criteria	References/Researchers
01	**Diversity of activity**	- Compatibility mixed-use provides residents with adequate daily needs (combination of housing, retail, medical, and commercial). - Availability of a sufficient quantity of service facilities.	(Jacobs, 1961), (Angel, 1968), (Newman, 1972), (Alexander, 1977) and (Wekerle & Whitzman, 1995), (Carlo Ratti, 2011), (Rezaeifar, 2012),(Saleh, 2001),(Kahkha & Kahrazeh, 2014), (Jakaitis, 2015), (Mohseninia, 2013), (Addata, 2021),
02	**Accessibility (access control)**	- Limiting entry and exit points. -Vehicle access restrictions (speed control). - Availability of diverse activities across public spaces. - Availability of opportunities for pedestrian-only routes. - Dependence on the multiplicity of closed-ended paths (cul-de-sac, courtyard, or loop). - Availability of street numbers that are plainly visible and legible from the streets or roads. -Using numbers, signs, and symbols to identify residential housing units, and other buildings. -Availability of signs that assist people in finding their way and wayfinding.	(Jeffery, 1977), (Clarke, 1992), (Armitage, 2000), (Saleh, 2001), (bahammam, 2007), (Smith, 2011), (Rahmania & Zarandib, 2015), (Rahimi, 2020), (Cai & Wang, 2009), (Addata, 2021), (Capetowngov, 2014), (Northampton, 2021), (Sayed, 2019), (Saleh, 2001), (Daroudi & Sami, 2017),(bahammam, 2007), (Rahmania & Zarandib, 2015).
03	**Adequate lighting**	- Adequate nighttime illumination (routes, public spaces, paths, and signs should be well and evenly lit).	(Wekerle & Whitzman, 1995), (Naghibi et al., 2015),(Kahkha & Kahrazeh, 2014),(Rahmania & Zarandib, 2015), (Wilson & Kelling, 1982), (Carlo Ratti, 2011), (Naghibi et al., 2015),(Rahmania & Zarandib, 2015), (Addata, 2021).
04	**Natural Surveillance**	-Appropriate diversity, activity, and mixed uses. -Design windows and fences that maximize natural surveillance from	(Wood, 1961),(Jacobs, 1961),(Cozens & Love, 2015),(Newman, 1972), (Jeffery, 1977), (Clarke, 1992), (Saleh, 2001), (Ng, 2009),

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		the streets to the buildings and from the buildings to the streets. -Using appropriate lighting to support natural surveillance.	(Lewicka, 2010), (Armitage, 2000), (Cozens & Love, 2015), (Rezaeifar, 2012),(A. Yazdanfar, Ghaemmaghami, & Ahmadpour, 2013),(Rahimi, 2020), (Addata, 2021), (Capetowngov, 2014), (Northampton, 2021).
05	**Territorial Reinforcement**	- Clearly defining space ownership and clear function of spaces (Separation between public, semi-public, semi-private, and private). -Private space is not open to the public.	(Newman, 1972), (Jeffery, 1977), (Alexander, 1977),(Wekerle & Whitzman, 1995),(Armitage, 2000),(Rezaeifar, 2012),(Jakaitis, 2015),(A. Yazdanfar et al., 2013), (Rahimi, 2020), (Addata, 2021), (Capetowngov, 2014), (Northampton, 2021), (bahammam, 2007).
06	**Maintenance**	- Well-kept paths and walkways. - Well-kept façades of the buildings. - The absence of unused or abandoned plots that have been neglected. - The absence of vacant, neglected, unoccupied buildings. -Availability of green areas, parks, and squares for seating and gathering within walking distances. -Human scale, the proportion of spaces' dimensions to the height of buildings. - Availability of urban furniture in public spaces.	(Wood, 1961), (Newman, 1972), (Wilson & Kelling, 1982), (Coleman, 1985),(Sampson, Raudenbush, & Earls, 1997), (Sampson & Raudenbush, 1999),(Armitage, 2000), (Alexander, 1977), (Jeffery, 1977), (Carlo Ratti, 2011),(Rezaeifar, 2012),(Naghibi et al., 2015), (Kahkha & Kahrazeh, 2014), (Smith, 2011), (Rahmania & Zarandib, 2015), (A. Yazdanfar et al., 2013), (Rahimi, 2020), (Addata, 2021), (Capetowngov, 2014), (Northampton, 2021), (Arbab & Saedi Monfared, 2019), (Mohseninia, 2013), (Ahmed, 2008), (Kameli et al., 2016), (Daroudi & Sami, 2017).

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3. RESEARCH DESIGN AND METHODOLOGY

3.1 Methodology

In this paper, a mixed-method approach was used, combining qualitative and quantitative methods for data collection as well as the analysis. This research comprehensively assesses the state of security in two neighborhoods of Sulaimani in the six main identified security criteria that were taken from theses, papers, current international experience, and theoretical frameworks related to the concepts that concern the research which extracts the following: diversity, access control, lighting, natural surveillance, territoriality, and maintenance criteria and their sub-criteria that will be used for analyzing and investigating in the selected study areas. The research was carried out in Sulaimani city. Two case study neighborhoods have been selected (Malkandi and Chwarchra). They have different urban structures. The rationale behind the selection of these case study areas, as well as detailed descriptions, are provided bellow.

3.1.1 Reliability and validity

The researcher consulted experts in the field of urban planning and architects on the validity and reliability (Allen & Yen, 2001) of the criteria and their sub-criteria as well as the paragraphs of questions in the questionnaire that were extracted in this study. For this purpose, all the criteria and their sub-criteria were presented to five experts. The selection of participants was based on their expertise in urban planning and design, building design, and master planning. As a result, after several scientific and academic discussions, the questions and criteria that obtained apparent validity with a score of 90 have been approved.

3.1.2 Data Collection Methods

Data for this research was collected from four primary sources: document review, field observations, interviews, and a survey questionnaire. Two types of research methods (qualitative and quantitative) were used within the study areas to collect data.

3.1.3 Survey Questionnaires

A survey questionnaire was used in this research to help offer answers to the research questions. The survey collected and analyzed quantitative and qualitative data from the two case studies in Sulaimani City concerning the security criteria and their sub-criteria, which are diverse activities, accessibility, lighting, natural surveillance, territoriality, and maintenance. The survey helped with comparing the level of security in each neighborhood. The total number of completed questionnaires across the two case study areas was 356 (65 from Malkandi and 291 from Chwarchra). The sampling method was random. The questions were a mix of categorical, 5-point Likert-scale, and close-ended questions. Furthermore, the written consent form was signed by the residents, following the requirements of research ethics. The data collection was undertaken at different times of the day, stretching from 10:00 a.m. to 6:00 p.m. during the spring season of 2023. For the distribution of the survey questionnaire, the researcher employed the assistance of four people.

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3.1.4 Data Analysis

After completing the questionnaire and assessing the responses, the data from the survey questionnaires were coded into SPSS software for descriptive statistical analysis. The questionnaire contains a set of items (questions), which are distributed into seven main sections according to the finding criteria and their sub-criteria as follows: **Diversity of activity**: in the analysis, it has the symbol (X1) and consists of two items (questions). Which are symbolized by the following (X11 and X12). **Accessibility:** in the analysis, the symbol (X2) was placed for it and consists of six items. Which are symbolized by the following (X21, X22, X26). **Adequate lighting:** in the analysis, the symbol (X3) was placed for it and consists of two items. Which are symbolized by the following (X31 and X32). **Natural surveillance:** in the analysis, the symbol (X4) was placed for it and consists of six items. Which are symbolized by the following (X41, X42, X46). **Territorial reinforcement:** in the analysis, the symbol (X5) was placed for it and consists of three items.

Which are symbolized by the following (X51, X52, and X53). **Maintenance:** in the analysis, the symbol (X6) was placed for it and consists of six items. Which are symbolized by the following (X61, X62, X66). The questionnaire data was unloaded and analyzed through the Statistical Package for the Social Sciences, which is abbreviated as SPSS, and based on the nature of the research and the objectives that the research seeks to achieve, the data of this research were analyzed using statistical methods, and this includes the use of tables of frequencies, percentages.

3.2 Study Area

The research was carried out in Iraqi KRG/Sulaimani city or sometimes called Sulaymaniyah. Two neighborhood have been selected for analysis (traditional and new residential): the neighborhood of Chwarchra; and the neighborhood of Malkandi. Hereafter the two case study areas will be referred to as Chwarchra and Malkandi.

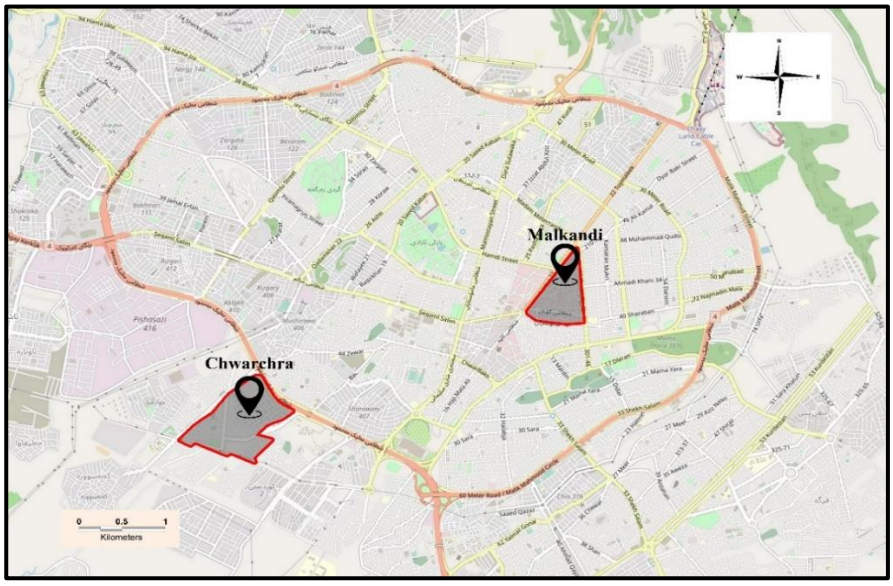

Figure 2: The map of Sulaimani city and two case study selection areas (Source: Google Map).

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3.2.1 Criteria Used to Select Case Study Areas

In terms of urban space, form, and structure, each of the two selected areas has a different urban design. Malkandi has a traditional compact organic arrangement form while Chwarchra has a gridiron arrangement form. Also in terms of age Diversity: Malkandi is a traditional and historical neighborhood located in the center of Sulaimani city while Chwarchra is the newest and most modern.

3.2.2 Boundaries of the Case Study Areas

Malkandi

Malkandi is deemed to be the oldest neighborhood in the city, a traditional and historical neighborhood located in the center of the city with an area of 397,444 square meters (39.744 hectares), with cover 900 families.

This neighborhood is still holding the traditional characteristics of the old city. It has compact organic morphological elements with mixed ownership patterns of religious, residential, commercial, administration, entertainment activities, and light industrial buildings. Such patterns were applicable for even medical centers and schools, so the area formed as a mixed-use that contains the daily, necessary, and public necessities of city inhabitants. Commercial activities covered about 45% and residential activities is about 39% of the total area of the selected site. (See Figure 3).

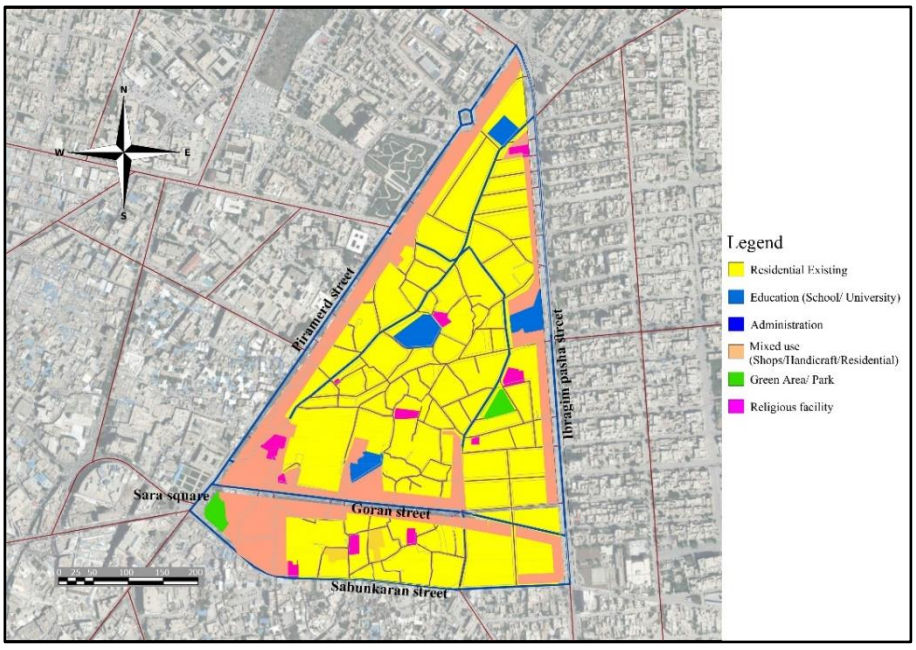

Figure 3: Malkandi Neighborhood, satellite image, and site layout (Source: Sulaimani Municipality).

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Chwarchra

Chwarchra is deemed to be one of the modern neighborhoods in the city. It is in the southwest part of the city and has an area of 1,166,760 square meters (116.676 hectares), with cover 4000 families. Urban blocks are generally residential but accommodate some non-residential land uses such as educational, religious, commercial, and administrative.

The urban layout follows a gridiron-like pattern, with mainly one- or two-story houses. According to the site observation, commercial or mixed-use activities cover about 4% and residential is about 71% of the total area of the selected site, and the other lands are divided into roads and vacant lands. The site is bounded by Kurd City to the east, 60m Street to the north, the New Chwarchra residential complex to the west, and Kansuwra to the south (See Figure 4).

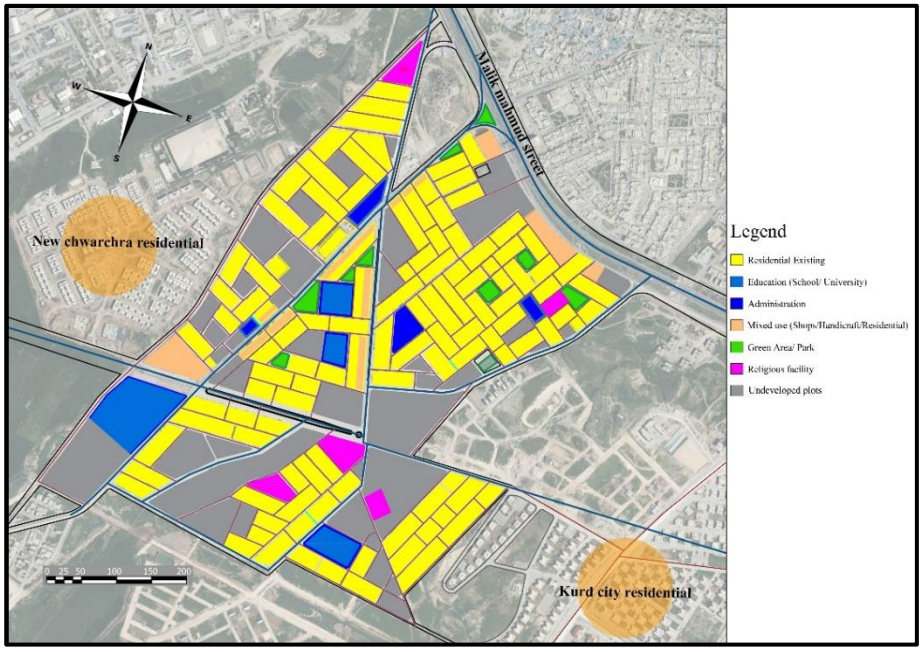

Figure 4: Chwarchra Neighborhood, satellite image, and site layout (Source: Sulaimani Municipality).

3.3 The population and the research sample

According to the nature of the research subject, the research population consists of (385) questionnaires, which have been distributed to all members of the samples (Chwarchra and Malkandi). The researcher was able to retrieve (371) questionnaires for the sample, which represent (96%) of the distributed forms, and after retrieving the questionnaire forms it was found that (15) of the forms retrieved were not valid for analysis, so those forms were excluded and (356) questionnaires valid for analysis and subject to research were kept, which represent (96%) of the recovered forms and (92%) of the forms distributed for the sample, it was also noticed that this sample (**356**) is confirmed by **Steven Thompson equation** in determining the size of a study sample from a population.

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Table 3: Distributed forms, retrieved forms, non-retrieved forms, and invalid forms for analysis.

	Distributed forms	Retrieved forms		Non-retrieved forms		Invalid forms for Analysis		Valid forms for Analysis	
		Count	%	Count	%	Count	%	Count	%
Chawrchra	310	300	97%	10	3%	9	3%	291	97%
Malkandi	75	71	95%	4	5%	6	8%	65	92%
Over All	**385**	**371**	**96%**	**14**	**4%**	**15**	**4%**	**356**	**96%**

Through Table 3, we note that the overall response degree for the categories of the research sample was (92%), and the percentage of forms valid for analysis was (96%), which is high and acceptable, which helps us to complete the research, and despite the presence of some difficulties encountered in the process of form retrieval, the response rate was very good, and this indicates the development of awareness and a spirit of cooperation among the researched samples, as well as the members of the research sample.

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

Formula 1: Steven Thompson equation (Thompson, 2012).

Where:

n: the desired sample size, N: Population size, Z: Confidence level at 95% (1.96), D: Error proportion (0.05), P: Probability (50%)

$$n = \frac{4900x0.5(1-0.5)}{\left[\left[4900-1x\left(\frac{0.05^2}{1.96^2}\right)\right]+0.5(1-0.5)\right]} = \frac{1,225}{3.438122} = 356.2991 \sim 356$$

3.4 Data analysis and results from the survey questionnaire

3.4.1Validity test: The validity of the questionnaire is intended to be able to measure what it has measured in order to achieve research objectives and answer its questions. The validity of the questionnaire's items has been verified through the following methods:

3.4.1.1. Content Validity: The content validity was tested by presenting the questionnaire to a group of specialized academic professors who have experience and knowledge in the fields of architecture and urban planning, and their number (5) academic, In order to consider their opinions about the accuracy, clarity, and suitability of its items, and the extent to which the sections represent what was set for measurement, the observations, and opinions of the majority of experts about the items of the questionnaire were taken into consideration, and thus the questionnaire came out in its final form as it appears in Appendix B to be applied to a sample search.

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3.4.1.2 The validity of the internal consistency of the items of the questionnaire (Internal Validity): Internal consistency honesty means the extent to which each item of the questionnaire is consistent with the field to which this item belongs. The internal consistency was verified by finding the correlation coefficient, which shows the degree of correlation between each item of the variable of the questionnaire, and the degree of the totality of the domain (of the variable) to which this item belongs. The results were positive, as the correlation coefficients indicated the existence of the internal consistency of the questionnaire as shown below:

Table 4: The validity of the internal consistency (Source: Researcher).

Items	Correlation Coefficient	Sig.
X1		
X11	.310**	0.000
X12	.340**	0.000
X2		
X21	.138*	0.019
X22	.311**	0.000
X23	.302**	0.000
X24	.195**	0.001
X25	.245**	0.000
X26	.251**	0.000
X3		
X31	.261**	0.000
X32	.309**	0.000
X4		
X41	.240**	0.000
X42	.169**	0.004
X43	.231**	0.000
X44	.281**	0.000
X45	.327**	0.000
X46	.193**	0.001
X5		
X51	.280**	0.000
X52	.163**	0.005
X53	.295**	0.000
X6		
X61	.418**	0.000
X62	.481**	0.000
X63	.414**	0.000
X64	0.095	0.105
X65	.364**	0.000
X66	.369**	0.000

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Table 4, shows the correlation coefficients between each item and the average of them, which indicates a significant correlation at a level of (0.05), i.e., a confidence rate of (0.95), as the significance level value for almost every item is less than (0.05). Thus, the items are considered true for what was measured in the sample.

3.4.2 Reliability test

The reliability of the questionnaire is intended to give the same results if it was applied several times to the same population and the research sample, that is, there is no significant difference in the results during a specific period of time and under the same conditions. The reliability of the questionnaire was verified by the Alpha Cronbach test, it was used to measure the reliability of the questionnaire, and the values of Cronbach's alpha are considered statistically acceptable when these values are equal to or greater than (0.60).

Table 5: Cronbach's alpha coefficient to measure the reliability of the questionnaire (Source: Researcher).

	Variables	Number of Items	Cronbach's alpha	validity coefficient
Over All	Chwarchra	28	0.604	0.777
	Malkandi	28	0.751	0.867

Table 5, shows the values of the reliability coefficient (Cronbach's alpha) and the validity coefficient. It is clear from the table that the value of the Cronbach's alpha coefficient was high for the overall questionnaire, and it is equal to (0.604) and (0.751) respectively for samples, and this means that the reliability coefficient of the questionnaire is high and is considered acceptable from a statistical perspective, as well as the value of validity was high for the overall questionnaire, which is (0.777) and (0.867) respectively for samples, which means that the validity coefficient of the questionnaire is high and is considered acceptable at a high level.

Through the above-mentioned steps, it was concluded that the questionnaire is in its final form, and thus the validity and reliability of the research questionnaire were confirmed, giving complete confidence in the validity of the questionnaire, and its validity to answer the research questions and test its hypotheses.

3.4.3 Participants' demography from the survey

The respondents who completed the survey in the Malkandi neighborhood were 44 percent male and 56 percent females. While surveying in the Chwarchra neighborhood, 48% of the 291 respondents were male and 52% were female (See Table 6). Regarding age level, as shown in Table 7, most of the participants in Malkandi were aged between 26 and 55 years old. The same is true in Chwarchra.

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Table 6: Surveyed percentage by gender (Source: Researcher).

Gender	Malkandi	Chwarchra
Male	44%	48%
Female	56%	52%

Table 7: Surveyed percentage by age group (Source: Researcher).

Age	Malkandi	Chwarchra
Less than 18	3%	3%
19-25	14%	16%
26-45	46%	33%
46-55	31%	29%
More than 56	6%	19%

As it is apparent from Table 8, in Malkandi, the vast majority (52%) were self-employed. In Chwarchra, more than half of them were employed by the government or company. Moreover, as shown in Table 9, many of the participants in Malkandi (91 %) owned their own homes. While (76%) of Chwarchra residents owned their own homes.

Table 8: Surveyed percentage by employment status (Source: Researcher).

Employment status	Malkandi	Chwarchra
Employed (government or company	17%	62%
Self employed	52%	24%
None employed	31%	14%

Table 9: Surveyed percentage by ownership status (Source: Researcher).

Ownership status	Malkandi	Chwarchra
Private property	9%	24%
Rent	91%	76%

5. Results, and Discussions

The frequencies, percentages, and relative importance of the responses in the study sample were calculated in order to determine the strength of each item in the section and its importance in relation to the section. As well as calculating the weighted mean to determine the direction of the items, the standard deviation was found in order to display the dispersion in the responses of the study sample for each item. The responses are interpreted according to the relative importance and the weighted mean. In such a way that, if the weighted mean is greater than the hypothetical mean of 3, meaning that the item is positive and the sample members agree on its content, as well, the items are negative, meaning that the sample members do not agree with their content if the weighted mean is less than the hypothetical mean. This applies to all items of the questionnaire, and from there, this part deals with a presentation or analysis of the information related to the research sections of the questionnaire, which are`

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5.1 Diversity of activity

Table 10: Means, SD and RI for Diversity of activity (Source: Researcher).

Sample	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	M	SD	CV	RI
		1	2	3	4	5				
Chwarchra	X11	115	68	51	36	21	2.24	1.29	57.33	44.88
		39.5%	23.4%	17.5%	12.4%	7.2%				
	X12	93	93	52	36	17	2.28	1.2	52.58	45.64
		32%	32%	17.9%	12.4%	5.8%				
Total		**208**	**161**	**103**	**72**	**38**	**2.26**	**1.21**	**53.47**	**45.26 %**
		35.7%	**27.7%**	**17.7%**	**12.4%**	**6.5%**				
Malkandi	X11	5	8	19	16	17	3.49	1.22	34.84	69.85
		7.7%	12.3%	29.2%	24.6%	26.2%				
	X12	4	7	25	15	14	3.43	1.12	32.73	68.62
		6.2%	10.8%	38.5%	23.1	21.5%				
Total		**9**	**15**	**44**	**31**	**31**	**3.46**	**1.15**	**33.22**	**69.23**
		6.9%	**11.5%**	**33.8%**	**23.8 %**	**23.8%**				

M: is Weighted Mean, SD: is Standard Deviation, CV: is Coefficient of Variance, RI: is Relative Importance.

Table 10, shows the weighted mean and standard deviation of each item of diversity of activity. The overall weighted mean for this variable is equal to (2.26) and the standard deviation is equal to (1.21) in the Chwarchra sample. The general direction of this variable is close to disagree, which indicates to the population responders that they disagree with the attention of the diversity of activity in the Chwarchra neighborhood, whereas the overall Relative Importance is (45.26%).

Each item individually can be summarized as follows: The item X12 (I'm satisfied with the meeting of my daily living needs in my residential neighborhood) has a highest weighted mean among the statements being rated by the study sample, which is equal to 2.28, with a standard deviation equal to 1.2, and this item indicates a Relative Importance of 45.64%. The item X11 (I'm satisfied with the diversity of services available, in particular schools, public transport services, health facilities, and shops within walking distance in this area) has the lowest weighted mean, which is equal to (2.24) with a standard deviation of 1.29, and this item indicates to (44.88%) of Relative Importance.

While the overall weighted mean for this variable is equal to (3.46) with a standard deviation of 1.15 in the Malkandi neighborhood, the general direction of this variable is close to agree, which is indicates that the population responders agree with the attention given to the diversity of activity in the sample of Malkandi, whereas the overall Relative Importance is (69.23%).

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5.2 Accessibility

Table 11: Means, SD and RI for Accessibility (Source: Researcher).

Sample	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	M	SD	CV	RI
		1	2	3	4	5				
Chwarchra	X21	111	86	58	18	18	2.13	1.17	55	42.54
		38.1%	29.6%	19.9%	6.2%	6.2%				
	X22	98	102	64	17	10	2.1	1.04	49.62	42.06
		33.7%	35.1%	22%	5.8%	3.4%				
	X23	87	97	53	35	19	2.32	1.2	51.87	46.39
		29.9%	33.3%	18.2%	12%	6.5%				
	X24	94	88	55	34	20	2.31	1.23	53.19	46.12
		32.3%	30.2%	18.9%	11.7%	6.9%				
	X25	85	87	67	23	29	2.4	1.26	52.47	47.9
		29.2%	29.9%	23%	7.9%	10%				
	X26	95	78	64	31	23	2.34	1.25	53.39	46.87
		32.6%	26.8%	22%	10.7%	7.9%				
Total		**570**	**538**	**361**	**158**	**119**	**2.27**	**0.54**	**23.83**	**45.32%**
		32.6%	**30.8%**	**20.7%**	**9%**	**6.8%**				
Malkandi	X21	6	8	18	15	18	3.48	1.27	36.42	69.54
		9.2%	12.3%	27.7%	23.1%	27.7%				
	X22	5	7	17	20	16	3.54	1.19	33.65	70.77
		7.7%	10.8%	26.2%	30.8%	24.6%				
	X23	3	5	16	18	23	3.82	1.14	29.76	76.31
		4.6%	7.7%	24.6%	27.7%	35.4%				
	X24	22	18	14	6	5	2.29	1.24	53.96	45.85
		33.8%	27.7%	21.5%	9.2%	7.7%				
	X25	19	20	13	8	5	2.38	1.24	51.85	47.69
		29.2%	30.8%	20%	12.3%	7.7%				
	X26	19	16	16	8	6	2.48	1.28	51.61	49.54
		29.2%	27.6%	24.6%	12.3%	9.2%				
Total		**74**	**74**	**94**	**75**	**73**	**3.00**	**0.78**	**26.02**	**59.95%**
		19%	**19%**	**24.1%**	**19.2%**	**18.7%**				

Table 11, shows the weighted mean and standard deviation of each item of Accessibility; the overall weighted mean for this variable is equal to (2.27) and the standard deviation is equal to (0.54) in the Chwarchra sample. The general direction of this variable is close to disagree, which indicates that the respondents in the Chwarchra neighborhood disagree with the attention given to accessibility, whereas the overall Relative Importance is 45.32%.

Each item individually can be summarized as follows: The item X25 (I'm satisfied with the street and housing unit numbers; they are clearly visible and I can read them) has the highest weighted mean among the statements being rated by the study sample, which is equal to 2.40, with a standard deviation of 1.26, and this item indicates a 47.9% Relative Importance. The item X22 (I feel secure when my children play outside, and I don't have to worry) has the lowest weighted mean, which is

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equal to (2.10) with a standard deviation of (1.04), and this item indicates (42.06%) of Relative Importance.While the overall weighted mean for this variable is equal to (3.00) with a standard deviation of 0.78 in the Malkandi neighborhood, the general direction of this variable is close to medium agreement, which is an indication to the population responders that they are close to agreeing with the attention of the accessibility in the sample of Malkandi, whereas the overall Relative Importance is 59.95%.

5.3 Adequate lighting

Table 12: Means, SD and RI for Lighting (Source: Researcher).

Sample	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	M	SD	CV	RI
		1	2	3	4	5				
Chwarchra	X31	96	102	51	26	16	2.19	1.15	52.52	43.78
		33%	35.1%	17.5%	8.9%	5.5%				
	X32	98	80	53	38	22	2.33	1.27	54.39	46.67
		33.7%	27.5%	18.2%	13.1%	7.6%				
Total		**194**	**182**	**104**	**64**	**38**	**2.26**	**1.16**	**51.3**	**45.22%**
		33.3%	**31.3%**	**17.9%**	**11%**	**6.5%**				
Malkandi	X31	19	18	15	7	6	2.43	1.26	52.02	48.62
		29.2%	27.7%	23.1%	10.8%	9.2%				
	X32	25	18	11	6	5	2.2	1.26	57.05	44
		38.5%	27.7%	16.9%	9.2%	7.7%				
Total		**44**	**36**	**26**	**13**	**11**	**2.32**	**1.23**	**53.12**	**46.31%**
		33.8%	**27.7%**	**20%**	**10%**	**8.5%**				

Table 12, shows the weighted mean and standard deviation of each item of adequate lighting. The overall weighted mean for this variable is equal to (2.26) and the standard deviation is equal to (1.16) in the Chwarchra sample. The general direction of this variable close to disagree, which is indicates that the respondents in the Chwarchra neighborhood disagree with the existence of adequate lighting at night in all streets and walkways, whereas the overall Relative Importance is (45.22%).

Each item individually can be summarized as follows: The item X32 (I'm satisfied with the availability of adequate lighting at night in all the walkways) has the highest weighted mean among the statements being rated by the study sample, which is equal to 2.33, with a standard deviation of 1.27, and this item indicates a Relative Importance of 46.67%. The item X31 (I'm satisfied with the availability of adequate lighting at night in all the streets) has the lowest weighted mean, which is equal to 2.19 with a standard deviation of 1.15, and this item indicates a Relative Importance of 43.78%. While the overall weighted mean for this variable is equal to (2.32) with a standard deviation of 1.23 in the Malkandi neighborhood, the general direction of this variable is close to disagree, which

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indicates that the respondents disagree with the existence of adequate lighting at night in all streets and walkways in the Malkandi neighborhood, whereas the overall Relative Importance is 46.31%.

5.4 Natural surveillance

Table 13: Means, SD and RI for Natural surveillance (Source: Researcher).

Sample	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	M	SD	CV	RI
		1	2	3	4	5				
Chwarchra	X41	78	76	86	29	22	2.45	1.2	48.85	49.07
		26.8%	26.1%	29.6%	10%	7.6%				
	X42	107	79	50	31	24	2.26	1.28	56.51	45.29
		36.8%	27.1%	17.2%	10.7%	8.2%				
	X43	50	51	96	49	45	2.96	1.28	43.39	59.18
		17.2%	17.5%	33%	16.8%	15.5%				
	X44	109	80	55	29	18	2.2	1.22	55.3	43.99
		37.5%	27.5%	18.9%	10%	6.2%				
	X45	63	69	94	36	29	2.65	1.23	46.24	53.06
		21.6%	23.7%	32.3%	12.4%	10%				
	X46	97	88	51	32	23	2.3	1.25	54.51	45.98
		33.3%	30.2%	17.5%	11%	7.9%				
Total		**504**	**443**	**432**	**206**	**161**	**2.47**	**0.56**	**22.66**	**49.43 %**
		28.9%	**25.4%**	**24.7%**	**11.8 %**	**9.2%**				
Malkandi	X41	8	9	19	15	14	3.28	1.28	39.16	65.54
		12.3%	13.8%	29.2%	23.1%	21.5%				
	X42	8	10	24	12	11	3.12	1.22	39.12	62.46
		12.3%	15.4%	36.9%	18.5%	16.9%				
	X43	7	10	14	19	15	3.38	1.29	37.98	67.69
		10.8%	15.4%	21.5%	29.2%	23.1%				
	X44	3	5	13	21	23	3.86	1.12	29.04	77.23
		4.6%	7.7%	20%	32.3%	35.4%				
	X45	3	6	14	20	22	3.8	1.14	29.99	76
		4.6%	9.2%	21.5%	30.8%	33.8%				
	X46	5	7	19	16	18	3.54	1.22	34.37	70.77
		7.7%	10.8%	29.2%	24.6%	27.7%				
Total		**34**	**47**	**103**	**103**	**103**	**3.5**	**0.81**	**23.16**	**69.95 %**
		8.7%	**12.1%**	**26.4%**	**26.4 %**	**26.4%**				

As seen in Table 13, the weighted mean and standard deviation of each item of natural surveillance, the overall weighted mean for this variable is equal to (2.47) with a standard deviation of (0.56) in the Chwarchra sample. The general direction of this variable is close to disagree, which indicates that the respondents in the Chwarchra neighborhood disagree with the attention of the natural surveillance item, whereas the overall Relative Importance is (49.43%). Each item individually can be summarized as follows:

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The item X43 (How do you rate visibility across the street from your house) has the highest weighted mean among the statements being rated by the study sample, which is equal to (2.96), with a standard deviation of (1.28), and this item indicates a value of (59.18%) in term of Relative Importance. The item X44 (If strangers are in the area, I can identify them easily) has the lowest weighted mean, which is equal to (2.2) with a standard deviation of (1.22), and this item indicates (43.99%) of Relative Importance. While the overall weighted mean for this variable is equal to (3.5) with a standard deviation of (0.81) in the Malkandi sample, the general direction of this variable is close to agree, which is indicates that the respondents agree with the attention of the Natural Surveillance in the Malkandi neighborhood, whereas the overall Relative Importance is (69.95%).

5.5 Territorial reinforcement

Table 14: Means, SD and RI for Territorial reinforcement (Source: Researcher).

Sample	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	M	SD	CV	RI
		1	**2**	**3**	**4**	**5**				
Chwarchra	**X51**	67	52	96	41	35	2.74	1.29	46.92	54.85
		23%	17.9%	33%	14.1%	12%				
	X52	50	49	119	44	29	2.84	1.17	41.38	56.77
		17.2%	16.8%	40.9%	15.1%	10%				
	X53	104	77	67	20	23	2.25	1.23	54.73	44.95
		35.7%	26.5%	23%	6.9%	7.9%				
Total		**221**	**178**	**282**	**105**	**87**	**2.61**	**0.78**	**29.89**	**52.19 %**
		25.3%	**20.4%**	**32.3%**	**12%**	**10%**				
Malkandi	**X51**	4	7	19	17	18	3.58	1.18	32.79	71.69
		6.2%	10.8%	29.2%	26.2%	27.7%				
	X52	4	6	12	17	26	3.85	1.22	31.67	76.92
		6.2%	9.2%	18.5%	26.2%	40%				
	X53	9	11	18	14	13	3.17	1.31	41.26	63.38
		13.8%	16.9%	27.7%	21.5%	20%				
Total		**17**	**24**	**49**	**48**	**57**	**3.53**	**0.89**	**25.19**	**70.67 %**
		8.7%	**12.3%**	**25.1%**	**24.6 %**	**29.2%**				

Table 14, shows the weighted mean and standard deviation of each item of Territorial reinforcement. The overall weighted mean for this variable is equal to (2.61) and the standard deviation is equal to (0.78) in the Chwarchra neighborhood. The general direction of this variable close to medium agree, which indicates that the respondents are close to agreeing with the attention of the Territorial Reinforcement in the Chwarchra, whereas the overall Relative Importance is (52.19%). Each item individually can be summarized as follows: The item X52 (How do you rate your privacy from your house to the public spaces) has the highest weighted mean among the statements being rated by the study sample, which is equal to (2.84), with a standard deviation of (1.17), and this item indicates a (56.77%) Relative Importance. The item X53 (All the spaces in my area have a clear function and are designed for a purpose) has the lowest weighted mean, which is equal to (2.25) with a standard deviation of (1.23), and this item indicates (44.95%) Relative Importance.

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While the overall weighted mean for this variable is equal to (3.53) with a standard deviation of (0.89) in the Malkandi sample, the general direction of this variable is close to agree, which is indicates the respondents agree with the attention of the Territorial Reinforcement in the Malkandi neighborhood, whereas the overall Relative Importance is (70.67%).

5.6 Maintenance

Table 15: Means, SD and RI for Maintenance (Source: Researcher).

Sample	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	M	SD	CV	RI
		1	2	3	4	5				
Chwarchra	X61	26	19	99	78	69	3.5	1.18	33.71	69.97
		8.9%	6.5%	34%	26.8%	23.7%				
	X62	38	37	101	60	55	3.2	1.25	39.25	63.92
		13.1%	12.7%	34.7%	20.6%	18.9%				
	X63	36	39	53	100	63	3.4	1.3	38.2	67.9
		12.4%	13.4%	18.2%	34.4%	21.6%				
	X64	106	81	55	29	20	2.23	1.23	55.23	44.6
		36.4%	27.8%	18.9%	10%	6.9%				
	X65	112	108	39	18	14	2.02	1.09	54.28	40.34
		38.5%	37.1%	13.4%	6.2%	4.8%				
	X66	118	102	40	16	15	2	1.11	55.48	39.93
		40.5%	35.1%	13.7%	5.5%	5.2%				
Total		**436**	**386**	**387**	**301**	**236**	**2.72**	**0.7**	**25.71**	**54.44 %**
		25%	**22.1%**	**22.2%**	**17.2 %**	**13.5%**				
Malkandi	X61	17	18	17	8	5	2.48	1.22	49.12	49.54
		26.2%	27.7%	26.2%	12.3%	7.7%				
	X62	28	17	13	4	3	2.03	1.14	55.96	40.62
		43.1%	26.2%	20%	6.2%	4.6%				
	X63	18	20	15	7	5	2.4	1.21	50.53	48
		27.7%	30.8%	23.1%	10.8%	7.7%				
	X64	17	14	19	9	6	2.58	1.26	48.89	51.69
		26.2%	21.5%	29.2%	13.8%	9.2%				
	X65	26	19	11	5	4	2.11	1.19	56.52	42.15
		40%	29.2%	16.9%	7.7%	6.2%				
	X66	22	17	13	7	6	2.35	1.29	54.98	47.08
		33.8%	26.2%	20%	10.8%	9.2%				
Total		**128**	**105**	**88**	**40**	**29**	**2.33**	**0.94**	**40.42**	**46.51 %**
		32.8%	**26.9%**	**22.6%**	**10.3 %**	**7.4%**				

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Table 15, reveals the weighted mean and standard deviation of each item of Maintenance; the overall weighted mean for this variable is equal to (2.72) with a standard deviation equal to (0.70) in the Chwarchra sample. The general direction of this variable is close to medium agreement, which is indicates that the respondents in this neighborhood are close to agreeing with the attention to Maintenance in the Chwarchra, as well as the overall relative importance is (54.44%). Each item individually can be summarized as follows: The item X61 (The paths and walkways in my area are well-kept and clean) has the highest weighted mean among the statements being rated by the study sample, which is equal to (3.5), with a standard deviation of (1.18), which is expressing a moderate-level role of this item in the study, and this item indicates to (69.97%) of Relative Importance.

The item X66 (I'm satisfied with the availability of green areas, parks, and squares in our public spaces) has the lowest weighted mean, which is equal to (2.00) with s standard deviation of (1.11), and this item indicates to (39.93%) of Relative Importance. While the overall weighted mean for this variable is equal to (2.33) and the standard deviation is equal to (0.94) in the Malkandi sample, the general direction of this variable close to disagree, which is indicates that the respondents in this neighborhood are disagree with the attention to the Maintenance, whereas the overall Relative Importance is (46.51%).

5.7 Results of t-test for comparisons between samples (Chwarchra and Malkandi) according to security criteria:

The results of the t-test performed on each sample of Chwarchra and Malkandi are shown below**.** The interpretation of the scores will be given, and then relevant tests that are run to compare the relative effectiveness of each sample will be explained.

Table 16: t-test for comparisons between samples (Source: Researcher).

Sections	Mean Difference	t	df	Sig.	95% Confidence Interval of the Difference	
					Lower	Upper
X1	-1.199	-7.249	354	0.000	-1.524	-0.873
X2	-0.732	-8.915	354	0.000	-0.893	-0.570
X3	-0.054	-0.335	354	0.738	-0.373	0.264
X4	-1.026	-12.129	354	0.000	-1.193	-0.860
X5	-0.925	-8.350	354	0.000	-1.143	-0.707
X6	0.397	3.845	354	0.000	0.194	0.600
Over All	**-0.556**	**-10.826**	**354**	**0.000**	**-0.658**	**-0.455**

As we can see in the output data, there is a difference between sample of Chwarchra and Malkandi. Therefore, in order to verify whether this difference is statistically significant or not, the data were analyzed via SPSS software program (version 28) to compare the means of the sample of Chwarchra and Malkandi by means of running t-test.

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The result of the test revealed that there is a statistically significant difference between the means of the sample of Chwarchra and Malkandi according to all security criteria except of third criterion (Adequate lighting (X3)) at the level of (α=0.05), from Table 4.9 it is noted that the all P-value (Sig.) are smaller than the level of significant (α=0.05) except the p-value of third criterion which is greater than the level of significant (α=0.05), means that, there is a statistically significant difference between the means of the two sample (Chwarchra and Malkandi) from the above security criteria except third criteria.

According to the inhabitants' ratings, Malkandi neighborhood outperforms Chwarchra neighborhood on five criteria: diversity of activity, accessibility, natural surveillance, territorial reinforcement, and social interaction, as shown in Table 17. Chwarchra outperforms Malkandi only on the maintenance criterion. Moreover, both neighborhoods have poor lighting performance scores.

Table 17: Summary of the case studies' performance across the seven criteria **(Source: Researcher).**

Criteria	**Malkandi neighborhood**		**Chwarchra neighborhood**	
	Mean scores	**Relative importance**	**Mean scores**	**Relative importance**
Diversity of activity	3.46	69.23%	2.26	45.26%
Accessibility	3.00	59.95%	2.27	45.32%
Adequate lighting	2.32	46.31%	2.26	45.22%
Natural surveillance	3.50	69.95%	2.47	49.43%
Territorial reinforcement	3.53	70.67%	2.61	52.19%
Maintenance	2.33	46.51	2.72	54.44%
Average	**3.02**	**60.43%**	**2.43**	**48.64%**

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Conclusions

The need for security and comfort are among the fundamental demands of human being. Establishing the security of the populace in urban areas is of great importance as a welfare assessment criterion today. There is a connection between urban security, urban planning, and design knowledge. By offering the right context, urban planning and design may increase the number of people in a given area. As a result, public surveillance will reduce incorrect behaviors from happening and increase security in urban spaces. This study systematically evaluated the state of security in the two residential areas in Sulaimani city (one of which is traditional and the other is modern) through analyzing their planning and design features and observations across six main security criteria (diversity, accessibility, lighting, natural surveillance, territorial reinforcement, and maintenance).

Statistical techniques were used to process the criteria. These criteria that are extracted in this research from the literature, international experience guidelines for urban security, and theories like "Defensible Spaces" and "Crime Prevention by Environmental Design (CPTED)" that have been developed by social scientists and architects like Oscar Newman, Jane Jacobs, Shlomo Angel, and others, are a relatively new approach to reducing crime incidence and other social problems. By applying the principles of these approaches to the redesign of the internal space of a residential area, security will be enhanced and promoted. As a result, the quality of life will evolve as well. The research findings reveal that the traditional neighborhood of Malkandi has a compatible mix of uses, accessibility, acceptable natural surveillance, adequate territoriality reinforcement. It is more active, walkable, as well as more legible, and shows a relatively better performance compared to the modern Chwarchra neighborhood. However, there are some shortcomings in the Malkandi neighborhood, which are as follows: Shortage of availability of street numbers, signs, and symbols to identify residential housing units and wayfinding. Inadequate night-time lighting. The paths and façades of the buildings are not well-kept properly. Several abandoned and neglected buildings. Lack of appropriate parks and green spaces and Lack of urban furnishing.

Overall, the research findings show that, despite the shortcomings of some of the security criteria within the case study area, Malkandi (traditional) featured more of the security criteria than Chwarchra (modern). In addition, the results suggest that the use of urban space planning and design, as found in Malkandi, is an acceptable strategy for use in other areas of Sulaimani, including Chwarchra. Furthermore, the results of this analysis are based on fieldwork and a questionnaire administered in the case study areas.

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