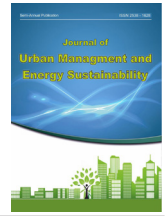


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## ORIGINAL RESEARCH PAPER

### Operational indicators of sustainable urban development in suburban areas (Case study: District 22)

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#### ABSTRACT

The growth of the urban population and the increase in migration to the cities has led to the uncontrollable development of urban areas, a decrease in the level of human well-being, reaching the suburbs and the emergence of many problems for various city managers. has become urban planners and designers. One of the important topics related to urban issues is the concept of sustainable urban development, which is considered a development based on real needs and rational decisions. With this approach, the aim of this research is to investigate the amount of sustainable urban design indicators derived from the Iranian city model. The type of research is applied in terms of its purpose and descriptive-analytical in terms of its method, and it tries to answer the question "to what extent can the components of sustainable urban design derived from the Iranian city model be applied in Tehran metropolis and peri-urban areas. recreated and adapted?" The research results show; Since the most important component in Iranian neighborhoods is social solidarity and ecological sustainability and adaptation to nature; The body is also formed in response to this feature. According to the conducted investigations, in terms of dimensions, physical indicators and standards of sustainable urban design, District 22 has the potential to redefine sustainability criteria within itself as a suburban area. In this regard, in order to achieve sustainable development, local institutions and people should be involved in the issue, and this requires the creation of civil societies.

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## 1. INTRODUCTION

Since about 150 years ago, our planet has enjoyed a rapid transformation rate that is unprecedented in the history of mankind. The emergence of the industrial revolution in the 19th and 20th centuries, the patterns of human development and the high rate of consumption of vital resources, have made the world face extensive changes and made us use the available natural resources as we please to meet our needs. Of course, this rapid change has had many positive effects, but the issues and problems that the industrial revolution has solved have been replaced by a new set of bigger problems. The fascination of societies with the unlimited use of technology and new technologies is an unpleasant current that has caused problems and crises such as the destruction of the environment, the thinning of the ozone layer, and common class differences. It can be said that these problems are mostly caused by technology and industry technologies surpassing the awareness and culture of the people, also the negligence of architectural experts, designers and urban planners in controlling and correctly guiding the society in exploiting the available resources added to these problems. Is. The purely economic and opportunistic view, the lack of attention and proper understanding of the conditions and the number of available resources have caused alarm bells to be sounded in relation to sustainable development on the planet and have caused instability in urban development to become the most important challenge of the third millennium. And this is the reason that many ideas, theories and guidelines have been proposed in relation to sustainable urban development, but unfortunately, in many cases, little attention has been paid to the implementation of these ideas, and due to this sustainable development in many stages is limited to theory and slogans. Remains. Finally, the process of urban changes at the end of the 20th century has gained a high intensity and speed, and the gradual changes in the society

have given way to sudden, unforeseen and irreversible changes. According to many writings, from the point of view of experts, sustainability was one of the important aspects of the urban system in ancient Iran; which is currently faced with fundamental challenges both practically and structurally. In the last hundred years, with the resulting changes in the social and economic structure of the society, the coherence of the past gradually lost color. It is obvious that the development and growth of any society are achieved as a result of the correct management model, conscious design and planning, and formulation of sustainable development principles, policies and strategies, but if these policies are not implemented, if there is any development at all. It will definitely not be sustainable. Therefore, it can be said that in order to achieve the desired result, sustainable development must be able to reach the stage of action using a purely theoretical state or be transformed from a potential state to an actual state. According to the issues raised; The main issue of this research is: Is the Iranian sustainable city model destroyed or can it be recognized and explained in metropolises like Tehran? Since the goal of sustainable urban design is to improve the quality of the environment, urban designers, managers and specialists in this matter in the field of theory and practice, instead of being passive and feeling nostalgic for the past, should take a practical action and make a firm decision to sustainable urban design in metropolises. . In linking theory with practice, attention is paid to how these principles affect a wide range of spatial scales such as building, space, neighborhood and the extent of the settlements. Also, by fully investigating the issue of how and by whom it is possible to realize more sustainable patterns in design; It is very important. This historical discontinuity requires that urban designers either present a new model regardless of the principles, rules and historical roots, or recognize the veins and roots of the past culture and history and provide an intermediate model of distance and the roots

of culture. Connect Iranian with modern bodies and lifestyle today and provide an eco-friendly model regarding the model of sustainable urban design. Despite the lack of attention paid to native Iranian elements in the creation of worthy urban environments and spaces derived from Iran's urban values and traditions in recent decades, it seems that due to the existence of social capacities and the basis of participation in the core of Iranian society, the capacity for regeneration There are sustainable urban design components derived from the Iranian city model in Tehran metropolis. This paper emphasizes that; Since the most important component in Iranian neighborhoods is social solidarity and ecological sustainability and adaptation to nature; The body has also been formed in response to this characteristic, and according to the analysis of the opinions of Iranian experts, experts and popular questionnaires, regardless of whether these indicators are forced and hard to live in nature or are a conscious choice, anyway the title is considered an important feature. Its continuation in new residential complexes and according to the new theories of urban planning is considered a capacity in today's world in the field of urban design. According to expert observations from the point of view of urban design and public questionnaire, district 22 has the potential to redefine sustainability criteria in terms of dimensions, physical indicators and standards of sustainable urban design as a peri-urban area.

## **MATERIALS AND METHODS**

An overview of the indicators, characteristics and components of the Iranian city according to the principles of sustainability

Definitions and terms such as Islamic city, Islamic urban planning, Muslim city, Islamic period city and Iranian-Islamic city are widely used in the literature of Iranian city and urban planning, and sometimes they are used interchangeably. In the model of the Iranian-Islamic city, Islam is the dominant factor, and this city is influenced by faithful and Muslim Iranian citizens who give

it identity, and the urban development and the body of the city are organized based on special religious and Islamic models and standards, which requires appropriate management. Demanded and will have a meaning and spirit that reveals the identities of the city. One of the identifying indicators of the Iranian-Islamic city is the issue of social cohesion and solidarity. (Bamanian, 2014) The former cities of Iran are the narrators of the power of the governments, the ideology ruling the society and the way of interactions and social actions. Unlike the European city, the Iranian city does not have an independent and autonomous existence, and in many ways, it has been the interpretation of the power relations in the macro-social-political structure that governs Iran. (Maarofi, 2014)

The identity of the body and the social and cultural identity of the society mutually affect each other. The abundance of values that shape physical identity shows the richness of social and cultural life in the city. Because the common identity is the buildings that are formed by the localization of social life. Researchers consider culture, beliefs and way of life to be the most determining factors in the formation of architecture. Therefore, it goes without saying that architecture with a social sustainability approach derives from the ideology of the people of the society within the geographical limits and around them. Therefore, the physical construction of a city, which is built by considering the cultural and ideological conditions governing human societies and provides a suitable container to respond to such needs, will have more chance to create a sense of belonging and interest of the audience. By living in such spaces that conform to the culture and behaviors of the community and provide quality standards of life, people and architecture are strengthened and the culture of public perception towards architecture and urban planning is improved. (Isaizadeh, 2016)

In Iranian cities, physical integrity is a concept that has a conceptual affinity with concepts such as unity, harmony, connection, connection and

continuity in theoretical texts. It is also one of the most important characteristics of the historical context of cities with organic growth, especially in cities with hot and dry climate. In general, the city is an integrated whole whose parts are related to each other, and in particular, the best example of integration in all its dimensions is in the historical contexts of cities with organic growth, especially cities with hot and dry climates such as Yazd and Isfahan with their interconnected contexts. It is tangible and visible. (Emami and Zebardast, 2013) Iranian cities have a special geographical unity in their structure. Dead ends, alleys, crossings and neighborhood centers have joined hands with public elements and give existence to the neighborhood. Each of these components has its own characteristics, which are very important in terms of the traditional fabric of cities. Elements and spaces such as bazaars, mosques, bathhouses, taverns, water reservoirs, and in some prestigious neighborhoods, caravanserais and squares, and in Iranian cities, sometimes Zorkhanehs, have been created to meet the needs of the residents of each neighborhood, and in fact, it has given relative independence in their lives. The components of the neighborhood were residential houses, dead ends, alleys, and finally the public facilities of the center of the neighborhood such as mosques, places of worship, bazaars, baths, reservoirs, and sometimes coffee houses. The aforementioned elements were evenly distributed throughout the city and had a limited sphere of influence and performance. The last point of influence and area of operation of these elements was the border of the neighborhoods. (Daneshpur and Shiri, 2014) Regardless of the fact that collectivism, social cohesion and social solidarity in Iranian cities are by choice or by necessity and compulsion, the researcher considers this feature positive and the evidence shows that this feature has improved the environmental quality at the local level. On the other hand, the discussion of modernization in Iran is a discussion that has remained completely limited to words and only elements of it

have been consciously experienced, which mostly have a physical aspect. Therefore, according to the background of sociology in Iran and the events of the modern world in the contemporary era and the change in lifestyle, the Iranian people must learn to participate and start collective construction. These same positive concepts that exist in Iranian culture, regardless of whether it is due to compulsion or interest, should be continued and become a universal mission in accordance with the new patterns of life.

Apart from the political administrative position, the Iranian city has also been the place of ritual and religious ceremonies. The influence of the phenomenon of religion in ancient cities was such that it played a fundamental role in establishing and shaping the social, economic and commercial relations of the city. (Yousefi Far, 2010) The division of cities into multiple neighborhoods has played an essential role in the administration of matters such as tax control and other urban affairs such as better management of water-related affairs. It has been the stability and survival of the residents. In addition, strong ties between residents have provided psychological security and increased cooperation and cooperation between them. The ethnic, linguistic and racial correlations of the localities have been a reflection of the cultural pluralism existing in villages and different ethnic groups on a territorial scale. From the social point of view, urban neighborhoods are a self-governing social system that has been working to restore its relationships and needs. According to Lockhart, in Iranian cities as well as in other cities of the Middle East, the sense of responsibility for civil cooperation at the scale of the city was very limited, and unity in the neighborhood often did not mean unity and integrity in the city. (Ibid. Costello says Wade: "In the neighborhood system, people's sense of belonging, identification, loyalty, and responsibility towards the neighborhood community is stronger than the urban community, and the law is nothing but following the codes and principles agreed upon by the residents of the neighborhood." (Tab. 1)

Primary nature refers to nature that has not been transformed by human hands and turned into secondary nature. Humans create secondary nature in the world with their own hands. Gardens are also the third nature, because gardens are a conscious expression of the primary and secondary natures of a particular place and for a particular person. (Asprin, 2005) Based on Iranian culture and Islamic thought, it can be made up of four lifeless elements, namely water, air, soil and light, from which a series of inanimate and animate natural phenomena can be created. It has been given. The element of air forms phenom-

ena such as breeze, wind, storm and smoke. The elements of air and water create the phenomena of dew, rain, snow, hail, clouds, ice and lanterns, and the elements of air and soil create the phenomenon of dust. Gardening, as one of the signs of nature in Iranian cities, reached its perfection, so that in most Iranian cities, especially in the verandas, there are large and beautiful gardens with proper irrigation facilities, tree planting, water features, and flower planting, which are all part of the culture of Iranian society. Originated from human beings, it exists that we rarely come across in Western cities. (Pir Niya, 1991) (Tab. 2)

Scientific fields	Main elements and components	Common themes
Urban sociology	Having solidarity and mutual relations, having certain limits and privacy, the neighborhood as a social unit	<ul style="list-style-type: none"> <li>- Having a certain range in the city</li> <li>- A sense of solidarity and mutual relations between residents</li> <li>Collective identity-</li> <li>Integration of space and activity within the neighborhood</li> </ul>
Social Sciences	Small-scale residential area, people living in a residential area, relationships between residents, quality of relationships and interactions	
Urban and social geography	Specific and definite limits in the context of the city, face-to-face confrontation, cooperation in efforts to resolve common issues, the purposefulness of living in a certain location.	
Urban planning	Identifiable section or area in the city, dynamic economic and social identity and existence, paying attention to physical and social criteria in an integrated manner, a certain urban area, having a balanced combination of activities, having a certain center, the existence of social connections in a spatial container	

Table 1: Main elements and components of subject scientific fields

Dimensions	Indicators and criteria	Related urban design dimensions	Related Urban Design Norms
Social solidarity	Social solidarity, public participation, order and harmony, collective belonging, internalization of society's value system, sense of mutual responsibility, face-to-face interaction, collective memory, connection of cultural values from the past to the future, rule of law, equal enjoyment of opportunities, sense of mutual trust, power of organizations Social, the spirit of cooperation and cooperation	Contextualism, morphology, spatial, perceptual, aesthetic, sustainable, functional, temporal, visual	Unity, identity, diversity, sense of belonging, sense of place, vitality, security, permanence, peace
Physical integrity	Hierarchy, spatial continuity and connection, harmony and proportion of components, continuity, visual signs, connection of elements, human scale, spatial contrast, composition and mixing of mass and space, enclosure, privacy, territory, symmetry, arrangement, functional compatibility, size		Ability, flexibility, permeability, freshness, safety and security, efficiency, visual appeal, comfort
Compatibility with the ecosystem	Attention to light, air, water, climate	Viability, vitality, Morphology,	Economy, durability, flexibility

Table 2: The most important criteria of sustainability in Iranian cities



*Concepts and approaches of sustainable development and its adaptation to the Iranian city*

Nowadays, the main opportunities and challenges of the world are increasingly manifested in cities. In the past few decades, the rapid growth of urbanization and the expansion of industrial activities have reduced urban infrastructure and increased environmental waste. In other words, cities have become synonymous with growth and have been increasingly exposed to unfortunate crises such as poverty, environmental degradation, lack of urban services, decline in existing infrastructure, and lack of access to land and shelter (Flood, 2017). The emergence of sustainable development as the main slogan of the third millennium is also due to the effects of cities on the biosphere and various dimensions of human life. Undoubtedly, the discussion of sustainability and sustainable development without considering cities and urbanization will be meaningless. The root of the attitude towards sustainable development goes back to dissatisfaction with the results of socio-economic development and growth in cities from the point of view of ecology or ecology (Sarafi, 1996). The main concept of sustainability, which is summarized in the main currents of thinking in social, environmental and economic fields; It is interpreted in different ways depending on the beliefs, awareness and political position of the person. For some, sustainability is defined by living in dense settlements and by using the public transportation network and minimizing energy and waste recycling, and for some by social life in agricultural communities and wide-open spaces and strong social connections, and therefore sustainability It is spatial and temporal (Behzadfar and Habibi, 2018). Peter Hall has defined the main concept of sustainable urban development as follows; A form of today's development that guarantees the continuous development of cities and urban communities for future generations. From the physical point of view, sustainable urban development means the changes that are made in land use and density levels in order to meet the needs of city residents

in terms of housing, transportation, leisure time and food over time, making the city environmentally habitable and Life; keep economically viable and socially connected (Mukomo, 2019) The increase in population in cities and the strong trend towards urbanization (which has various reasons, including the concentration of more services in cities) is a phenomenon that the metropolises of developing countries are dealing with. On the other hand, following the increase in global warming and the occurrence of climate change, many thinkers and theorists sought to find different solutions, one of which is the introduction of the theory of sustainable development. (Hajali Zadeh, 2023) This theory, which was proposed following the uncontrolled growth of cities and the increase of the urban population and the creation of various issues and problems in the field of urbanization, for many years, emphasized economic necessities and environmental limitations, but in the last decade, with the emergence of the slogan "think globally, act locally" has increased its role in local and local aspects. The stability of Iran's traditional cities in the past was not only the result of their physical integrity but also the result of paying attention to the city as a place for its residents to live. The key characteristics of sustainability in cities are social and geographical equality (individual welfare and meeting the basic needs of people in society), protection of natural resources and minimum use of non-renewable resources, economic survival and diversity. However, the concept of sustainability in the city will mean sustainability in all human activities, and in the meantime, the city should be the result of an all-round process, which is a product of the continuous changes of cultures and economies of the natural-physical environment of the city. (Hekmati and Joodaki, 2023) He pays attention, he knows. Therefore, urban sustainability over time, on the one hand, focuses on understanding the impact of economic, social, cultural, etc. activities on the physical environment, and on the other hand, on how the physical environment requires and is sufficient for a certain type of social, cultural, and economic behavior. (Tab. 3)

Deducing the theoretical foundations in the form of a conceptual diagram:

Sustainable urban development seeks to build a relatively ideal and ideal city in which both contemporary citizens enjoy a relatively good life and the ability of the future generation to meet their needs is not jeopardized; It means that the present generation should provide the economic, social, cultural and political conditions of a life in which they can meet the biological and spiritual needs of all the people of the society at the optimal level. In this theory, the issue of preserving resources for the present

and the future through optimal use of land and introducing minimal waste of non-renewable resources is discussed. The sustainable city believes that in the context of globalization, the sustainable city is unlikely to be an independent issue and the lifestyle along with luxury in many cities of the developed world is often at the expense of the quality of life of many people who live and work elsewhere. He continues that basically the discussion is about sustainable urbanization - a process instead of a phenomenon. Therefore, sustainable urbanization should be defined as a process. (Tab. 4)

1	Rural Suburban (rural places with awareness and citizenship thinking)	Geographically, they are not close to the city center, they are geographically far from the city, but they experience a kind of urban life
2	Scattered suburban	It is located near the city and due to immigration and the purpose of settlement, they have a lot of ethnic diversity and diverse beliefs and opinions
3	Suburban chain	It is an ancestral migration process, such as transferring the geographical location of the population of one village to another place, ethnic and family chain migrations, having ethnic integrity, beliefs and opinions
4	Suburban in spot (around the city in a suitable position and in its place)	Close to urban centers, resulting from urban development, connected to urban areas and urbanization in their own place. These areas are located in the full absorption areas in the city
5	Absorbed suburban	The group of older residents is replaced by new successors, maintaining the customary or traditional institutional arrangements of the original residents
general conclusion from this typology regarding the case sample of this research; District 22 of Tehran Municipality		In terms of physical-physical structure, area 22 can be placed in this category, in the in-situ city type, which was absorbed by the physical expansion of Tehran city. But in terms of socio-demographic dimensions, it is a scattered suburb with ethnic diversity and diverse social opinions

Table 3: Different types of suburban areas

Traditional Iranian city	Modern city	index
Paying attention to greenness, walking distance, correct use of water and land resources, economy	part of the sustainability charter and the main pillars of a sustainable city	Ecosystem
Neighborhoods in an Iranian city	Minimal use of non-renewable resources, self-reliant society and attention to local communities	Economic
Solidarity and social cohesion	Long-term social stewardship, participation in local affairs, strong social capital	Social
Lack of democracy and clan and tribal system	Responsive monitoring systems, monitoring and transparency, emphasis on inclusiveness from bottom to top	Ruling
Compact city	Green city, compact city, organic city	Physical

Table 4: Criteria and character Criteria and characteristics of a sustainable city and its comparative comparison with traditional Iranian cities

*General cognition of District 22 in the context of Tehran metropolis*

District 22 of Tehran municipality, located in the northwest of Tehran, has been covered by special construction activities in terms of planning and implementation for the past 30 years. The formation of numerous residential towns such as Golestan, Amirkabir, Havanirooz, Cheshme Dehkadeh Olympic, Laleh, Zibadasht Bala, Zibadasht Payin, etc. In the eastern part, Pikan-Shahr and Azad-Shahr in the south, and Sanat Sharif University town in the western part, and the construction of high-rise complexes. The prosperity and construction activity in this urban point shows the dynamism of the construction industry in the district. (Fig. 1)

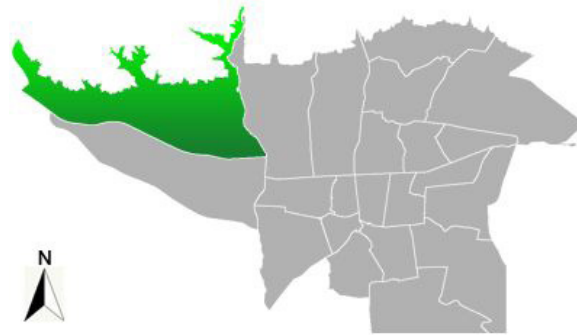


Figure 1: Location of District 22 in Tehran city

*Methodology*

According to the objectives of the current research and its nature, the research method is a combination of deductive and inductive research methods. Based on the type of collection and processing of data and information required, it is a descriptive-analytical method. The type of research is applied-developmental (to investigate the possibility of developing and generalizing this model to peri-urban areas in Tehran and other parts of the country). Also, the research will use qualitative methods and Delphi technique (as the main technique and axis of action for data collection and analysis of findings) in order to obtain appropriate results and inferential analysis. The method of collecting data and information in the form of library

and documents (to extract and design the basic structural-functional model of the urban management system in the peri-urban area of the 22nd district of Tehran municipality and also to identify the institutional and individual beneficiaries) and survey based on the Delphi technique with the questionnaire tool and in some cases as needed, there are targeted and structured interviews. Also, part of the required information and data has been collected through field operations (survey) and often through direct observation. By using the basic model and based on the Delphi technique and through its steps - as the main technique of the research method - the pattern, its elements and dimensions were retrieved and edited based on the opinions of specialists and experts, and finally the pattern agreed upon by the experts which the final goal of the research will also be presented. Also, the survey of the residents of the 22nd district and the observation of the expert system in this area and its results will be effective in providing a model of sustainable urban design. (Tab 5)

**DISSCOUSION AND FINDINGS**

Based on the theoretical studies, the researcher has achieved indicators that include physical, social, economic, ecological, institutional and transportation approaches. In the continuation of the research, 4 questions were asked for the experts, each question has several criteria that resulted from the theoretical foundations. (Tab. 6)

According to the responses of the experts to the items (criteria), the average and standard deviation chart shows that the three indicators “structural change in the management of the macro-urban economy and the strengthening of the local economy and tourism, the change in the structure of the ecosystem and the change in the socio-cultural structure and lifestyle “ People” have a high score in creating structural changes both in terms of average and in the standard deviation table it shows that there is the most unanimity in the opinions of experts. (Tab. 7)



Approach	Mixed (quantitative and qualitative)			
Type	Practical			
Strategy	Case study			
Style	Data processing	Three steps of Delphi	A structured popular questionnaire	Expert systematic observation
	Analysis	Standard deviation	Quantitative tests including analysis of variance and Pearson correlation coefficient	SWAT table
	Findings	Prioritization and monitoring of sustainable urban design components in peri-urban areas	Evaluation of the coherent component of sustainable urban design in physical, social and economic dimensions and its adaptation to traditional Iranian cities	Evaluation of sustainable urban design components in study samples through systematic expert observation
Refining and research findings, presenting the theoretical framework and model				

Table 5: Refining and research findings, presenting the theoretical framework and model

Prioritize	Options
1	Structural change in urban macroeconomic management and strengthening of local economy and tourism
2	Structural change in terms of managerial-institutional or urban governance (the relationship between the government and the people)
3	Changing the social-cultural structure and people’s lifestyle (how people view communal life, especially in residential complexes)
4	Changing the physical-spatial structure (city shape)
5	Changing the structure of the ecosystem (restoration of climate issues in the metropolis of Tehran with the change of the capital and lack of political and economic centralization)

Table 6: First question: In your opinion, in order for the 22nd district of Tehran to move towards sustainability as a peri-urban area; Which structural changes should be made in order of priority?

Prioritize	Options
1	Compact city
2	Smart City
3	Green City
4	Solar city
5	Zero carbon

Table 7: Second question: Which urban design model is more suitable and applicable for district 22 in terms of urban form?

According to the responses of the experts to the items (criteria), the average and standard deviation chart shows that the two indicators “Solar City and Zero Carbon City” for creating urban sustainability have a high score both in terms of

average and in the standard deviation table. That there is the most unanimity in expert opinions. (Tab. 8)

According to the responses of the experts to the items (criteria), the average and standard deviation chart shows that two indicators “creating agricultural villages and knowledge-based centers for urban agriculture and creating a special working group to connect people and tourists with city managers” as sustainability criteria. Applicable Iranian cities in district 22 have a high score both in terms of average and in the standard deviation table, it shows that there is the most unanimity in the opinions of experts. (Tab. 9)

Prioritize	Options
1	Using social potentials and promoting social solidarity for quality living and creating a sense of belonging in residential complexes
2	Preparation of special urban design documents for construction in this urban area in terms of the use of eco-friendly materials, proper use of light and air, expansion of pedestrian circulation, expansion of sustainable and green architecture, etc.
3	Expanding the local economy and linking it with the tourism economy, considering the various tourist sites in this district, such as Chitgar Lake, Chitgar Park and Letman Ken, Iran Mall, Cascade Park, Botanical Garden, etc.
4	Creating a special working group to connect people and tourists with city managers
5	Creating agricultural villages and knowledge-based centers for urban agriculture

Table 8: Third question: Which of the sustainability criteria of the Iranian city can be implemented in district 22?

Prioritize	Options
1	Emphasis on the central neighborhood
2	Modifying the urban hierarchy and expanding the pedestrian circuit
3	Creating green and air corridors
4	Centrality of collective spaces
5	Use of sustainable energy
6	Expansion of public transportation
7	Local economic growth
8	Life education and communal life in residential complexes
9	Urban waste management

Table 9: Fourth question: Which of the urban sustainability indicators in the world can be implemented in district 22?

According to the responses of the experts to the items (criteria), the average and standard deviation chart shows that the two indicators “use of sustainable energy and emphasis on the central neighborhood” as criteria of urban sustainability in the world and applicable in district 22, are both In terms of average, they have a relatively high score, and the standard deviation table shows that there is the most unanimity in the experts’ opinions. A public questionnaire based on 12 questions and based on 4 components resulting from theoretical foundations was compiled and distributed among the residents of the 22nd district in the survey. The results of the popular questionnaire are as follows:

These questionnaires are based on physical, social, ecological, economic, institutional and transportation indicators. This questionnaire has been distributed in district 22. The data related to personal information including (sample distribution based on gender, sample distribution based on education, sample distribution based on residence history, sample distribution based on residence satisfaction, and examining the sense of belonging to the living environment) were examined. Most of the respondents to the popular questionnaire are men. According to the obtained information, most of the respondents have a bachelor’s degree and in fact are average. Most of the residents are less than 5 years old. The level of satisfaction of the residents with the living environment in area 22 is average, so that they are neither very satisfied nor dissatisfied, and this statistic shows that there is a possibility of improvement and potential in the area. This potential has caused the residents’ sense of belonging to be high. Descriptive studies show that the economic and ecological variables have the highest scores and the physical and transportation components are in the weakest position. Due to the conditions of the 22nd district and the existence of tourism and greening activities in the 22nd district, it seems logical that the two economic and ecological variables should get the most points. In terms of the huge amount of construction in the district and the

physical fragmentation and the lack of a unified transport fleet, the physical and transport issue is in a fundamental weakness from the point of view of the people. In the survey comparing the physical cohesion between the residents, people tend to have a lower height of the buildings and the villa pattern in the 22nd district. Comparing the level of social cohesion shows that those who live in district 22 have common cultural values. The comparison of ecosystem coherence shows that greenness has the highest score and waste management is in its weakest state. A comparison of the level of economic cohesion shows that there is no gross class difference in the residents of district 22. In comparison, the degree of governance of the residents shows that the management of the tourist population is in line with the institutional management of Tehran Municipality. Regarding the level of integration of transportation between residents, it shows that various modes of transportation are aligned with the creation of appropriate access.

### **CONCLUSION AND RESULTS**

In recent years, issues related to climate change and energy have gained the most importance and focus in urban studies. In the issue of optimizing energy efficiency in the city, buildings are the most original focus, and among the consumed energies, solar radiation energy on the one hand and thermal energy demand on the other hand are the most important things investigated in energy efficiency in the city, which together with other Climatic parameters have the main effects on the quality of living environments. Today, we must insistently reduce our material standards of life so that we can hand over this planet to our children at least in the safe conditions that were handed over to us. Leaving the development of the city to chance is not acceptable. It is necessary to predict optimal performance through planning and design frameworks for each stage of city development. Today, the most important models of urban development and proposed solutions for spatial development with an emphasis on sustainable

urban development, good urban governance, a suitable transportation system with sustainable development know that academics, environmentalists and recently politicians want urban design as soon as possible. Adopt sustainable as a comprehensive solution and elixir for all urban problems. Also, other patterns of urban development also have many benefits for the city, including urban agriculture, green roofs, compact city, reducing energy consumption, lowering the level of water pollution and remote work, urban sprawl, reducing the use of the car. Therefore, it should be said that sustainable urban development patterns should be used as windows through which we can determine, especially in peri-urban areas, commercial and control policies and strategies to what extent and how they are compatible with or interfere with urban development measures. To act Therefore, it is necessary to have a broad relationship with the specific social organization of infrastructure in a city, and to provide more opportunities to communicate between environmental innovations and changes related to urban development.

### **REFERENCES**

- Yeganeh, Mansour; Bamanian, Mohammadreza (2014), "An analysis of the dimensions of mass and space continuity in public urban areas", *Urban Management Magazine*, No. 39, Tehran.
- Maroufi, Hossein (2014), "Rereading the Iranian-Islamic city; examining institutions that play a role in urban governance and their spatial reflection in the cities of the Safavid and Qajar eras", *scientific-research journal of architecture and urban planning of Iran, ninth period, spring and summer*. Tehran
- Iszadeh, Kausar (2015), "Analysis of the impact of culture on the body and design of cities with an emphasis on cultural theories of designing biological complexes", *Scientific-Research Journal of Urban Management*, No. 46, Tehran.
- Emami, Seyyed Mohammad; Mozal, Esfandiar (2013) "Evaluation of urban development plans based on the principle of interconnection and connection using the AHP method", *Urban Studies Quarterly*, No. 11, Tehran.

- Daneshpour, Abdul Hadi; Shiri, Elham (2014), "Physical-functional elements shaping the identity of the historical contexts of the Islamic-Iranian city", *Naqsh Jahan scientific-research quarterly*, No. 5-1, Tehran.
- Yousefi Far, Shahram (2009), "Emergence of the city and urbanization pattern in the history of Iran", *Journal of Iranian History* No. 5/64, Tehran.
- Khairabadi, Masoud (1376), "Cities of Iran", translated by: Hossein Hataminejad and Ezzatullah Maafi, Nika Publications, Mashhad.
- Sprin, Ann Whiston, (2004), "Landscape Language", Seyyed Hossein Bahraini and Behnaz Aminzadeh, Tehran University and Publishing Institute.
- Rahimyoun, Ali Asghar (2009), "Identity of the city through the use of natural elements, a case study; Hamedan city", *Hoyt Shahr Quarterly*, No. 9.
- Pirnia, Karim, "Iranian Architectural Stylistics", (1370), 6th edition, Soroush Danesh Publishing House, Tehran.
- Sarafi, Mozafar (2015), *sustainable development and the responsibility of urban planners*, *Architecture and Urbanism Magazine*, No. 35, Tehran.
- Zohra Daneshpour, "Introduction to the theoretical bases and classification of planning theories with special emphasis on urban planning", *Scientific-Research Journal of Fine Arts*, No. 15, Fall 2016, Tehran.
- Amirinejad, Ghazal (2008), "Planning to reduce the negative environmental effects caused by urban development in the peri-urban area by using the environmental assessment method (EIA); case example: District 18 of Tehran", master's thesis *Urban and Regional Planning*, Shahid Beheshti University, Faculty of Architecture and Urban Planning, Tehran.
- Armanshahr Consulting Engineers (1389), "Five-year neighborhood development program of District 22", Tehran.
- Power, Joe and Kevin J. Krizek; Translated by Mustafa Behzadfar and Kimerth Habibi (2010), *Sustainable Urban Design*, Mehr Iman Publishing House, Tehran.
- Bahraini, Seyyed Hossein (2016), *Urbanization and Sustainable Development*, Rehiyaft Publishing House, No. 17, Tehran.
- Maleki, Hassan (2012), *Sociology of strata and social inequalities*, Payam Noor University Publications, first edition, Tehran.
- Ashkouri, Seyyed Hassan (2008), *Active city and sustainable urban development management*, collection of primary articles of the sustainable development management conference in urban areas.
- Flood, J. (2017). *Urban and Housing Indicators*. *Urban Studies*, 34(10): 1635-1665.
- Mukomoo. S, (2019), on sustainable urban development in sub-Saharan Africa, *cities*, 13(40)
- Adell, German (1999), *Theories and Models of the Peri-urban Interface: A Changing Conceptual Landscape*, Strategic Environmental Planning and Management for the Peri-Urban Interface, Research Project, Development Planning Unit (DPU) University College London.
- Hajali Zadeh, G. (2023). Investigation of energy consumption of traditional houses in approach to sustainable architecture (Case Study: Ardebil, Sanandaj, Hamedan and Tabriz cities of Iran). *Journal of Urban Management and Energy Sustainability*, 5(1), 130-146. doi: [10.22034/jumes.2023.1996326.1124](https://doi.org/10.22034/jumes.2023.1996326.1124)
- Hekmati, A., & Joodaki, H. (2023). An analysis of dimensions and indices of urban livability with emphasis on the environmental sustainability approach (Case study: District 22 of Tehran). *Journal of Urban Management and Energy Sustainability*, 5(1), 158-168. doi: [10.22034/jumes.2023.1998999.1128](https://doi.org/10.22034/jumes.2023.1998999.1128)