

Locating new cities in Iran with an environmental approach (Alishahr case study)

Sohrab Asgari¹, Abbas Bagheri^{2*}

¹Department of Geography, Faculty of Humanities, PNU University, Tehran, Iran. ²Department of Business Management, Faculty of Humanities, Farabi Campus of University of Tehran, Qom, Iran.

Correspondence: Abbas Bagheri, Department of Business Management, Faculty of Humanities, Farabi Campus of University of Tehran, Qom, Iran. abbasbagheri1200@gmail.com.

ABSTRACT

Bushehr province has always played a major role in security and defense. After 1956, the construction of the nuclear power plant and the industrial zone of South Pars increased the security and strategic position of this province. The location of this province in the border region, having key products with added value and very high performance, and the attractiveness of the target of key products for the enemy, which will cause high damage, have highlighted the dos and don'ts of this province.

The new city of Alishahr was located to attract the overspill of Bushehr population given the geographical position of this region and other factors such as the limitation of the urban development of Bushehr due to the water blockade from the north and west, military bases in the south and southwest, industrial centers from the east and west, and the limitations caused by the presence of the nuclear power plant, and ever-increasing population growth of Bushehr city with the approval of the High Council of Architectural and Urban Planning System. The main poles of the city structure and strengthening the potentials and potential facilities of the city indicates the lack of formation of the mentioned predictions. Its primary reason is a lack of observing environmental indicators, etc. It has been recommended to consider administrative, management, and educational changes compatible with environmental development goals. This study is a descriptive-analytical type of research.

Keywords: Locating, Environment, Alishahr, Development

Introduction

Locating, approving, and building new cities around some big cities and provincial centers has been one of the most significant decisions in the spatial physical dimension and the area of urban development planning in Iran in the 1980s. The history of such measures goes back to the years before the Islamic Revolution. The existential philosophy and the ultimate reason for the establishment of such cities are different from those after the revolution. One of the reasons can be the overpopulation of big cities given the population predictions until the year 2021 based on population growth in the 1980s (Edalatkah 4:1993). Accordingly, a new literature emerged in the form of new cities in the urban planning and development system.

The primary reasons for the lack of success of new cities in Iran can be attributed to the macro policies of urban development in Iran and the lack of coordination of planning at different levels, management weakness in the administrative and executive

structure of these cities, especially in terms of the financial system, and finally, the limitations caused by a lack of identity in new cities (Ebrahimzadeh, 2006, 20).

Necessity of research:

The construction of new cities is a solution to meet the need for housing and to accommodate the overspill of big cities. Knowledge and planning for the construction of new cities is one of the necessities. Incomplete knowledge of the biological capabilities of the geographical environment will increase the environmental consequences of the construction of new cities several times.

Materials and Methods

This study is a descriptive-analytical type of research. Its data were collected using documentation, existing evidence, and field observations.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-Non Commercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Results and Discussion

Geology and geography of the area:

Bushehr province is geologically located in the Zagros zone and folded Zagros or outer Zagros construction unit. Its width is estimated to be 150 to 250 kilometers. The geographical direction of this zone is north-west-south-east. The Paleozoic, Mesozoic, and Tertiary sediments lie on top of each other. The salt dome of the Zagros plain is folded toward the Persian Gulf and the coastal margins and sediments are on the side of the Persian Gulf (**Figure 1**).

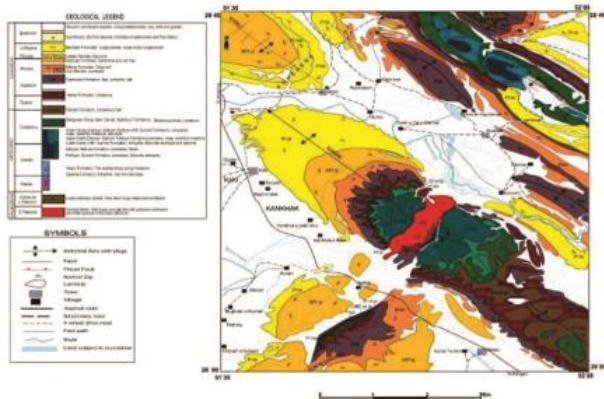


Figure 1: Altitude and topography map of Bushehr province and satellite image of the salt dome of the plain (Amininejad *et al.*, 2016).

Its geological structure is simple, and mild, and includes a set of large and close and packed anticlines with a flat axial surface and a north-west-southeast trend (Alavi, 1991). Kazerun and Borazjan faults, which are two parts of the same fault, are bedrock faults and the movement of these faults is a right-lateral strike-slip fault. These two faults are staggered and have some separation and overlap. There is a region with a low number of earthquakes between the two faults of Kazerun and Borazjan (Amininejad *et al.*, 2015). The primary reasons for selecting the current location to construct the new city of Alishahr are:

The geographical coordinates of this new city are 28.9 degrees north and 51.6 degrees east, the height above sea level is 31 meters, the lands of this new city are between two sand hills in the north-south axis, the range of heights is linear, suitable natural conditions such as a gentle slope (1.5 percent), the higher altitude and lower temperature of this city compared to Bushehr, the presence of favorable winds in the region, its average rainfall is 281 mm, its average annual temperature is 24.8 °C, the prevailing wind direction in this city is north and northwest, non-cultivable soil with coarse-grain materials, the existence of Gaz forests in its vicinity, its surrounding lands are state-owned without conflict about them, convenient access to Bushehr city, and easy access to infrastructure equipment including water from Kazerun to Bushehr route.

After selecting the location, the initial design of this new city began in 1986 and the preparation of its first phase was implemented in 1989.

Ecological and social indicators

Urbanization has always been associated with issues such as urban development, employment and unemployment problems, migration, housing shortage, marginalization, population increase, land destruction and conversion, water, air, soil pollution, noise, and many other phenomena (Emami and Arab, 2017 quoted by Tabibian and Monavari, 2006). Urban problems are related to each other and if one of them is overlooked, other problems will appear. In locating the new city, it is necessary to pay attention to natural features and criteria, such as the slope and topography of the region, macro and microclimate, soil conditions and land capacity, water balance of the region and the amount of extractable water, natural hazards such as floods and earthquakes, and the vegetation state, natural valuable areas and the position of the city and its place in the ecosystem of the region, each of which can be divided into smaller elements (Kalantari Khalilabad, Eskandari, Nodeh, 2008).

Assessing the ecological potential of the environment/land as an intermediate stage of the process of land preparation or environmental planning by selecting the most appropriate use of land and management system can lead to achieving this goal (Emami and Arab). (**Figure 2**)



Figure 2: Locating public and service places

A) Population

The net population density of the comprehensive plan for the new city of Alishahr is 238 people per hectare and the gross population density is 133 people per hectare. The demographics of the proposed areas of the initial model and the comprehensive plan of the new city of Alishahr have changed in the detailed plan and preparatory plans 3, 4, 5, and 6. The city area (based on the area of the phases) has increased to 910 hectares and the population of the city has increased to 110,200 people. Also, according to the phase preparation plans, the net density of Alishahr city has increased to 136.9 and the gross density has increased to 374 people per hectare. The proposed net density in all phases and the gross density in phases 3, 4, 5, and 6 are higher than the density announced in the comprehensive plan.

Current situation:

The current status of the city includes phases 1, 2, 3, and 4. The chart below shows the percentage of the total area of built and

non-built land uses separately based on phases generally, in the current situation, in 4 phases, the percentage of the total area of non-built uses is 64% and the percentage of the total area of built uses is 36%. Also, 36% of the total area belongs to roads.

- Physically, the roads of the new city of Alishahr are currently 100,769 meters and have an area of about 133 hectares. In this regard, 76,916 meters lack coverage. Also, 64% of the roads have sidewalks or unfinished sidewalks. (Figure 3)



Figure 3: Map of the new city of Alishahr

Environmental characteristics

Examining the environmental characteristics of the new city of Alishahr based on the studies conducted in the previous chapters shows that:

- Regarding topography and land characteristics, the area of Alishahr city has an almost flat condition.
- The dominant characteristic of the seismicity of the studied area is the earthquake event with relatively low intensity but with short return periods and many aftershocks.
- Due to the climatic conditions of the area of Alishahr City, there are no permanent waterways, and surface water sources are seen in the form of several surface and subsurface channels in the southern parts of phase 2 and central parts (phase 1 and phase 2 boundaries).

The surface waters of Bushehr province include some seasonal and permanent rivers and springs. some permanent rivers are:

Dalaki River: This River originates from the southern slopes of the Arjan Plain Mountains, meets with the Sarkhun River at the beginning, and flows to the Jarreh River. Then, it receives the Farashband River and enters it from the Dadin Plain. The length of this river is 170 kilometers, the amount of annual discharge is 444 million cubic meters, the area of the watershed is 5800 square kilometers, and its depth varies between 2 and 5 meters.

In addition to permanent rivers, Bushehr province has many seasonal rivers, the most important of which are:

Ahram River: This River originates from the Siah (Black) and Mur Tarkhi Mountains located in Bushkan and Khormoj and consists of two main bifurcations namely the Bahush and Shirin rivers, and then enters the Ahram plain. Currently, the water of this river is used for irrigation of the fields alongside the Ahram

River. The length of this river is 70 kilometers and the height of its source is 900 meters.

The city of Alishahr is located under the Ahram basin based on the divisions of the watershed level 4 of Jamab. The characteristics of the basin and sub-basins overlooking the area of the Alishahr site are presented in the following table:

The issue of disposal of surface water is one of the major issues in securing residential areas from the risk of flooding and finally removing possible damages from urban areas. Thus, the establishment of a city, performing construction operations, and increasing the surface water collection and disposal networks lead to an increase in the intensity of floods. (Figure 4)

The most important impacts of flood and runoff on the urban body are as follows:

- 1- Causing damage to residential areas due to flooding and surface runoff
- 2- Accumulation of water on the surface of the streets and squares of the city and causing dissatisfaction for the people due to the disruption in the movement of the residents.

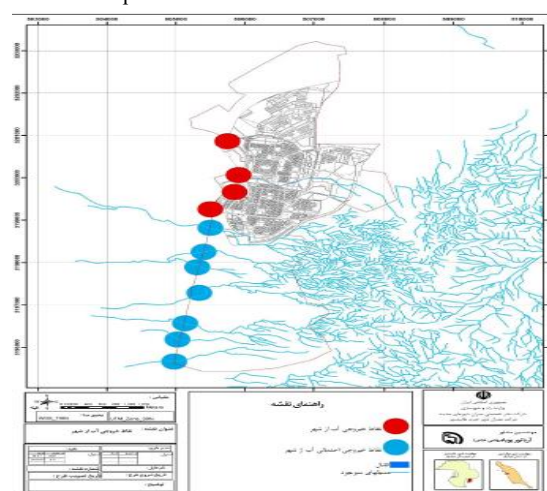


Figure 4: Possible water exit points

The general characteristics including appearance, landscape, and environmental quality of the new city of Alishahr, based on the studies and investigations, are the following items:

- There are green spaces and hand-planted forests as natural environmental elements of the city in the east of the new city of Alishahr.
- A seasonal lake in the southeast of the new city of Alishahr is one of the natural environmental elements around the city of Alishahr.
- Since construction-related executive activities are still going on in most areas of the city, construction-related executive activities, which can be seen in the form of semi-finished residential complexes and ongoing projects, are visible.
- Silence, isolation, and lack of dynamism are evident in the city, the continuity of presence and liveliness is not observed in urban spaces by citizens during the day and night hours.
- Currently, there are no buildings in the urban fabric to be considered as indicators or signs in the new city of Alishahr in terms of height.

Dust

The new city of Alishahr, like most of the southern cities of the country, is facing the phenomenon of dust. According to the statistics recorded from meteorology at Bushehr synoptic station during statistical periods from 2005 to 2013, the highest level of monthly dust was recorded in July with 84 days and the lowest level in November with 3 days. In Bushehr province, the level of haze increases from the end of winter. It also intensifies in spring, reaches its peak in July, and starts to decrease after mid-summer. Also, based on seasonal distribution, in Bushehr station, the highest distribution of haze with 34% is related to the spring season, followed by the summer season with 35%. The autumn season has the lowest seasonal distribution with 2% in terms of haze phenomenon.

Pollutant sources of soil and water in Alishahr

Based on the inquiries made by the General Department of Environmental Protection of Bushehr province and the new Alishahr City Development Company, currently around 15 tons of waste are produced in Alishahr city.

Sewage and waste

The improvement and modification of the sewage and urban waste disposal system is one of the strategies presented in the framework of environmental strategies.

Thus, the following cases are among the most important thematic-topical projects in this area:

The design has been done in two proposed plans based on an independent sewage treatment plant for the city. Another one is using the Bushehr sewage treatment plant 2 kilometers away from this city. However, the preferred and optimal option has not been selected so far (Revision of the master plan of Alishahr 2022).

Finally, considering the issues mentioned in this report and to enjoy a healthy environment both now and in the future, it is necessary to observe and do the following tasks in the implementation of the waste management system of the new city of Alishahr:

- Accurate determination of the type of uses and functions considered for the areas covered by the waste management system
- Investigating and understanding the types, amount, composition, and volume of production wastes by separating each phase
- Determining the method or methods of disposal of production wastes in the region
- Preparing the specifications of hazardous production wastes in different areas covered by the waste management system.

Conclusion

A superficial view of legal, infrastructural, and executive tools is one of the requirements related to environmental development; local communities should use national development in the form of "environmental annexation of new settlements". However, to make Alishahr more efficient as a more livable city, it is necessary to pay attention to the following points:

A: Runoff

A major part of the rainfall in the study area is of 10% rainfall type. This means that rainfall is greater than about 10% of the rainfall that occurred.

All surface water collection points on the western side of the city should be directed toward a suitable collection system to use surface water or to remove floods and surface water from the boundary area of Alishahr City. To achieve this goal, two different plans can be considered:

1. Collecting surface water in an area of the city or close to it to treat and reuse it.
2. Creating a water disposal channel in the western part of the city and in the north-south or east-west direction to collect the surface water of the entire city that enters this channel from different places and transfer the water to a further area in the south or west. .
3. Managing the use of runoff for the construction of an artificial lake. One of the solutions for the use of runoff is the construction of an artificial lake to create recreational and touristic places in the region.

B: Optimizing climatic conditions in buildings

According to the climate classification of Iran, the new city of Alishahr is located in a hot and humid region (southern coasts of the country). The climate characteristic of this region is very hot and humid summers and mild winters. Thus, it is necessary to achieve a comfortable climatic condition in the region. The most important of them include:

- Optimal use of the building form to reduce the level of sunlight in buildings

Other recommendations for improving the environment can be mentioned as follows:

- Maintaining the balance between the environmental capacity and the volume of construction to achieve sustainable urban development
- Optimizing energy consumption and using new technologies in the area of using solar energy will be one of the basic solutions in this area due to the high number of sunny hours in Bushehr province.
- There are no warehouses to store and maintain the essential needs of citizens that can be used in the case of a threat. Thus, it is recommended that warehouses should be considered for use in critical and emergencies in these land uses.
- The green belt generally helps to stabilize the shape of the city and prevent the encroachment of the city on the boundaries outside it. Also, it can be responsible for environmental tasks, such as windbreakers or noise pollution reduction.

- In the construction of a green space near or in the middle of the residential area or residential complexes, an important point is to pay attention to the middle landscaping and recreational facilities so these facilities can meet the needs of the residents of the residential complexes and can be used for their daily recreation.

- The gas pressure reduction station and gas station in Alishahr are not at a suitable distance from the city center. In the case of a problem in these facilities, it can cause a cascading crisis to the city.

- Urban development focusing on public transportation and non-motorized transportation to create clean air

- Locating and creating a cemetery outside the city limits and according to the relevant rules and regulations

- Environmentally, this city has only one water reservoir and has an unfavorable situation in terms of the distribution of water supply services within the city

- Based on the residential areas located on the back front of the urban hazardous centers about the prevailing wind direction, they are exposed to potential danger in the event of an accident in any of the hazardous centers.

Acknowledgments: The authors acknowledge the generous Spiritual supporter support of (Sina publication)

Conflict of interest: All the cases that were mentioned in the previous sections include the staff of the magazine and the members of the editorial board.

Financial support: Due to the increasing growth of science and education related to urban management, this article has been designed and made available to interested people with the aim of raising the level of knowledge and helping to realize urban development.

Ethics statement: In preparing the content of the article, no moral and possibly legal violations have occurred

References

- 1) Zadvali, F., Yazdani M. Hassan. , An analysis on the realization of the environmental indicators of the comprehensive plan of Ardabil city, *Environmental Science Studies*, Volume 8, Issue 3, autumn season, 2023
- 2) Revision of the comprehensive urban plan of Alishahr, the third and fourth chapters, 2022
- 3) The document of the requirements and considerations of passive defense in the review of the comprehensive plan of the new city of Alishahr - the city limits, 2021, p. 11
- 4) Yarmohammadi et al., Evaluation of ecological capacity for urban development using multi-criteria decision-making models (Ardebil case study),

- Geography and Urban Planning Quarterly, Volume 10, Issue 37, Autumn 2018
- 5) Emami and Arab, a review of the locating indicators of the new city, *Human and Environment Quarterly*, Issue 41, Summer 2017
- 6) Pourkhabbaz et al., *Ecological modeling of urban development using AHP interactive decision-making models*, 2016
- 7) Amininejad et al., the study of the morphology of the salt dome in the south of Bushehr, *Journal of Geography and Urban Planning*, 2015
- 8) Naqdi et al., analysis and evaluation of the performance of the new city of Alishahr, *Urban Sociological Studies*, Volume 5, Issue 4, Spring 2015
- 9) Soleimani et al., The quality of the urban environment: the perspective of the environmental perception of the Narmak neighborhood study, *Urban and Regional Studies*, Volume 6, Issue 22, Autumn 2014
- 10) Heydari, examining the necessity of creating and evaluating the performance of the new city of Alishahr, the scientific-research journal of geography spatial planning, Volume 4, Issue 3, Autumn 2014
- 11) Ziari, K. et al., measuring urban Identity in Iranian cities based on the identity principles of Isfahan School, pages 131-154, *urban and regional studies and researches*, Volume 5, Issue 18, 2013
- 12) Aminzadeh, G, et al., Comparative evaluation of new cities location methods in Iran, *Bagh-e Nazar*, Volume 9, Issue 23, 2012
- 13) Qanavati, E. et al., Evaluation of locating new cities in Iran, *Quarterly Journal of Geography and Urban Planning, Zagros Perspective*, Volume 2, Issue 5, Autumn 2010
- 14) Mir Riahi, S., Locating method in biological collections, *Environmental Sciences*, Volume 6, Issue 2, winter 2017
- 15) Kalantari Khalil Abad, H., Eskandari Nodeh, M., Evaluating the locating new cities using ecological power model, *Iranian Journal of Social Studies*, 2018
- 16) Ahmadi, H. Factors affecting locating new cities, *Journal of Architecture and Urban Planning*, 1991
- 17) Bushehr municipality database <https://www.bushehr.ir>
- 18) Iran Statistics Center database <https://amar.org.ir>
- 19) Sharifi, A., Khavarian-Garmsir, A. R., Allam, Z., & Asadzadeh, A. (2023). Progress and prospects in planning: A bibliometric review of literature in Urban Studies and Regional and Urban Planning, 1956–2022. *Progress in Planning*, 173, 100740.
- 20) Salar, M and Salar, Orkide (2014). Determining pros and cons of franchising by using swot analysis. *Social and Behavioral Sciences* 122, 515 ° 519.
- 21) Hegazy, I.R and Seddik Moustafa, W. (2013). Toward revitalization of new towns in Egypt case study: Sixth

- of October. *International Journal of Sustainable Built Environment*, (2013) 2, 10°18.
- 22) Abu Bakar, A.H and Cheen, K.S(2013). A Framework for Assessing the Sustainable Urban Development. *Social and Behavioral Sciences*, 85. 484 ° 492.
 - 23) Choi, S.H.and Ahn, K.H(2013). Assessing the sustenance and evolution of social and cultural contexts within sustainable urban development, using as a case the MAC in South Korea. *Sustainable Cities and Society* 6. 51°56.
 - 24) Cho-yam lau, J (2011). Spatial mismatch and the affordability of public transport for the poor in Singapore's new towns. *Cities*, 28 (2011) 230–237
 - 25) Li, F. et al (2009). Measurement indicators and an evaluation approach for assessing urban sustainable development: A case study for China's Jining City. *Landscape and Urban Planning* 90 .134°142.
 - 26) Markovska.N. and Taseska.V. and Pop-Jordanov.J.(2009). SWOT analyses of the national energy sector for sustainable energy development. *Energy*,34,752°756.
 - 27) Datola, G. (2023). Implementing urban resilience in urban planning: A comprehensive framework for urban resilience evaluation. *Sustainable cities and society*, 98, 104821.
 - 28) Jo'raboyev, A. (2023). Urban Planning and Ecological Aspects in the Formation of the Natural Landscape Environment of Uzbekistan. *Journal of Construction and Engineering Technology*, 1-4.
 - 29) Suryawan, I., Septiariva, I. Y., Sari, M. M., Ramadan, B. S., Suhardono, S., Sianipar, I. M. J., ... & Lim, J. W. (2023). Acceptance of waste to energy technology by local residents of Jakarta City, Indonesia to achieve sustainable clean and environmentally friendly energy. *Journal of Sustainable Development of Energy, Water and Environment Systems*, 11(2), 1-17.
 - 30) Calisto Friant, M., Reid, K., Boesler, P., Vermeulen, W. J., & Salomone, R. (2023). Sustainable circular cities? Analysing urban circular economy policies in Amsterdam, Glasgow, and Copenhagen. *Local Environment*, 28(10), 1331-1369.
 - 31) Miles, V., Esau, I., & Pettersson, L. (2024). Using web GIS to promote stakeholder understanding of scientific results in sustainable urban development: A case study in Bergen, Norway. *Sustainable Development*, 32(3), 2517-2529.
 - 32) Vargas-Hernández, J. G., Pallagst, K., & Zdunek-Wielgołaska, J. (2023). Urban green spaces as a component of an ecosystem. In *Sustainable development and environmental stewardship: Global initiatives towards engaged sustainability* (pp. 165-198). Cham: Springer International Publishing.
 - 33) Agboola, O. P., & Tunay, M. (2023). Urban resilience in the digital age: The influence of Information-Communication Technology for sustainability. *Journal of Cleaner Production*, 428, 139304.
 - 34) Bibri, S. E. (2023). Data-driven smart eco-cities of the future: an empirically informed integrated model for strategic sustainable urban development. *World Futures*, 79(7-8), 703-746.
 - 35) Ren, C., Yu, C. W., & Cao, S. J. (2023). Development of urban air environmental control policies and measures. *Indoor and Built Environment*, 32(2), 299-304.
 - 36) Ezeudu, T. S., & Chukwudubem, E. K. (2023). Exploring Socio-Cultural Factors in the Context of Urban Environmental Management in Nigeria. *International Journal of Research and Innovation in Social Science (IJRISS)*, 7, 282-300.
 - 37) Greenberg, M., Angelo, H., Losada, E., & Wilmers, C. C. (2024). Relational geographies of urban unsustainability: the entanglement of California's housing crisis with WUI growth and climate change. *Proceedings of the National Academy of Sciences*, 121(32), e2310080121.
 - 38) Sopiana, Y., & Harahap, M. A. K. (2023). Sustainable urban planning: a holistic approach to balancing environmental conservation, economic development, and social well-being. *West Science Interdisciplinary Studies*, 1(02), 43-53.
 - 39) Gottero, E., Larcher, F., & Cassatella, C. (2023). Defining and regulating peri-urban areas through a landscape planning approach: The case study of Turin Metropolitan Area (Italy). *Land*, 12(1), 217.
 - 40) Savelli, E., Mazzoleni, M., Di Baldassarre, G., Cloke, H., & Rusca, M. (2023). Urban water crises driven by elites' unsustainable consumption. *Nature Sustainability*, 6(8), 929-940.
 - 41) Orieno, O. H., Ndubuisi, N. L., Ilojiana, V. I., Biu, P. W., & Odonkor, B. (2024). The future of autonomous vehicles in the US urban landscape: a review: analyzing implications for traffic, urban planning, and the environment. *Engineering Science & Technology Journal*, 5(1), 43-64.
 - 42) Nieuwenhuijsen, M. J. (2020). Urban and transport planning pathways to carbon neutral, liveable and healthy cities; A review of the current evidence. *Environment international*, 140, 105661.
 - 43) Bibri, S. E., Krogstie, J., & Kärrholm, M. (2020). Compact city planning and development: Emerging practices and strategies for achieving the goals of sustainability. *Developments in the built environment*, 4, 100021.
 - 44) Sassen, S. (2020). "The Impact of the New Technologies and Globalization on Cities": from Arie Graafland and Deborah Hauptmann, eds., *Cities in Transition* (2001). In *The city reader* (pp. 613-621). Routledge.

- 45) asghar Pilehvar, A. (2021). Spatial-geographical analysis of urbanization in Iran. *Humanities and Social Sciences Communications*, 8(1), 1-12.
- 46) Foroozesh, F., Monavari, S. M., Salmanmahiny, A., Robati, M., & Rahimi, R. (2022). Assessment of sustainable urban development based on a hybrid decision-making approach: Group fuzzy BWM, AHP, and TOPSIS–GIS. *Sustainable Cities and Society*, 76, 103402.
- 47) Mostafaiepour, A., Qolipour, M., Rezaei, M., Jahangiri, M., Goli, A., & Sedaghat, A. (2021). A novel integrated approach for ranking solar energy location planning: a case study. *Journal of Engineering, Design and Technology*, 19(3), 698-720.
- 48) Delfani, F., Kazemi, A., SeyedHosseini, S. M., & Niaki, S. T. A. (2021). A novel robust possibilistic programming approach for the hazardous waste location-routing problem considering the risks of transportation and population. *International Journal of Systems Science: Operations & Logistics*, 8(4), 383-395.
- 49) Ebadi, A. G., Toughani, M., Najafi, A., & Babae, M. (2020). A brief overview on current environmental issues in Iran. *Central Asian Journal of Environmental Science and Technology Innovation*, 1(1), 1-11.
- 50) Ozkaya, G., & Erdin, C. (2020). Evaluation of smart and sustainable cities through a hybrid MCDM approach based on ANP and TOPSIS technique. *Heliyon*, 6(10).