

## Conceptualization and typology of contemporary urban public space

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### Extended abstract

#### Introduction

“Public space” is the subject of a growing academic literature from the full range of social science and humanities disciplines. Each discipline sees public space through a different lens, and with particular interests and concerns to the fore. Political scientists, for example, focus on democratization and on rights in public space; geographers on sense-of-place and placelessness; legal scholars on the ownership of and access in public places; sociologists on human interactions and social exclusion etc. The result is a diverse array of multi-disciplinary approaches towards understanding public space. Furthermore, the combined term "public space" with the words "space" and “the public” and its association with words like "place" and "people" has added to the uncertainty and complexity of this concept. Acknowledging its diversity and differences, the first aim of this paper is to try to shed some light into the meaning and the complicated nature of public space, and giving a new definition from it. The second aim is to present a model for typology of contemporary public space, with regard to the extent of the concept, and according to the new definition of public space.

#### Methods

The nature of research is fundamental theoretical. Using text reading, the complex nature of public space has been studied in different contexts and then with a deductive approach, a new definition and a theoretical model have been reached.

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## Results and Discussion

The existence of these various understandings of public space from multidisciplinary perspectives creates much confusion around the meaning of the terms *public space* and *publicness* of space. Notion of public space is such a “slippery term” because first, on a theoretical level, there are so many conflicting and confusing multi-disciplinary views and definitions in the matter. Second, on a practical level, the “real”, built public places are complex socio-cultural, political and environmental products of a social group. And third, individual level, public space is also a subjective, personal construct. A space can be public to me in Tehran but not to others in other cities.

Due to different concepts of public space that was discussed and the uncertainty of the constituent words associated with the term, as a public, space, place and people, classification of public space would be too wide and variety. In an overview of the literature on public space the main areas of discussion on that subject can be grouped into 5 categories:

1. One of the key features of public space is the *Space “ownership”* issue. Various authors identified ownership as one of the important elements for publicity space. These authors believe growing phenomenon of privatization of urban space lead to restriction of the public realm cities.
2. Second class on the subject of public space is attention to the physical form of a public place. In several of the definitions and conceptualisations investigated, public space is associated with real physical urban places.
3. Third class topic comes mainly from the sociological and anthropological public space literature and refers to the use of public space, or in other words, to their “*animation*”.
4. A fourth strand of research is related to public space as the arena where the fragile relation between freedom and control unfolds. Many authors consider the quality of a public place of being a democratic arena for public life as fundamental for its publicness.
5. A fifth and last common theme is concerned with the sociality of space. In this field, the role of public space in public life, Attention the decline in traditional public spaces, as well as the deterioration and even the loss of public nature will be discussed.

## Conclusion

Due to this, in this paper, we present a new definition of public space including a wide range of urban spaces. In other words, the first output of research is a new definition of urban public space. Definition is as follows:

Contemporary public space is a general term including public places, physical public spaces, civic public spaces covering range from traditional public spaces (such as streets and squares) and new public spaces (such as passages, coffee, etc.). These spaces lead to the formation of urban public sphere. The publicness of public space is different given the historical conditions of society, political governance, economic conditions (political and market forces), cultural traditions and personal experience of space. An urban public space as open, positive, inclusive, accessible, sociable and compatible (softer), the amount of publicity it would be more.

In this definition, the three fundamental principles of contemporary public space are taken into consideration: The changing nature of public space; publicness challenges of public space; And to consider historical and political conditions, cultural traditions, economic forces as well as the personal experience of the space in different communities. According to this definition, a new model is proposed for typology of contemporary public spaces (second output). This model is composed from six criteria. Each criterion at the highest level (level of publicness) has its antithesis at lowest level (level of private). At this model, moving down from the upper levels, amount of publicness of public space is reduced and added to the privatization of public space. In other words, at low levels, the quality of public space in terms of its functions is reduced. This means that the level of “publicness” of public space has been reduced, and the level of “privatization” of public space is added. However, each of these types of public space,

depending on the situation prevailing in various countries (third principle in public space new definition) will be somewhat a space publicness functions.

**Keywords:** place, public, space, typology, urban public space.

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## Comparison of the performance of Fuzzy-Inference System and integrated Fuzzy-Inference System- Monte Carlo models for predicting the distribution of drinking water sources in different districts of Kermanshah in 1400

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### Extended Abstract

#### Introduction

Shortage of high quality freshwater is one of the great challenges that human civilization is facing in the 21st century (Shiklomanov, 2000). This issue threatens the social welfare, public health and ecosystem health. On one hand, limited freshwater resources and increasing demand for this vital resource signifies water issue. On the other hand, non-uniformity of spatial and temporal distribution has complicated the management of these problems (Makhdoom, 1999). Climate change is also one of the main reason for worsening the quality and quantity of water while lowering groundwater level (Lambrakis, 2006). Therefore, good management of water resources to predict water demand for the future in different districts is needed. Accordingly, Multi Criteria Decision Making Method (MCDM) is used (Mousseau & Slowinski, 1998). The aim of this study is to compare the results of estimation of the Fuzzy Inference System and Fuzzy Inference System- Monte Carlo models for predicting drinking water demand in different districts of Kermanshah for the year 1400. Factors such as population growth, per capita water usage and urban development have been considered in order to the manage water resources and accurate planning of the Kermanshah city. This is the novelty of this research. In other words, at first the relation between distribution amount of water consumption and population distribution and after that, the relation between population distribution and the physical development of the city of Kermanshah are studied. That is according to physical development of the city, distribution amount of water consumption is determined.

#### Data and Methods

At first the parameters related to the research were determined by using expert opinions and previous research. The Electre method was used to reduce indicator numbers. After that Monte Carlo simulation was used for obtaining weighted indexes. Finally, for estimation of distribution of population and water demand, FIS method was employed. Ten indices affecting the population and amount of water were chosen according to previous researches. These identified

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parameters included slope, distance from the river, elevation, distance from pipelines water, distance from roads (roads- Avenue), a distance of the center of town, population density, land use, distance from the river. Due to existence of numerous gathered parameters, some of them were filtered as inputs for FIS model. For doing this, Electre model was considered to select more efficient indices based on the 40 experts' opinions. Each index was weighed according to Likert scale. The most effective layer was labeled with "very importance" and the least effective layer with "little importance". For determining the index weight, Monte Carlo simulation method was used. FIS model was also employed to determine density population of districts of the city. FIS model was employed in two states: First, state as combination model in which the consequences of employed Monte Carlo method for weighting of different layers were assessed. In the second state, only FIS method was employed, because of equality in regarding index weights.

### Conclusion and Discussion

Elimination of slope aspect, distance from the river and elevation comes from Electre method. It was mentioned that the Monte Carlo method is based on Saati Judgment, assigning to the accuracy of calculation ( $A=0/01$ ). The value of T and N were calculated:  $T=5\%$  and  $N=10000$ . The result from FIS model and FIS-Monte Carlo model were considered to determine the amount of water that is needed for districts 1 to 3. Both models determined district 3 as the district that needs the maximum amount of water while district 1 with the minimum amount of water.

### Conclusion

The evaluation of distribution of water demand for city is a very complicated issue that is influenced by a variety of parameters. These include the effect of population distribution such as natural factors, human infrastructure, policies in urban planning and urban development etc. Multi Criteria Decision Making (MCDM) method is commonly used to solve this problem. Because of high flexibility and power of their theory, fusion model are more efficient in counting complexity of problem (Shu, and Ouarda, 2008; Shahraki and Abbasian, 2014; Leyva and Fernandez, 2003; Asgharpour, 2012; Ghazanfari Rad, 2011; Rahmati et al., 2014; Sultan Panah and Farooq, 2000). So, these models are more efficient with respect to non-inclusive models. In this research two FIS and FIS-Monte Carlo methods were employed to estimate of population distribution and the amount of water demand with different results. According to the above explanation, the result of fusion model FIS-Monte Carlo is more reasonable. This reasonable result can be reported to the organizations that depend on water resources for future scheduling, management of water resources crisis.

**Keywords:** drinking water, Electre, FIS, Kermanshah, Monte Carlo.

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## Spatiotemporal analysis of the physical expansion of Mashhad City and monitoring of land use changes around

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### Extended Abstract

#### Introduction

Analysis of urban growth using multi-temporal data is topic that have great importance in urban studies and planning for the future of cities. The city as a dynamic phenomenon has an spatial-temporal identity which is changing during the time result from human activities and it is expanding. Generally, the city growth is affluence by different human and physical factors thereby the extent, dimensions and directions of expansion and growth are affluence by those factors. The first consequence of a city expansion and sprawl is land use and land cover change of peripheral lands. According to this, depends of where and how urban sprawl is took place, it might have positive and negative impacts. Planning for the future of urban expansion and directing it to a proper and sustainable direction, awareness about urban expansion, urban growth and urban sprawl in different periods is totally necessary nowadays. One of the most important ways to analyze and study the expansion and growth of a city is using the data and methods of remote sensing.

The city of Mashhad, second largest city in Iran, has experienced a big migration from villages and towns result from, millions of tourist yearly, more attention of the government, increment of investments and creating more employment opportunities. This factors has grew the population first and then expansion and sprawl of the city. Mashhad's growth has been taken place without any attention to environmental potentials, thereby, many problems in parts of socio-economic and environment has been emerged. Therefore, this paper aimed to study and analyze the physical growth and sprawl of Mashhad from 1987 to 2013 using satellite images and change detection algorithms and detect land use / cover change. In addition to this, the proper and appropriate direction for the next growth has suggested.

#### Methods

The aim of this study is to Assessment of the physical expansion of the city of Mashhad, Identify the nature of changed lands to urban uses, determining the main directions of growth and also examine growth pattern of this city. Thus using Landsat satellite images (1987, 2000 and 2013), were extracted land use and land cover classes for city of Mashhad and its surroundings. Using changes detection technique by post-classification comparison method, were identified changes from agricultural lands and barren lands to urban land uses. Then using

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zonal statistic techniques, were obtained extent and nature of changes in different geographical directions.

### Results and Discussion

According to the results, from the 1987 to 2000, the amount of 3,344.67 hectare of agricultural lands and amount of 6,964.11 hectares of barren lands are converted to urban land uses. The main directions of expand of the city at this time, respectively is northwest, west and east directions. The northwest, east and north directions respectively is directions that had been highest amount of agricultural land change to urban land uses. On the other hand, in the directions of northwest, west and south, change from barren land to urban land is higher than in other directions. Examine the density and distribution of urban growth show that expansion of city has followed the sprawl growth pattern. According to the results, provided maps and satellite images of the city of Mashhad, the most appropriate direction for the future development is the northwest. Because in this direction, the proportion of barren lands into agricultural lands compared to the other direction is further. Also there is not any natural barrier limiting in this direction.

### Conclusion

According to what has resulted from the data and analysis, Mashhad has a very rapid rate of population growth in last decade. This phenomenon has a lot of causes like tourism, job opportunities, and amenities and so on. But the more interesting phenomenon is its urban sprawl and physical expansion that it is much more rapid than population growth. So that, from 1987 to 2013, the expansion of this city has increased more than two times. The most changed uses are barren lands and agricultural lands. About 3344 hectares of agricultural and grand spaces has converted to urban land use in a short period (26 years). The growth this city is so much rapid that it is possible to say that it has all conditions of urban sprawl in a developing country, growth toward villages and along roads and highways very scattered and fragmented. The restled showed that the growth won't stop but urban managers and planners must direct it to the optimism direction that the least productive lands change. It is said that the best direction for the next growth of this city is North West. We have to use and implement some strategies to strengthen the city growth to this site.

**Keywords:** land use/cover changes, Mashhad, remote sensing data, urban growth, urban sprawl.

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## The scale of development in urban areas with an emphasis on the satisfaction level standards of urban furniture (Case Study: Abarkuh Localities City)

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### Expanded Abstract

#### Introduction

The city is a great artwork creating according to its size and the number of its population. The ultimate goal of the city is to create a pleasant and comfortable environment for people. Urban space is the place where people spend the most of their time in it, establishing maximum communication with each other and their surroundings. So, makeup the space and make the necessary facilities are presently known as the urban furniture which has a particular importance there (Zangabadi and Tabrizi, 2008: 46). In the current urban life, we can hardly find anyone who does not deal with urban furniture, shelter, bus stations, box office, park benches or road signs. Urban furniture organizes much of the activities in the city and increases citizens' using quality of street, square, park and other urban areas. The main feature of urban furniture is its general application. This group of products has direct contact with the masses more than anything else (Mortazaei, 2002: 13).

#### Methods

This study is an applied research in nature. Its research method is analytical-descriptive and its data have been provided from the library resources including (note taking, internet) and field (questionnaire, interview). In this study, collecting theoretical foundations have been done using inductive and deductive methods and result generalization have been in apriority form. The research statistical population includes Abarkooh city. According to Health Net, Abarkooh city in 2013 has had nine regions consisting of 16685 inhabitants. Based on Cochran formula, the number of necessary samples to adjust the questionnaire in order to measure the satisfaction of urban furniture standards was 263 households. They have been distributed compared to the population of each region. In order to measure and categorize the urban regions, 20 items of urban furniture were distributed by obtaining selected experts' opinions and by using Delphi technique valuing in questionnaire form. It should be noted that in this study in order to measure the satisfaction level of standards of urban furniture, at first 31 items were extracted through studying taken research in the field of urban furniture. Then in order to select the items which are the most consistent with the subject and also the weighting of items, the Delphi technique has been used. So, after the extraction of the final items (20 items) by experts, the subjects were

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asked to assign weight to items based on their importance. For this purpose, 12 experts were selected in the field of urban planning and city management and items were sent to the experts in the form of a questionnaire. 8 out of 12 submissions were received back which have formed the final weight of items. Finally, in order to categorize the regions, Oreste technique has been used.

### Findings

The results of describing the characteristics of individuals show that out of 263 subjects, with the age range of 35-45 years, 242 (%92.01) have been males and 21 (%7.99) have been female. The average size of the household is equal to size of 3.4 persons. Analytical research findings can be explained in two separate parts: 1. Based on the findings, it is specified that citizen satisfaction level of urban furniture standards in 3 districts of Abarkooh city is estimated at a low level that 1 to 3 means (very low, low and moderate) which is a confirmation of this claim in the decision matrix. Based on Oreste findings, it was specified that Golkaran, Imamzadeh Ahmad and Nabadan regiones have been in one to three ranks of satisfaction and Darb Ghale, Jahanestan and Darvaze Meydan regiones have been in 7 to 9 ranks of leveling with emphasis on satisfaction from urban furniture standards.

### Conclusion

Today city men, in order to satisfy their social needs and to fulfill social roles, need spaces with appropriate limit, conditions and facilities. In contemporary cities, urban public spaces as one of the skeletal essential elements of the city have had general and social context and meeting the social needs of human beings is of crucial importance. However, in the cities of our country, urban general spaces are undergone loss of identity, uncertainty of skeletal spatial and inappropriate programming and their elements and equipments including furniture which have great impact on the quality of urban spaces do not have necessary conditions and required features of users. In this regard, Abarkooh city is not an exception of this matter. So, in order to supply the physical and spiritual welfare of the citizens, considering the social cultural conditions of society, improving the quality of urban spaces, creating a visually beautiful scenery in the city and researching in this field by using associated softwares, doing field studies and public polls would be very essential in order to obtain information of citizens opinions.

**Keywords:** ORESTE, satisfaction, urban development, urban furniture, urban neighborhoods.

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## Assessment of potential of physical development and expansion of Pardis new town, emphasis on geomorphological indexes

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### Extended Abstract

#### Introduction

Physical development and expansion of a city or town is dynamic and current process in which physical and legal boundary or limit of the city and physical spaces increase in both directions: vertical and horizontal in point of view of quantities and qualities. One of the main characteristics of urbanization process in Iran is fast expansion of cities and towns. As a Result of new changes, cities are changing very fast. These changes in form of population growth and physical expansion have been uneven and without any adherence. New town of Pardis has 30 kilometers away from east of Tehran, capital of Iran and in the direction of Tehran – AbAli. This city has planned and designed for settling about 150,000 people from Tehran population because of many advantages. It has limited from west to Jajrood river, from north to Alborz mountain ranges, from east to town of Boomhen and form south to some villages like Keresht, Siahsang, TaherAbad and plain of Varamin. The town of Pradis has the form rectangular. The role of Pardis new town is very important that it can beckon added population from Tehran Metropolis. For this reason, it would have a large increment in population growth and finally urban growth and sprawl. This issue that expansion and physical development of this town could direct where and how, is one of the most important issues and challenges. Locating Pardis in a mountain zone that could emerged many severe problems especially geomorphologic problems would be a serious challenge in future. Morphological indexes such as altitude, slope, distance from faults, distances from rivers, land use, land cover and so on can act as limitation in urban expansion of Pradis.

#### Methods

For doing this research, in addition to use documentary ways for gathering necessary data and information about studied area, it has used from topographical maps, Tehran map and geological map of Tehran province in software of Arc GIS. Then, according to the subject, seven criteria in which can make limitation on physical growth of town has studied. Studied criteria respectively are altitude, slope, distance from faults, land use, distance from river, and erosion. Using AHP model, final map of potential sites for physical development has drew and produced in three classes of good, medium and poor.

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### Findings and Results

Based on the maps that have produced about selected indicators, from the point of view of index of slope, most parts of Pardis town are located in the class of less favored and very less favored. In point of view of altitude, many parts of the town are in border of less favored and some parts are in border of medium. It is because this town is located in a mountainous site that all around the town are high mountains where it is not favor for urban structures. In point of view of geological and lithological indicators, many parts of the studied town are located in less resistant, about distance from basin buffer, almost all parts of the town is located in the class of high favored, about land use, many parts of the town in the class of medium, about soil erosion, all parts of the town are located in lands with high ability of erosion and finally about distance from faults about two third of the city built up area is located in very favored class, but some parts in the south there are some very high risk faults.

### Conclusion

Generally, based on the seven factors which show geomorphological possibilities and limitation, it can concluded that the site of Prdis new town is a very less favored place and as the final map reveals this town also has many limitation in point of view of geomorphological indicators for the next expansion and growth. The last map also shows that there are some parts of the peripheral lands which are favored for the next expansion of this town, just in northeast and southwest. Finally, we can conclude that site selection of new towns is a very important subject in urban and design plan and we have to pay attention to not only the current site and location of them, but also to their future growth and expansion.

**Keywords:** geomorphological indexes, new town of Pardis, physical expansion, urban growth.

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## **Investigating on the sustainability of urban neighborhoods (Case studies: 19<sup>th</sup> district of Tehran municipality)**

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### **Extended Abstract**

#### **Introduction:**

History of neighborhood and live in these neighborhoods is approximately as old as citizenship in Iran. Urban neighborhoods can be considered as the smallest unit of social, ethnical and skeletal body of Iranian old cities. Sustainable neighborhood has particular identities of itself, it makes its residents happy, it gives the sense of belonging to them, they also enjoy from the high standards of living and environment, and provide suitable services and accessibilities. Sustainable neighborhood must be planned in a way that besides of efficient exploiting from sources, it also provides rights to choose and enjoy from environment to its residents, an approach which lead the process of neighborhood planning to this way is developing sustainable neighborhood. Today, for finding a solution to the issue of urbanism, approach of developing neighborhood community, with the emphasis to the sustainability of cities with the view centered on neighborhood have got a significant stance. In recent decades, editors and city planners have seen the basis of city development on urban units, i.e. neighborhoods and neighborhoods communities. Planning on the scale of city, no matter of urban life aspects, and with the attention to empirical aspects, have ignored various issues and these are the origin of new ones.

Because of the dynamicity of urban life, planners' system must be process-based to regard for permanent connection with environment, have a more precise understanding of abovementioned issues. Holistic view require visible scales and be measurable in urban life. Therefore urban planning has put its focus of activities on the neighborhood. For attaining to the sustainable cities, firstly we need sustainable neighborhoods, because neighborhoods are known as the smallest unit of city division. 19<sup>th</sup> district of Tehran is faced with enormous problems, some of these issues are as following: rise in immigration and need to expand structure together with weakness in plans and management of forming tissues and urban neighborhoods, not paying attention to create public facilities relative to housing expansion and population, low welfare, framework, social, economical, environmental issues and lack of a comprehensive plan for sustainable development.

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Therefore, this study tries by considering to the abovementioned issues and specific problems of 19<sup>th</sup> district, focus its attention to the sustainability of neighborhoods.

The main purpose of present study is investigating the sustainability of neighborhoods in 19<sup>th</sup> district of Tehran.

According to the purpose, the main question proposed here is: Are there any differences in 19<sup>th</sup> district according to sustainability? And following it, this hypothesis is proposed and it seems that there are meaningful differences among neighborhoods in district 19<sup>th</sup>.

### **Method of research**

Considering to the factors and nature of research, method for doing this research is descriptive-analytic. Coefficients under the study in this research, are neighborhood development. Information required for this study is gathered by library (books, statistics and map) and field research (questionnaire, observation and interview). In this research, by using Shannon entropy statistical model, Delphi's technique and TOPSIS (by formulating in MATLAB software) and other statistical tests, 13-fold neighborhoods of 19<sup>th</sup> district of Tehran were investigated with focus on sustainability. Statistical population is 13 neighborhoods of 19<sup>th</sup> district. Sampling method in this study is cluster-based. For choosing elements of each selected cluster, we used random sampling. Because 19<sup>th</sup> district have 13 neighborhood, therefore several blocks were selected randomly. Total size of sample according to formula of Cochran is 384 people. Also size of each neighborhood was determined by Cochran formula. Then by designing a questionnaire about neighborhood sustainability and distributing it among residents, sustainability of each neighborhood was detected. For legitimacy of instrument, we used Chronbach's test.

### **Results and discussion**

Due to the ranking of neighborhoods by TOPSIS, studied neighborhoods on the view of sustainability were categorized as good, middle and weak. According to the overall average (sustainability), 54/0 percent of examined neighborhoods were weak, 15/0 were middle, and 31/0 were good. Before ranking of neighborhoods according to their sustainability status, by using TOPSIS technique, we found that among four main coefficients, environmental and economical coefficient on the basis of ci amount had good status, structural had middle status and social coefficients were weak.

Also for identifying the status of coefficient of sustainability in neighborhoods under study better, we used T-TEST test. According to the obtained results, all of coefficients that were used for measuring the sustainability of neighborhoods were meaningful, but in terms of average we observed differences among coefficients. In other words, we observed that in terms of sustainability status, there are meaningful differences among under study neighborhoods. Therefore it cannot be said that all of under study neighborhoods are in a desirable state in terms of sustainability. On the other hand, in terms of Spectral range, coefficients among 1 to 5, based on Likert's is fluctuating, social coefficient with the average of 33/9167 had the highest average and economical coefficients with 10/9219 had the lowest average. Also, in the view of average differences, social, economical and structural coefficients were lower than middle averages and this issue indicates that respondents evaluated these coefficients negative. Also this test showed that sustainable coefficient, besides of being meaningful -5/347 is lower than the middle of average and this indicates that sustainability of being studied neighborhoods is lower than middle average and as a result in terms of sustainability, these neighborhoods are not in a good condition.

### **Conclusion**

In present study, sustainable coefficients in 13 neighborhoods of 19<sup>th</sup> district have been measured. Besides, for prioritizing the sustainability of neighborhoods, we used professors' comments and urban planning experts. Also for hypothesis test of the study, besides of TOPSIS

we used others statistical methods, and this made our study different from others. In general, obtained results by considering to TOPSIS indicates that only 31 percent of neighborhoods have good sustainability status. Findings show that weight of some of sustainability coefficients used in this study declined vastly and sustainability decreased lower than average. This indicates that respondents evaluated these coefficients to be negative in their neighborhoods. In other words, for choosing the options of very low, low, middle, more and much more for every coefficient items, they tended to select low and very low, While average of environment coefficient is more than middle and they evaluated it positive. According to this test, sustainable variable besides of being meaningful with  $-5/347$ , is lower than average and this indicates that sustainability in under studied neighborhoods is lower than average and as a result in terms of sustainability, under studied neighborhoods are not in a good condition.

**Key words:** neighborhood, neighborhood sustainability, TOPSIS model, 19<sup>th</sup> district

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## **The political division of space and balance in regional urban system (Case study: the division of vast Khorasan province)**

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### **Extended Abstract**

#### **Introduction**

Cities, as dynamic and at the same time complex systems which control most of the economic-social affairs of every region, play a decisive role in the economic, social, and cultural development process and optimal spatial structure of a territory. Different patterns adopted by urban systems are the consequence of interaction and interplay of effective social institutions and forces. Among the most important of these factors in the current conditions government, market, social movements, developments in communication technology, exterior incentives, the present structure of the spatial organization and etc. can be mentioned. Nowadays, governments and governmental decisions are among the most influential factors in forming the hierarchical model and residential relations.

In this regard, among the powerful governmental tools, political organization of space and state divisions can be mentioned. Political divisions of space are changed by various methods, such as abstraction, interpolation, integration and improvement in different levels of the political zoning of a country's space. When promoting the political level, the lower political-administrative unit is transferred to the higher level. Naturally, simultaneous with promotion of the political level in a state, the whole internal affairs of the country would be accompanied with some transformations. Political organization of space is closely related to growth patterns and economic development on one hand, and physical-spatial patterns on the other hand. This organization is performed based on two objectives including the optimization of places, and optimization of functions and activities. The state divisional system can entail some methods for revision in rules and procedures through which the conditions for actualization of the economic and social development and particularly sustainable development can be provided.

During the recent decades in Iran, the issue of enhancing the administrative-political levels of geographic spaces through formation of new provinces has been considered. After the Islamic revolution in Iran, number of the existing provinces in the country from 24 has reached to 31 provinces. Obviously, in the meantime, several cities have adopted new roles as provincial centers, many cities have promoted to the centers of newly established towns and many villages have become urban areas, while at the same time, direction and intensity of many administrative, political, economic, and cultural processes among the urban areas have been changed. Naturally, by making such decisions and enhancing the position of these cities, the

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residential network system at the regional and national levels would be affected and changed. The vast Khorasan province is among the provinces where these spatial divisions have occurred and the functions of many of its settlements have been promoted. This province was divided into three provinces including the northern, Razavi, and Southern Khorasan provinces in 2004; and since the main function of the state divisions is decentralization in governing the territory and facilitation in exerting the national will, the main question in the present research is whether with the administrative- political decentralization performed in the great province of Khorasan, the regional urban system has been affected by it and whether its spatial manifestation has been crystallized in decreasing the urban primacy index of Mashhad metropolis, fortifying the medium size cities and small towns, and also providing a more balanced population distribution.

### Methods

The present study is a practical one and its study method is descriptive and analytical and the subject entails a comparative and procedural study. The investigated geographical area is the vast province of Khorasan and the research period has been the time before and after the divisions. To achieve the intended goal, the required information and data were collected through study of library sources and documents which included research reviews and the studies performed on the related issue and application of the needed statistics and data during various periods. Also, in order to analyze and process the data, regional techniques and indexes were used including the urban primacy indexes, elastic ability index, entropy index and Gini coefficient.

### Results and Discussion

The urban network in Khorasan province like most of the country's regions that are affected by center-oriented political. Administrative structure is experiencing an unbalanced situation that the population gap and spatial dissociation of its hierarchy is obvious. Following the governmental decisions in political divisions of the provinces during the last decade in the country, the vast Khorasan province was also divided into three separate provinces in 2004. According to the performed decentralization and enhance of the status and administrative-political function of many of the residential areas, it is expected that these evolutions would lead to population decentralization. Also, it is expected that while decreasing the urban primacy index of Mashhad, medium size cities and small towns would be fortified and population distribution become more balanced. Findings of the present study indicated that division of Khorasan province and formation of newly-established provinces have led into the formation of new urban areas. This means the transformation of many villages to towns and promotion of their roles and functions. Also, changes in contribution of demographic classes demonstrate that division of this province has resulted in decentralization of urban population and especially those urban areas which have adopted new centrality roles attracted more population.

Among the other evolutions which are expected from the provincial division is the decrease of the province's urban primacy index. The performed study indicates that despite the division of the province, the difference between the first populated city with other subsequent cities of the province has not reduced but rather it had been intensified (which is due to the powerful role of Mashhad in the region and also because the new provincial centers are not considered among the first three cities). However, the models in which the population of Mashhad is calculated compared to the total urban population of the province suggest that the urban primacy index has been a little reduced. Additionally, investigating the situation of balance in spatial distribution of Khorasan's population demonstrates a lack of balance, though this situation has become a little more balanced after the provincial division based on the entropy coefficient, however, according to Gini coefficient, imbalance has been increased and this can be observed in small towns and medium size cities. An increase in the transformation of villages into small towns has played a crucial role in this regard.

## Conclusion

In sum, it must be stated that imbalance in the residential system of the region is the consequence of a variety of natural and human factors which are formed in the context of a series of historical evolutions in a region and efforts for decreasing its heterogeneity cannot be achieved simply and merely by one or several factors. Decentralization in decision-making, assigning new roles to cities, and political promotion of small towns and medium size cities are among the measures which can in turn change the economic, service and population processes in a region. As a result, they can affect the residential system of the region. Nevertheless, it is noteworthy that decentralization through political promotion of space is merely a single factor with limited affecting level and in order to balance the residential system of the region, appropriate planning and solutions should be performed to strengthen the small towns and medium size cities for population control and population stabilization of the region; therefore, by a planning approach and considering the potentials of cities and areas sustainable development can be achieved that would not only decrease the existing population imbalance, but also it would reduce the intra-regional economic and service gaps.

**Keywords:** decentralization, Khorasan province, political divisions of space, regional balance.

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