Int. J. Nonlinear Anal. Appl. In Press, 1–14
ISSN: 2008-6822 (electronic)
http://dx.doi.org/10.22075/ijnaa.2024.35543.5288

Identification and statistical analysis of factors affecting the integrated management of the port city of Imam Khomeini

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(Communicated by Mohammad Bagher Ghaemi)

Abstract

Considering the changes that have taken place in urban settlements and the country's urban planning and management system in recent decades, it is felt necessary to review the spatial-physical development management of the country's cities in order to eliminate the existing deficiencies and damages. Multi-criteria decision-making (VIKOR) and hierarchical analytical methods have been used in order to analyze the information and provide a strategic model for the integrated management of the Imam Khomeini Port city area. Based on the findings, it can be concluded that the integrated management of urban privacy is one of the most important issues that can be pursued in the field of general concepts related to privacy for managers and urban and regional planners. This requires the creation of a legal environment and political support; in addition, it requires the allocation of educational programs, research projects, as well as the allocation of national, regional and local support budgets. The results of this research also showed that, in order to implement an integrated model of sanctuary management in the city of Bandar Imam Khomeini, it is necessary to seriously and legally control the phenomenon of land grabbing, prevent the expansion of informal settlements in the sanctuary, and develop polluting and environmentally destructive industries.

Keywords: integrated management, urban space, multi-criteria decision making, Imam Khomeini Port (RA)
2020 MSC: Primary 90B50; Secondary 62P25, 62H20

1 Introduction

With the emergence of globalization and the expansion of urbanization, cities have faced two important and influential problems: how to reduce or even prevent social and spatial inequalities. In the same way, despite the related social problems and spatial segmentation, how can we create stable local economic growth, international and interregional competition, as well as job market advertising? To face these challenges, it has been proven that traditional methods are exhausting and ineffective, and as a result, new management strategies must be adopted. Among these strategies, integrated urban management is a new concept that implies a change in the administrative situation and the way of thinking of decision makers in formulating and implementing land development policies. Integrated urban management has two vertical and horizontal dimensions beyond the administrative boundaries of

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Received: July 2024 *Accepted:* October 2024

cities and requires the identification of factors that are based on these dimensions. The solution is not to design and implement projects such as shareholder projects. These factors should be selected and analyzed, and those who can provide real support for these projects. In fact, integrated urban governance is a management approach to the basic problems existing during policy formulation beyond the limits of political regions [6].

One of the most important problems for planners in comprehensive urban plans is the precise determination of the boundaries of the city, especially its privacy. Based on this, the Supreme Council of Urban Planning and Architecture of Iran mandated that the specialized working groups of infrastructure and urban development and the planning and development councils of the provinces, when reviewing and approving comprehensive urban plans, should determine the boundaries of the cities according to the level of the area and the horizon of the plan, about three to five times the level of the city area. Considering the changes that have taken place in urban settlements and the country's urban planning and management system in recent decades, it is felt necessary to review the spatial-physical development management of the country's cities in order to eliminate the existing deficiencies and damages. Because many of the existing disturbances can be attributed to the lack of coordination between the regulations and laws of the relevant institutions, the ambiguity and conflict of these regulations, or the disproportion of the laws with urban needs, or the failure to guarantee the implementation of their supervision. In this way, the existence of these issues and deficiencies can cause abuse by various interested and influential groups, leave the hands of the executives free, and, as a result, violate the rights of citizens [1].

Due to the non-implementation of integrated urban management, every year we witness the wastage of budgets and financial resources of municipalities, departments and organizations in cities, as well as a kind of parallel work, inconsistency and disorder. Therefore, if integrated urban management can be applied, these problems can be prevented. The most important reason for the disorder and uneven development of Iranian cities is the city-centric attitude and lack of attention to the surrounding areas. Therefore, a major part of the problems of the country's cities, including the port city of Imam Khomeini (RA), is due to the lack of a specific strategy by the government for these areas. In this regard, the most important factors in the disorder of urban development in the lands around the city are the lack of legal status and the absence of a single management and a clear trustee. Considering that weak management and planning are among the main factors that cause problems in the city boundaries, and without a specific strategy to manage and monitor them, the problems of these areas become more critical every day.

Therefore, it is necessary to put the lands around the cities under a single management and strict supervision. In this regard, the integrated management of the city boundary is one of the important needs to advance the goals in the direction of social welfare, which should be paid much attention to. Integrated urban management, while solving this problem, has achieved the conditions of better and more accountability of officials to the people and makes the desired goals of the city be realized quickly and with the least waste of money and time. According to the design of the problem, this research has tried to identify and analyze the most important factors and factors influencing the management of Imam Khomeini's (RA) Bandar city boundary. The special necessity of the research originates from the fact that every year, large sums of money are spent on managing the executive affairs of the cities. As one of the most important cases, the lands around the cities are capital and a suitable environment for the life of the urban population and the main platform for urban and rural development. When this natural capital is left without a plan, and the governments do not control it by implementing special policies, cities will grow in an unsteady and unmeasured way, and the healthy fabric of the city will be torn apart. It seems that with the application of integrated urban management, it is possible to manage and organize these lands in a coherent manner while preventing waste of costs. In addition, it has been determined by the investigations that few researches have been done on integrated urban management, especially in the city of Bandar Imam Khomeini (RA). Therefore, it is necessary to carry out this research because it can help localize research concepts and theories.

2 Theoretical foundations

2.1 Urban space

The definition and determination of Harim for cities is the official and legal tool of policy-making and planning to guide and control the development and supervision of constructions around the city. Examining related texts indicates the existence of several concepts related to the scope and function of this type of tool and planning policy. Examining the texts and documents of urban development in Iran indicates a kind of mixing of discussion in two categories of similar concepts in this issue. A group of concepts are scientific concepts, such as urban halo, rural-urban halo, peri-urban area, etc., which refer to an area that is located between a completely built-up urban area and a completely rural area. Of course, according to its nature and its legal definition, Harim is an area that can be defined around the fully urbanized area of the cities and metropolises of the country. Therefore, some times Harim in the country has

been given the title of "urban aura" which seems to be due to the fact that the concept of urban aura is a completely scientific concept and shows the geographical area of rapid urban-rural developments in the immediate area of cities, it does not have much compliance with the nature of Harim in the legal texts of the country (that is, an official and legal scope for exercising cross-border municipal control in its immediate area) [8].

Examining the concepts related to Harim shows two examples very close to the legal concept of Harim (and not its scientific and geographical concept). These two concepts include the concept of "green belt" which is used in Britain and several European and American countries, and the other is the range of cross-border powers in the cities of the United States of America. The green belt, which became mandatory in all British cities, especially large cities, after the 1947 British Urban and Rural Planning Act, is a boundary, which is determined immediately around the cities and after the approval (which is accompanied by many conflicting votes) no development is allowed in it. The green belt is an area to prevent the continuous and horizontal development of the city and the integration of small and large cities around the central city. Another close example is the definition of areas around cities, which are known as areas of cross-border exercise of power in a number of American states. In this type of action, which is more similar to the situation of Iranian cities today, the municipality of the central city defines a range in the immediate areas of the municipality. In those areas, special zoning regulations for land use will be applied by the central city municipality. According to the law, the central city municipality has no duty to provide services in these areas, but it can comment on the dimensions of land use zoning regulations and control the development in those areas. The scope of this sanctuary has a direct relationship with the sphere of influence of the central city and its population. This strategy is not very applicable in cities with tangential boundaries and adjacent to other local government areas [12].

The concepts that are related to the types of boundaries and forms of settlement defined in the context of cities and metropolises can also be classified in two groups in terms of form: Concepts and ranges of linear and circular and concepts and ranges of points or spots. Concepts and linear boundaries are those that cover the surroundings of the city, such as the urban aura or peri-urban area. But point concepts refer to residential areas that have not been developed in a strip or circular manner and are mostly spots or areas that have been developed at short or long distances from the central city. Such as satellite cities, city-edges and extra-urban areas. In addition, another classification can be applied among these concepts and domains in terms of nature and function. Some of these concepts are scientific concepts that are considered in geographical and spatial texts related to urban and metropolitan studies, regardless of any planning semantic load; Such as urban-rural halo or peri-urban areas. On the other hand, some of these concepts, such as the green belt or the transboundary control area, are a kind of territory and spatial concept which has a planning meaning and is defined in planning texts as an area in which certain rules and regulations of planning prevail and development is possible only under certain conditions. The first part is a preliminary list and description of all kinds of concepts and spatial territories around cities, which list is the result of an initial exploratory study. As mentioned earlier, all these concepts are categorized in the basic form of linear-circular concepts and point-spot concepts [3].

In the past, our approach to Harim in Iran has been a combination of both the service scope approach and the 25-year scope approach. The first area of the active part of the city and the second area were defined for the future development of the city. Article 56 of the Law on Municipalities is also clear that "a municipality outside the approved limits of the city does not have the right to undertake the provision and distribution of water and electricity and other municipal facilities". However, in various legal documents, different terms have been used for these concepts, such as legal limit, protection limit, area, etc. In any case, in all these areas, if the construction in the sanctuary is restricted or even prohibited, it is a temporary restriction and prohibition. The goal is to regulate construction, not prevent it (or protect) forever. For the first time, in the Municipalities Law Amendment Law approved in 1345, the issue of Harim was raised simply as "the limit of the possible development of the city" and the limit of "regulations for construction measures" and the issue of protection was mentioned only in the case of ancient monuments.

If the so-called green belt policy is really on the agenda for sanctuaries, the general difficulty in defining the law of definitions is that protection is limited to agricultural lands, gardens and forests. However, this limitation should extend to the entire area of the Harim, including mountains, rocky outcrops, deserts, etc. The necessary spaces for the expansion of the mother city and satellite cities should be specifically foreseen in the boundaries and sanctuaries of cities, towns and villages. The word "green" in the phrase "green belt" should not cause misunderstanding. The essence of this policy is the protection of open spaces (which coincidentally are often green in European countries) or "openness" [4, 5].

2.2 Urban management

Urban management means accepting and understanding continuous responsibility to achieve a series of specific goals, which itself leads to a main goal. This responsibility is about what needs to be done and how to properly systematize it. In general, urban management should include the following: adopting a broad and comprehensive view,

pursuing goals and determining needs and opportunities, feeling responsible. Urban management means implementing plans and programs that have been addressed in the urban planning process and how to implement and review them according to urban dynamics and developments [10].

2.3 Integrated urban management

One of the issues that is always raised in the country is the single trusteeship of large cities or the implementation of the law of integrated urban management, which can almost be said to have never been observed. The meaning of integrated management does not mean that all matters are under the control of the city management, rather, the meaning of this is that the municipality has the power to make statements in various urban areas, in fact, a powerful mayor manages the city not in terms of administration but in terms of urban management. The goal of urban management is to ensure that system components are managed in such a way as to enable the day-to-day functioning of a city, and this facilitates and encourages all types of economic activities and enables residents to meet their basic needs in housing, access to facilities and services, and opportunities to generate income. Regarding this phrase, Churchill agrees with the idea of an increasing complexity: "The word city management has advanced towards a richer and newer meaning. This term no longer only means systems for control, but a set of behavioral connections, a process through which the countless activities of residents interact with each other and with the city government. It is clear that the one-dimensional intervention has been replaced by a more complex and precise thinking model in the face of urban development, where urban management begins and ends [11].

Integrated and coordinated urban management centered on the municipality and relevant institutions (both governmental and public) under the supervision and local policymaking of the city council is the general model desired in compiling the duties of municipalities. Without this inter-organizational unity and coordination, the efficiency and effectiveness of the set of actions and resources spent for the administration of city affairs and its development are highly questionable. In this framework, the spatial and functional comprehensiveness of the municipality and city management in directing and controlling the entire city space and all aspects of urban life is a fundamental necessity. It seems that in many urban spaces, government and private sectors tend to work separately instead of working together to solve problems. Every government department or scientific system only pays attention to a small part of the configuration of the city. It is clear that housing planning, without regard to public transportation or employment creation and environmental initiatives, without educational measures, not only does not solve the problem, but also aggravates it. In the government sector, there is a mechanism for coordination between departments, and the academic sector has practical plans for its systems. The degree of coordination between government levels affects the type of planning and its relative success. In this way, some levels of government act much more coherently than other levels. Urban management in developing countries is considered as a comprehensive concept in its approach to cities and small towns. At its core, this comprehensiveness requires that urban issues be simultaneously considered as organizational issues to ensure a sustainable strategic and operational response, i.e. the integrated structure of urban management. In all the big cities of the world, the authority of the mayors is proportional to the authority of the president, and this is much more pronounced in the big cities, in fact, the mayor is the head of that city and all the executive decisions of a city are taken by the mayor. It is obvious that if every organization is supposed to do things in the city with its own style, the city will face many problems. It is on this basis that it can be said that integrated urban management, especially in big cities, is one of the important needs to advance goals in line with social welfare, which should be paid much attention to; But in Iran, the urban management system and municipality is no longer the answer to urban issues, because today municipalities are no longer considered as a service institution, but they always refer to it as a social institution. It seems that the reason for this should be sought in the factors that include the lack of independence of the macro-management, dependence on the central government, in other words, centralized administrative system and top-down hierarchical planning and management system, lack of focus in goal setting; planning and implementation, the uncertainty of the authority of coordination and integration in the field of policymaking and legal implementation at the regional and local levels, especially in cities, the lack of legal and mandatory commitment for coordination between executive bodies, the multiplicity and diversity of urban tasks. , the failure and change of the content of Article 186 of the third development plan of the country, the lack of use of superior technology in the field of spatial planning and the formation of an urban information base, the lack of attention to physical divisions in the direction of integrated urban management, parallel work and inconsistency in administration and controlling the urban structure and body, destruction of public funds.

Therefore, today, the main lever in the success of city management should be considered to focus on "integrated urban management" as a means to realize "sustainable urban development", which has become the subject of many domestic and foreign researches and articles in recent years, which requires special attention. Integrated urban management, while solving these problems, has achieved the conditions of better and more accountability of the officials

to the people and makes the desired goals of the city to be realized quickly and with the least waste of time and money. The problems in the city are due to the fact that many institutions such as the water and sewage organization, education and training, municipality, etc. are active in the city and each of them works in their own style and they do not coordinate from a single point to do things. The lack of coordination between these bodies and general departments causes many problems; In metropolitan cities, there are many executive bodies that must be in contact with the municipality and have proper cooperation and interaction in order to do their work, otherwise they will face problems in providing services to the citizens. That is why the necessity of creating an integrated urban management is felt to create coordination in executive and urban activities among the organizations. Integrated management is one of the necessities that seems to be very effective in the follow-up and management of urban affairs, and in fact, in the aforementioned framework, all institutions are required to be accountable to the urban management system within the framework of a principled and documented organization, and on the other hand, the mobility of the Islamic council of the city and the village will be given more and more agility and consistency. Some experts believe that the philosophy of urban unit management is only to eliminate inconsistencies, interfere in the duties of service organizations, the multiplicity of decision-making centers in villages and cities, and as a result, create dissatisfaction among the people, waste the treasury, and create problems such as traffic, especially in big cities. But some experts have a different opinion and believe that in the urban unit management plan, decision-making and implementation of 23 tasks are transferred and delegated to the municipality and councils. All these responsibilities and duties along with their budgets are provided to councils and municipalities; Because the government cannot take care of all urban and rural affairs and as a result, it has high cost and low productivity for the people and the government [7, 14].

According to the program, the following can be mentioned from the assignments of government agencies: City development and civil affairs with priority on traffic management, guidance and traffic management, management of maintenance and exploitation of forest parks and national lands and natural resources with the use of green space, improvement and exploitation of the bed and privacy of rivers and canals and natural streams (in compliance with the regulations technical department of the Ministry of Energy and the preservation of government property), administration of tourist places, public libraries and public sports within the legal limits of the cities to the municipalities.

Integrated urban management includes different and diverse departments such as transportation and traffic management, environment and life, reconstruction of worn-out urban fabric, cultural management of the city, water and sewage management and dozens of other issues in the city. The realization of integrated management is inevitable. Because megacities are faced with numerous and diverse requirements and needs, which reinforces the need to apply such a principle (integrated management) even more. In fact, integrated management is not arbitrary, one-sided, and one-centered management, rather, in this management, all the devices and institutions active at the city level should step side by side with the city management, and finally, the city management takes smart measures by relying on mutual thinking and receiving different opinions. Some experts believe that the urban needs of megacities in various fields, including traffic, law enforcement, urban welfare, water, electricity, gas, post office, etc., require that, while increasing synergy, integrated and unified management should also be realized. Perhaps for many people in the past, it has been experienced that after asphalting a road, the gas department digs it up, or the electricity, water, etc. departments, each of them, in some way, undertake construction operations in the city to implement their plans; In fact, the municipality spends money on a project to be built, but based on the plan of the water department, the implementation of the project related to the ABFA complex must be operational; A plan that, in the case of predetermined coordination of the municipality or such service providers, will prevent spending again, and as a result, the process of implementing affairs will be accelerated and facilitated [15].

There are different models for urban management in different countries. The main factors in determining the shape of the model go back to the history, political culture and type of government system of the country. The way the city's affairs have been managed throughout history, and its independence or dependence on the government, has an effect on its current form of management. In societies where cities have independent legal identity and autonomous and democratic traditions, urban management is based on long-standing electoral and independence procedures. The existence and power of civil traditions to guide political actions and the way of interaction in the political sphere based on horizontal or vertical relations between the rulers and the condemned is effective on urban management models. In societies with a background of statism and weak civil traditions in urban management, only one model can be seen. Societies with a history of urban independence and the strength of civil traditions that allow interaction and cooperation between different groups, there is more diversity in the way of urban management. In federal countries, due to the existence of more powers for sub-national levels, there are various models for urban management; For example, two countries, America and Germany, have various urban management models; But in mono-structural or centralized systems, there is usually a model for urban management [2, 17].

2.4 Integrated management of urban space

Integrated management of urban space refers to a set of management measures which, with the approach of change in the administrative situation and the way of thinking of the decision-makers in formulating and implementing land development policies, provides solutions for guiding and controlling the development and monitoring the constructions and construction activities around the city [18].

3 Research methodology

The research method in this study is descriptive-analytical. Also, this research can be considered in the field of applied and exploratory research. In applied research, practical and applied materials and aspects are taken into consideration in real problems and the objective use of research results. The researcher's goal of applied research is to achieve principles and rules that are applied in real and practical situations and help to improve the product and efficiency of implementation methods. The descriptive part is done in the form of library-documents and the use of statistical data collected in the Municipality of Bandar Imam Khomeini (RA). Analytical part has also been done using multi-criteria decision-making methods (VIKOR) and hierarchical analysis.

The VIKOR method (compromise solution and multi-criteria optimization) has been developed as a multi-criteria decision-making method to solve a discrete decision-making problem with disproportionate (different measurement units) and conflicting criteria. This method is focused on ranking and selecting a group of alternatives and determining compatible solutions for the problem with conflicting criteria, which can help decision makers to reach the final decision. A compatible solution is a possible solution that is the closest to the ideal solution, and compatibility means a solution based on an agreed solution [16]. The statistical population in this research consists of three urban service areas of Bandar Imam Khomeini Municipality (RA). Sampling in the present research is a purposive sampling method. In targeted sampling, the researcher selects samples based on the research objectives and according to the conditions of the statistical population to collect information. It is possible to calculate the sample size in each research according to the possibilities of the researcher and the type of research. In this research, in order to determine the appropriate number of samples that can represent the statistical population, the following method is used. Cochran's formula was used to calculate the sample size:

$$n = \frac{\frac{z^2 pq}{d^2}}{1 + \frac{\left(\frac{z^2 pq}{d^2} - 1\right)}{N}} \tag{3.1}$$

in which:

N: the size of the statistical population which is equal to 78353;

z: the percentage error of the acceptable reliability coefficient standard, which is equal to 1.96;

P: the percentage distribution of traits in society, which is equal to 0.5;

$q = (p - 1)$: the percentage of samples that do not have that attribute in the society, which is equal to 0.5;

d: degree of confidence or desired accuracy, which is equal to 0.05.

Therefore, by putting the relevant numbers in the formula, the number of samples needed in the current research will be calculated as n=382. When we put the size of the community in Morgan's table, the same number will be obtained. Therefore, in this research, 382 heads, deputies, experts, employees and specialists of departments and organizations related to Imam Khomeini Port Municipality (RA) have been selected as the research sample.

In order to collect information, in addition to the use of relevant documents and direct observations, the library method has been used. Also, a questionnaire design has been used in the field method to collect and compile information. The questionnaire has two parts. In the first part, the demographic characteristics of experts, presidents, and vice-presidents have been discussed. In this section, questions such as age, history of activity, their level of awareness regarding the category of urban management, education, field of study and the like have been asked. The second part is dedicated to the main research questions. The questions are likert scale and are answered in the form of a five-point scale. The Likert scale is one of the common rating scales that is widely used in research and surveys. Likert scale is one of the most reliable methods used to measure opinions and views. Behavior and attitudes are measured on a Likert scale using multiple-choice responses valued from a low to a high range (for example, strongly disagree to strongly agree). Unlike simple "yes/no" questions, the Likert scale allows the researcher to reveal the degree of opinions, and this can be especially useful for sensitive and challenging issues. Additionally, having a range of responses allows the researcher to better understand trends.

Also, in this research, the Kolmogorov-Smirnov test was used to evaluate the normality or cointegration of the variables. Kolmogorov-Smirnov test is one of the most important statistical tests in SPSS software. This test is one of the main criteria for choosing parametric or non-parametric tests. Kolmogorov-Smirnov test shows the normality of data distribution. That is, it compares the distribution of a trait in a sample with the distribution assumed for the population. If the data has a normal distribution, it is possible to use the parametric test, otherwise we should use the non-parametric test. After SPSS analysis, in the output of the Kolmogorov-Smirnov test, if the test was significant, i.e. p was smaller than 0.05, it means that the distribution is not normal and we should use the non-parametric test. Therefore, if the result of this test is not significant, it is possible to use parametric tests [13]. In the current research, first, a questionnaire was presented to 15 relevant experts in the aforementioned statistical community to complete it. After 15 days, the questionnaire was again presented to the mentioned people to complete. The reliability coefficient of the questionnaire was calculated using Cronbach's alpha test according to the following formula:

$$\alpha = \frac{k}{k-1}\left(1 - \frac{\sum_{i=1}^{k}\sigma_i^2}{\sigma^2}\right) \tag{3.2}$$

where k is the number of questions, σ_i^2 is the variance of each question and σ^2 is the variance of all questions. According to this test:

- The higher the positive correlation between the questions, the higher the Cronbach's alpha, and conversely, the higher the average variance of the questions, the lower the Cronbach's alpha;
- Increasing the number of questions will have a positive or negative effect (depending on the type of correlation between questions) on Cronbach's alpha;
- Increasing the sample size will decrease the average variance of the questions, thus increasing Cronbach's alpha [9].

Cronbach's alpha coefficient was calculated at about 0.86, which indicates the "good" internal reliability of the questionnaire. Also, in order to ensure the validity of the measurement tool, the content validity method has been used. Therefore, the questionnaire was given to the experts after it was compiled, and professors and specialists in the field of integrated management of urban space confirmed its validity. The spearman correlation formula is as below, which x_i and y_i are our data points, and $\overline{x}$ and $\overline{y}$ are the means of x-values and y-values, respectively.

$$r = \frac{\sum(x_i - \overline{x})(y_i - \overline{y})}{\sqrt{\sum(x_i - \overline{x})^2(y_i - \overline{y})^2}} \tag{3.3}$$

x_i and y_i are your data points, $\overline{x}$ is the mean of the x-values and $\overline{y}$ is the mean of the y-values, $\sum$ is the summation sign, see sigma notation for more information. The formula can also be seen in other forms such as: $r = S_{xy}/\sqrt{S_{xx} \times S_{yy}}$, where,

$$S_{xy} = \sum(x_i - \overline{x})(y_i - \overline{y}) = \sum(xy) - \sum x \sum y/n,$$
$$S_{xx} = \sum(x_i - \overline{x})^2 = \sum(x_i - \overline{x})(x_i - \overline{x}) = \sum(x^2) - (\sum x)^2/n,$$
$$S_{yy} = \sum(y_i - \overline{y})^2 = \sum(y_i - \overline{y})(y_i - \overline{y}) = \sum(y^2) - (\sum y)^2/n.$$

4 The scope of the study

The city of Bandar Imam Khomeini (RA) is in the geographical area of Mahshahr city and in the southwest and plains part of Khuzestan province, which is located at 49 degrees 8 minutes east longitude and 30 degrees 33 minutes north latitude, 85 kilometers east of Abadan, 12 kilometers west of Mahshahr and 105 kilometers from Ahvaz city. The city of Bandar Imam Khomeini (RA) is limited from the east to the central part of Mahshahr port at a distance of 8 kilometers, from the south to Khor Musa and at a distance of 30 kilometers from the north to the Jarhiri River. This port city is also limited by the railway and freeway from the north and northeast. One of its climatic features is that it is located in the ups and downs of the coastal land, the water depth of the Persian Gulf coast is low with this land, except for the progress of Khor Musa, and it extends from the headland along the southeast (Figure 1). The city of Bandar Imam Khomeini (RA) has the characteristics of climate influenced by hot and humid subtropical climate and has a hot and dry climate. This region, like other coastal regions of the Persian Gulf, has relatively low rainfall and high relative humidity in the air. Its temperature is almost always above 0 degrees Celsius and reaches more than 50 degrees Celsius in August. The area of this city is 34 square kilometers and its height is about 3 meters above the sea level. According to the censuses, the population of this city was around 67075 in 2015, around 72357 in 2019, and around 78353 in 2015, which shows a growth of 7.29%.

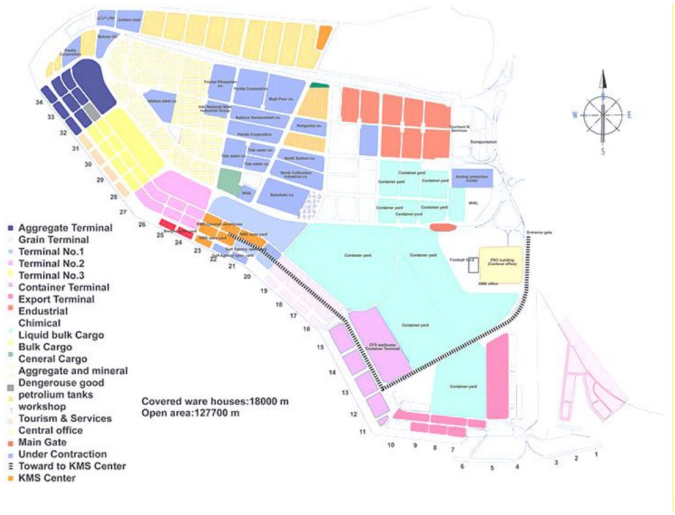

Figure 1: Map of the boundary and geographical location of the city of Bandar Imam Khomeini (RA)

5 Findings and discussion

In the present study, the number of research samples was estimated at 382 people. Finally, after the distribution of the questionnaires, the number of 352 questionnaires that were completely filled was the basis of the calculation and were subjected to statistical analysis. Table 1 shows the percentage of respondents.

Table 1: Frequency distribution of respondents according to gender

Statistical index	**Frequency**	**Percentage**
Men	238	67.61
Women	114	32.39
Total	352	100

The data indicate that the frequency of men is more than twice as high as that of women in the analyzed population.

Table 2: Frequency distribution of respondents according to age groups and gender

Group	**Men**		**Women**		**Total**	
Age group	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Less than 25 years	23	9.66	11	9.65	34	9.66
25 to 30 years	32	13.45	24	21.05	56	15.91
31 to 40 years	76	31.93	33	28.95	109	30.97
41 to 50 years	68	28.57	33	28.95	101	28.69
51 years and older	39	16.39	13	11.40	52	14.77
Total	238	100	114	100	352	100

The data shows that among men, the age group of 31 to 40 years has the highest frequency with 31.93%, while among women, the age group of 31 to 40 years and 41 to 50 years have the highest frequency with 33%. Also, based on the data, it can be claimed that the age group of less than 25 years has the lowest frequency with a total frequency of 34%. The frequency distribution of the statistical population according to the level of education is presented in Table 3.

Table 3: Frequency of respondents according to education and gender

Group	**Men**		**Women**		**Total**	
Education	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Diploma	15	6.30	8	7.02	23	6.53
Associate degree	35	14.71	19	16.67	54	15.34
Bachelor	129	54.20	46	40.35	175	49.72
Master's degree	49	20.59	38	33.33	87	24.72
PhD and above	10	4.20	3	2.63	13	3.69
Total	238	100	114	100	352	100

According to the data, it can be stated that people with bachelor's level of education make up the majority of research samples, i.e. 49.72% among both men and women. It can also be stated that the percentage of people with a graduate level of education (master's degree and doctorate) among women with 35.96% is more than the same people among men with 24.79%. Table 4 shows the frequency distribution of respondents according to work experience.

Table 4: Frequency distribution of respondents according to work experience

Group	**Men**		**Women**		**Total**	
Work experience	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Less than 10 years	105	44.12	45	39.47	150	42.61
10-20 years	88	36.97	49	42.98	137	38.92
20-30 years	45	18.91	20	17.54	65	18.47
Total	238	100	114	100	352	100

The above table shows that people with less than 10 years of experience make up the highest percentage (44.12%). While among women, people with experience of 10 to 20 years are the majority (42.98%). People with experience of 20 to 30 years have the lowest statistics among both groups of men and women. Table 5 shows the frequency distribution of the respondents according to the level of awareness of the category of integrated management of urban space.

Table 5: Frequency distribution of respondents according to the level of awareness of the category of integrated management of urban privacy

Group	**Men**		**Women**		**Total**	
Consciousness	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Very high	20	8.40	15	13.16	35	9.94
High	75	31.51	47	41.23	122	34.66
Moderate	91	38.24	32	28.07	123	34.94
Low	31	13.03	14	12.28	45	12.78
Very low	21	8.82	6	5.26	27	7.67
Total	238	100	114	100	352	100

According to the data, a total of 44.6% of the participants in the research stated that they were aware of the category of integrated management of urban space at a very high level. Also, 34.94% have evaluated their awareness of this category as average. In addition, 20.45% of the respondents considered their awareness of the category of integrated management of urban space at a low or very low level. The frequency distribution of respondents according to marital status is presented in Table 6.

Table 6: Marital status of the respondents according to gender

Group	**Men**		**Women**		**Total**	
Marital status	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Single	48	20.17	20	17.54	68	19.32
Married	135	56.72	68	59.65	203	57.67
Divorced	39	16.39	16	14.04	55	15.63
Deceased wife	16	6.72	10	8.77	26	7.39
Total	238	100	114	100	352	100

According to the above table, it can be stated that the majority of the research samples (203 people), i.e. 57.67% were married and 19.32% were single. Meanwhile, the number of marriages in women has been higher than in men. Now we can analyze the results based on the information obtained from the questionnaire. The research variables are:

- V1: amount of land grabbing and unauthorized constructions;
- V2: the level of environmental pollution and destruction;
- V3: The amount of migration and informal settlements.

Kolmogorov-Smirnov (K-S) test was used to evaluate the normality or co-collinearity of the variables. In fact, here we want to make sure that the data has a normal distribution or not? Table 7 shows the test results.

Considering that the Z-score calculated for the research variables is lower than the average at the 95% level, it can be stated that the above distribution has the assumption of normality and the average can be used as an indicator of central tendency and parametric statistical models can be used. Table 8 shows the descriptive statistics of respondents' age and research variables.

Table 7: K-S test of research variables

	Variable		
Indicator	V1	V2	V3
Number	352	352	352
Average	3.752	3.276	3.213
Standard deviation	0.654	0.501	0.722
Equal to	0.124	0.215	0.107
Totally positive differences	0.075	0.093	0.114
Completely negative differences	−0.101	−0.251	−0.0412
Z	1.054	0.978	1.012
Sig (2-Tailed)	0.0489	0.0358	0.0354

Table 8: Table of statistics of respondents' age and research variables

Age	**Variable**	**Index**				
		Max	Min	SD	Median	Mean
Less than 25 years	V1	90.38479	17.96108	16.6997	46.15613	47.5872
	V2	61.4153	21.05116	14.58283	41.17942	40.1122
	V3	65.37447	24.2378	13.69989	42.12369	43.1456
25-30 years	V1	161.4507	35.08315	28.6926	85.43919	85.0031
	V2	116.7758	43.295	24.47157	84.17514	83.4541
	V3	109.7037	37.60283	26.04872	81.41973	81.1413
31-40 years	V1	281.9191	58.61853	33.1652	151.3654	150.0087
	V2	193.5989	66.35935	35.9693	141.3324	140.1325
	V3	206.0793	76.40458	33.18604	144.5475	144.1112
41-50 years	V1	268.188	53.49248	37.51823	140.7688	141.7263
	V2	194.7011	72.18609	30.80163	140.3459	140.0011
	V3	182.9098	62.69549	22.43122	135.4248	136.6023
51 years and above	V1	130.0575	25.84476	27.41904	67.27046	68.47472
	V2	88.3724	30.29117	20.98369	63.64367	62.4421
	V3	93.06936	34.87653	20.71321	66.80775	65.2521

According to the average table data, according to the experts participating in this research, the impact of land grabbing and unauthorized constructions on the integrated management of Imam Khomeini Port's city limits is greater than the other two variables. The second effective factor from the point of view of most age groups is the amount of migration and informal settlements, which is superior to the factor of environmental pollution and destruction. All age groups agree that V1 is the most important factor affecting the implementation of integrated urban space management. However, according to some age groups, such as 25-30 years old and 41-50 years old, V3 variable is preferable to V2 .

Table 9: The table of statistics of respondents' gender and research variables

Gender	**Variable**	**Index**				
		Max	Min	SD	Median	Mean
Man	V1	632.8296	125.7546	67.9381	333.1413	333.1821
	V2	428.9996	147.3898	62.1018	322.333	323.0012
	V3	455.7197	169.7011	54.91989	329.9368	330.1414
Woman	V1	302.1704	61.2454	49.55666	158.8587	159.6179
	V2	206.0004	70.6102	38.914	153.667	154.7625
	V3	215.2803	80.2989	35.95245	150.0632	151.1147

As can be seen, from the point of view of both men and women, the average of land grabbing and unauthorized constructions is on the integrated management of the city of Bandar Imam Khomeini (RA) compared to both factors, the amount of immigration and informal settlements, and also pollution and destruction of the environment is preferable. Contrary to the opinion of male experts that the factor of immigration and informal settlements is superior to the factor of environmental pollution and destruction, female experts agree on the preference of factor V2 over V3. The descriptive statistics of respondents' education and research variables are presented in Table 10.

As can be seen, according to the data of the average table, people with a bachelor's degree and above agree on the issue that the implementation of the integrated management of the urban area is the first factor that has the highest impact on the amount of land consumption and unauthorized constructions, and after that, the factors of migration rate and informal settlements and the level of environmental pollution and destruction are placed in the next ranks. From the point of view of people with a diploma, they are the cause of immigration and informal settlements, and from the point of view of people with an associate's degree, they are the most effective factors in the integrated management

Table 10: Table of statistics of respondents' age and research variables

Education	**Variable**	**Index**				
		Max	Min	SD	Median	Mean
Diploma	V1	43.2358	17.40057	9.270067	31.88636	31.2
	V2	40.55682	14.24432	9.867507	28.63068	28.3
	V3	60.15909	14.15341	8.06642	32.75852	32.2
Associate degree	V1	97.56818	33.44318	13.16719	71.30682	70.6
	V2	145.5909	28.53409	22.41681	74.08523	75.6
	V3	100.858	40.50568	21.76451	73.86364	72.6
Bachelor	V1	467.3409	92.47159	57.4619	244.554	245
	V2	315.1932	108.3807	55.07886	238.4943	238
	V3	337.5767	125.7869	50.53312	242.6136	241
Master's degree	V1	229.3409	45.97159	48.3382	120.30398	121.8
	V2	156.1932	53.88068	37.32492	115.9943	115.8
	V3	165.3267	61.03693	35.06504	120.6136	119.6
PhD and above	V1	34.56818	6.869318	10.21145	18.2983	18.2
	V2	23.48864	8.051136	5.577287	12.57386	12.2
	V3	25.00284	9.269886	6.239603	16.02273	16.2

of Imam Khomeini's (RA) Bandar city boundary, the pollution and destruction of the environment. The descriptive statistics of the respondents' professional experience and research variables are presented in Table 11.

Table 11: Table of statistics of respondents' experience and research variables

Work experience	**Variable**	**Index**				
		Max	Min	SD	Median	Mean
Less than 10 years	V1	397.8636	79.26136	55.8245	201.9034	210
	V2	270.0227	92.89773	63.35331	196.8523	197
	V3	289.4943	106.9602	61.45696	203.9545	203
10-20 years	V1	366.2955	72.39205	59.613	192.6051	191.8
	V2	247.5341	86.84659	57.77602	185.2784	185.6
	V3	263.4915	97.69034	55.21736	189.9318	188.6
20-30 years	V1	170.8409	34.34659	52.05727	87.49148	87
	V2	115.4432	43.25568	29.88643	78.86932	78
	V3	123.0142	46.34943	25.19802	91.11364	91

As can be seen, experts who have 20 to 30 years of work experience have evaluated migration and informal settlements as the most effective factors in the integrated management of privacy. Meanwhile, according to experts with less experience, land grabbing is the most important factor in the integrated management of Imam Khomeini's (RA) Bandar city boundary. All experts agree on the fact that environmental pollution and destruction is the least important factor among the three factors in privacy management. Table 12 shows the descriptive statistics of the elite respondents on the category of integrated privacy management and research variables.

Table 12: Table of respondents' knowledge statistics and research variables

Consciousness	**Variable**	**Index**				
		Max	Min	SD	Median	Mean
Very high	V1	93.06818	18.49432	25.49238	48.1108	49
	V2	63.23864	21.67614	13.01577	40.69886	39
	V3	67.31534	24.95739	12.10662	46.52273	45
High	V1	324.4091	64.46591	45.83058	170.4148	170.8
	V2	220.4318	75.55682	40.34069	161.6932	161.2
	V3	234.642	86.99432	38.17166	169.1364	168.4
Moderate	V1	327.0682	64.99432	36.61607	171.3608	172.2
	V2	222.2386	76.17614	52.76971	158.1989	158.2
	V3	236.5653	87.70739	49.57471	170.5227	169.8
Low	V1	119.6591	23.77841	35.34734	63.57102	63
	V2	81.30682	27.86932	19.30599	54.75568	54
	V3	86.5483	32.08807	18.13709	61.38636	60
Very low	V1	71.79545	14.26705	11.20841	35.54261	34.8
	V2	48.78409	16.72159	11.5836	29.65341	29
	V3	51.92898	19.25284	10.88225	37.43182	37

As it can be seen, except for the people who are very few scientific elites who have privacy on the category of integrated management, according to other experts, the factor responsible for the amount of land grabbing and unauthorized constructions has the highest influence. And after that, the factors of immigration and informal settlements

and the level of environmental pollution and destruction are placed in the next ranks.

6 Test of research hypotheses

To test the hypotheses, correlation coefficient and chi-square tests have been used.

Hypothesis 1:

Hypothesis H_0: There is no significant relationship between the implementation of integrated urban space management and the amount of land grabbing and unauthorized constructions in the city of Bandar Imam Khomeini (RA).

Hypothesis H_1: There is a significant relationship between the implementation of integrated urban space management and the amount of land grabbing and unauthorized construction in the city of Bandar Imam Khomeini (RA).

Table 13: The results of the correlation coefficient test between the implementation of integrated management of urban space and the amount of land-grabbing and unauthorized construction in the city of Bandar Imam Khomeini (RA)

Statistical index	**Integrated management of urban space**	**Land grabbing and unauthorized construction**
Spearman correlation	1	0.431
level of significance	0.0124	0.0124
chi-squared	–	12.25
level of significance	–	0.00059
number	352	352

According to the above results, since the calculated correlation coefficient is equal to 0.431 and the reported significance level is also equal to 0.0124, it can be stated at the confidence level of 99% that the research hypothesis (assumption H_1) is confirmed. In other words, it can be said that there is a significant relationship between the implementation of the integrated management of the city limits of Bandar Imam Khomeini (RA) and the amount of land grabbing and unauthorized constructions. Also, in order to measure the significance of the relationship between the above two variables, chi-square test was used. According to the results, it can be stated that since the calculated chi-square value is more than 4 and the significance level is less than 0.01, with 99% certainty, we reject the hypothesis H_0 and accept the hypothesis H_1.

Hypothesis 2:

Hypothesis H_0: There is no significant relationship between the implementation of integrated urban space management and the level of environmental pollution and destruction in the city of Bandar Imam Khomeini (RA).

Hypothesis H_1: There is a significant relationship between the implementation of integrated urban space management and the level of environmental pollution and destruction in the city of Bandar Imam Khomeini (RA).

Table 14: The results of the correlation coefficient test between the implementation of integrated management of urban space and the level of environmental pollution and destruction in the city of Bandar Imam Khomeini (RA)

Statistical index	**Integrated management of urban space**	**Environmental pollution and destruction**
Spearman correlation	1	0.505
level of significance	–	0.0230
chi-squared	–	10.31
level of significance	–	0.0011
number	352	352

According to the data, considering that the calculated correlation coefficient is equal to 0.505 and the reported significance level is equal to 0.0230, therefore, the research hypothesis (assumption H_1) can be confirmed with a confidence coefficient of 99%. In other words, there is a significant relationship between the implementation of the integrated management of Imam Khomeini's port and the level of environmental pollution and destruction. In addition, in order to more accurately measure the significance of the relationship between the above two variables, the chi-square test was also used. According to the results, it can be shown that due to the fact that the calculated chi-square value is larger than the base number 4 and the significance level is less than 0.01, the hypothesis H_0 is rejected with a confidence level of 99% and the hypothesis H_1 is confirmed.

Hypothesis 3:

Hypothesis H_0: There is no significant relationship between the implementation of integrated urban space management and the problem of migration and informal settlements in the city of Bandar Imam Khomeini (RA).

Hypothesis H_1: There is a significant relationship between the implementation of integrated urban space management and the problem of immigration and informal settlements in the city of Bandar Imam Khomeini (RA).

Table 15: The results of the correlation coefficient test between the implementation of integrated management of urban space and the problem of immigration and informal settlements in the city of Bandar Imam Khomeini (RA)

Statistical index	**Integrated management of urban space**	**Environmental pollution and destruction**
Spearman correlation	1	0.531
level of significance	–	0.0280
chi-squared	–	10.98
level of significance	–	0.0018
number	352	352

According to the statistical data mentioned in the above table, considering that the calculated correlation coefficient is equal to 0.505 and the reported significance level is equal to 0.0280. Therefore, at the confidence level of 99%, it can be claimed that the research hypothesis (hypothesis H_1) is confirmed. In other words, it can be stated that there is a significant relationship between the implementation of the integrated management of Imam Khomeini's port city and the problem of immigration and informal settlements. To further prove the significance of the relationship between the above two variables, the chi-square test has also been used. According to the results, it can be stated that considering that the calculated chi-square value is more than 4 and the significance level is less than 0.01, it is possible to reject the hypothesis H_0 and accept the hypothesis H_1 with 99% certainty. According to what is inferred from the hypothesis test, all three hypotheses proposed in this research are confirmed.

7 Conclusion and suggestion

In this research, the most important factors affecting the integrated management of Imam Khomeini Port's city boundary were evaluated by statistical analysis and using multi-criteria decision-making methods (VIKOR) and hierarchical analysis. Based on the results: The first hypothesis of this research, that there is a significant relationship between the implementation of integrated urban space management and the amount of land grabbing and unauthorized constructions in the city of Imam Khomeini (RA), was questioned and analyzed and confirmed. The second hypothesis of the research indicates that there is a significant relationship between the implementation of integrated management of urban space and the level of environmental pollution and destruction in the city of Imam Khomeini (RA), it was tested and confirmed. The third hypothesis of the research indicating that there is a significant relationship between the implementation of integrated management of urban space and the problem of migration and informal settlements in the city of Imam Khomeini (RA), was evaluated and confirmed.

It is obvious that if effective, coherent and comprehensive management is not established in the sanctuaries of cities, it will not be long before the remnants of its valuable spaces will disappear. Integrated management in Harim means that an organization (preferably a public non-governmental organization affiliated with the municipality) called the Harim Management Organization has comprehensive supervision over all the activities within the Harim and its land uses. Comprehensive management does not necessarily replace departmental management. Rather, it coordinates the plans and actions of departmental managements with each other. Of course, if these programs and actions are in conflict with the main mission of Harim, it will also be prevented. Departmental management means planning and implementation only based on the requirements of the department and not, at the same time, taking into account the requirements of other departments, which have many examples in the country.

The main function of the Harim management organization by planning the use of the Harim lands and monitoring its observance is: first) preventing the interference and conflict of sectoral activities with each other in such a way that the mission of the Harim or the breathing aura of the cities is not endangered; Second) preventing activities that contradict the mission of Harim, and third) in necessary cases, to improve Harim spaces by creating various green, open and tourism spaces. Sometimes, handing over some government enterprises to municipalities and rural districts is also called "integrated management". Among other things, it is stated in paragraph (b) of Article 137 of the Fourth Development Program Law:

"Those undertakings that can be assigned to government agencies, in the affairs of urban and rural development and development, will be assigned to municipalities and villages with the approval of the Board of Ministers along with relevant financial resources." Article 136 of the third program law has a similar content. But this program

itself is a separate issue and has nothing to do with what was called integrated management above. Because if all government enterprises such as roads, water, electricity, education, housing, elections, security, etc. are handed over to municipalities, the unity and integrity of Harim management will not be guaranteed. There is no need to hand over government enterprises to municipalities for the integrated management of Harim. The desired integration and comprehensiveness is only gathering all the urban areas under the coverage of one administration, only in terms of planning, protection and supervision. In this management, the reasons for the participation of national and local organizations can be provided by combining the members of the organization's council.

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