

Explaining the Challenges and Obstacles of the Application of Land Use Planning in the Development of Scientific-Applied Higher Education: a Qualitative Study

Ali Ebrahimi¹, Mohammad Ali Hosseini^{2*}, Kamran Mohammad Khani³, Hamideh Reshadatjo⁴

1. PhD in Higher Education Management, Faculty of Management and Economics, Science and Research Branch, Islamic Azad University, Tehran, Iran.
2. Full Professor, Faculty of Rehabilitation Management, University of Welfare and Rehabilitation Sciences, Visiting Professor of Science and Research Branch, Tehran, Iran (corresponding author).
3. Associate Professor, School of Management and Economics, Department of Higher Education Management, Science and Research Branch, Islamic Azad University, Tehran, Iran.
4. Associate Professor, School of Management and Economics, Department of Higher Education Management, Science and Research Branch, Islamic Azad University, Tehran, Iran.

Article history:

Received date: 2022/11/23

Review date: 2023/02/19

Accepted date: 2023/03/07

Keywords:

Challenges and Obstacles, Planning, Land Use, Development of Higher Education, Scientific-Applied.

Purpose: Scientific-applied education as higher education needs coherent and structured planning. So, this study was conducted with the aim of explaining the challenges and obstacles of the application of land use planning in the development of scientific-applied higher education.

Methodology: The present study was of applied in terms of purpose and qualitative in terms of implementation method. The research community of land development planning documents in 2001-2020 and experts, including faculty members, managers and experts of scientific-applied higher educations in 2021, based on the principle of theoretical saturation, 35 cases of land development planning documents and 23 experts with targeted sampling method were selected as samples. The research tools were note-taking of documents and semi-structured interviews with experts, whose validity was confirmed by the opinion of experts along with triangulation method, and the reliability was obtained by the method of agreement coefficient between multiple coders of 0.85. Finally, the data were analyzed by thematic analysis method in Maxqda-12 software.

Findings: The findings showed that 50 basic themes, 8 organizing themes and 5 comprehensive themes were identified for the challenges and obstacles of land use planning in the development of scientific-applied higher education; So that comprehensive themes including assessment of skill training needs (with two themes organizing labor market information bank, products and products with local and regional participation and curriculum design and revision), ecosystem, ecology and regional population (with two themes organizing economic activities and commercializing scientific-applied and training, empowering and scientific-applied professional qualifications), organizing and polarizing optimally in terms of space and time (with an organizing theme of the geographical arrangement of polarization and mission-oriented scientific-applied education centers), provincial and regional governance (with an organizing theme of local partnership management) and scientific-applied higher education preparation (with two themes organizing the training, superior laws and documents, challenges and obstacles in the use and application of the preparation of the land).

Conclusion: According to the findings of this study, it is possible to use the basic, organizing and comprehensive themes identified to reduce the challenges and obstacles in the application of land use planning in the development of scientific-applied higher education.

Please cite this article as: Ebrahimi A, Hosseini MA, Mohammad Khani K, Reshadatjo H. (2023). Explaining the Challenges and Obstacles of the Application of Land Use Planning in the Development of Scientific-Applied Higher Education: a Qualitative Study, *Iranian Journal of Educational Sociology*. 6(1): 117-129.

* Corresponding Author: m.a.hoseini@yahoo.com

1. Introduction

Land use planning is one of the basic areas of applied geography which often amends and organizes spatial, regional and national balances automatically. For this purpose, it is necessary to know and understand as well the whole territory to have a future perspective about space. (Salvacion, 2021). Land planning means planning and organizing the way of occupying space and determining the place of people residence and the place of activities, facilities and services, as well as actions between various factors of the socio-economic system (McClure, Machalaba, Zambrana-Torrel, Feferholtz, Lee, Daszak et al., 2019). Land planning refers to the process of allocating activities and uses to specific units of space in a region, being a coherent and active approach to land development in the direction of shaping the future of regions and areas, which goes beyond regional development policies getting close to the spatial planning approach (Amoako, Adamtey and Doe, 2022). Land management is a set of knowledge, techniques, principles, actions, policies and coordinated and coherent programs that are used to organize and arrange spaces and places (Tomer, James and Sandoval-Green, 2017). The National Land Survey Center of Iran has described it as follows: territorial planning is regulating the interaction between human and environmental factors to create a territorial organization based on the optimal use of human talents and the environment. Land development within the framework of the approved principles through increasing efficiency and economic efficiency, expanding social justice, eliminating poverty and deprivation, and establishing a balance in enjoying a reasonable level of development and prosperity in geographical areas and regions, creating a land use system in accordance with the goals of balanced development and preserving the environment, creating and consolidating intra-regional and extra-regional economic links and coordinating spatial-place effects of sectoral policies and developmental policies of specific areas and axes as well acts in a way so that can achieve the goals of the country's long-term development vision and integrated territorial management (Soltani, 2013). Land planning has four characteristics of comprehensiveness, totalism, introspection and spatial or geographical concluding. In the land survey, comprehensiveness indicates the comprehensiveness of the basic disciplines of development, holicism indicates compliance with the strategic level of various topics, introspection indicates commitment to a specific time horizon, and spatial or geographic concluding indicate conclusions based on general orientations without spatial determinations (Kim and Arnhold, 2018). The main goal of land development is the optimal management of space and the equal development of facilities and infrastructures through the regulation of the relationship between man, space and human activities in space, needless to say that the realization of land development requires a management plan based on the principle of economic balances rather than having a technical plan. (Enoguanbhor, Gollnow, Walker, Nielsen and Lakes, 2022). The concept of land use can be recognized by four characteristics. Firstly, land development is a national policy, meaning that land development devotes to national interests fulfilling the goals and interests of countries, and all the measures and criteria related to land development policies are aimed at using and rationally using the resources and facilities of the land with national space. Second, land development as a policy is the will of the whole society and is voluntary, meaning that the general will of the people codifies the land development policy, and its movement is endogenous and spontaneous, without imposing the application of standards and criteria, but provides the necessary incentives and aims establishing balance, solidarity and unity through public will. Thirdly, the aim is as a rational economic policy, meaning that it is trying to implement a rational economic policy in order to settle the population and create growth centers and great human luxuries. In other words, the economic goal of improving the land is not economic efficiency, but the goal of implementing a favorable and rational economic policy, the ultimate goal of which is harmonious and balanced growth and rational use of facilities and resources in order to meet the needs of society. Fourthly, land planning is a forward-looking policy in which the design of long-term economic and social plans and its spatial arrangement to achieve the three goals of establishing a logical balance between humans and activities in the environment, organizing and re-managing the national geography and logical arrangement of humans and facilities according to the facilities, resources and necessities in the national and regional space (Latifi, 2010).

Land development needs planning which is done to transform the existing situation into a desirable one with the aim of development. Therefore, one of the most important causes of planning in land use plans is to eliminate regional and national imbalances and to establish a balance between people, space and activity (Das and Gupta, 2019). Land use planning means the process of rational organization and utilization of the facilities, resources and talents of the national and regional space in order to achieve a balanced development of the society, which is a purposeful action making spatial disturbances and imbalances possible for developmental programs without facing problems for the productivity of the land (Harris, Kent, Sainsbury and Thow, 2016). Land use planning refers to the most desirable, fair and sustainable arrangement that the three important components of population, capital and natural and environmental resources create in a region or land (Li and Ma, 2017). Land development planning, with a comprehensive approach to the national space, carefully studies and identifies all regions from different aspects and assigns specific roles and responsibilities to each region based on the abilities and talents of each region. In the planning of national development, land planning has a special emphasis on the spatial and geographical perspective, and the ultimate goal of such a perspective is the distribution and division of population and construction activities in the territory, the implementation of the welfare strategy for the individual and the society, and the optimal use of natural resources and human resources in the direction of economic and social sufficiency (Gashaw, Tulu, Argaw and Worqlul, 2018). The basic goal of land development planning is the balanced distribution of economic, social, population activities and overt and hidden capacities at the level of provinces and regions, with a long-term approach for optimal utilization of facilities and highlighting the specific role and responsibility of each region based on its capabilities in corresponding with other regions (Seghezzo, Venencia, Buliubasich, Iribarnegaray and Volante, 2017). In land use planning, the policy of distribution of activities is determined and the geographical distribution of population and settlements and the way of using the lands of the country are desired. This planning is done according to the political philosophy and ideology that governs each nation, sustainable economic, social and cultural development and the organization and space of the land (Chen, Liang, Wang, Zhang, Yu and Liang, 2020). The country's science and technology development policy is determined by the studies of land development, and land development means planning and organizing the way of occupying space and determining the location of human settlements and the location of activities and equipment, as well as actions between various factors of the socio-economic system, land development, creating a balance between The three elements are human, space and activity, the category of management in relation to human and the concept of climate in relation to space and the category of program and planning in relation to activity are highlighted (Aqatabar Roudbari, Barimani, Aghamirzaee Mahalli and Saffarian Hamedani, 2018). The most important key factor in the development of higher education is relying on knowledge, paying attention to the undeniable role of the very diverse and extensive intermingling of sciences in different fields, intellectual forces and technologies based on it in all-round development, especially scientific and technological development and the interaction of citizens and scientific and educational centers (Ghorbani, Ziari, Sejoudi, Farhadi and Abullah Hussein, 2021). Land development planning, whether at the macro level or at the level of higher education and scientific-applied education, has three levels: national, regional and local. Scientific-applied educations are different from technical and professional educations, and their difference is the difference in the type of skills of the graduates of these two educational systems. The outputs of the technical and vocational education system are mainly manual skills, but the outputs of the scientific-applied education system also have mental skills and abilities due to familiarity with the scientific foundations of professions and occupations, which have the ability to hold higher-level jobs (Kharghani and Selseleh, 2009). Mirmohammadi, Kazemian and Rezaee (2021) identified the requirements for the implementation of land use in the management and development process including 71 components, 43 sub-components and 6 dimensions, in a research in which dimensions include attention to the nature of the use, right formulation

of the use, human resources management, capable executive organization, Monitoring and feedback were appropriate and consideration of environmental conditions.

Jafarian, Sarvar and Borna (2019) conducted a research on the obstacles in the realization of land development plans conclude that the most important obstacles include the multitude of laws and regulations related to land development, the absence of institutional strategic planning related to the land development of the province, the weakness of the plan and the planning programs prepared in providing an efficient model for the integrated sustainable development of different regions of the province, the lack of presence of the beneficiaries and influential people in the decision-making process in the land development sector, the lack of appropriate rules and regulations and systematic and institutional thinking for land management and the lack of clarity about the position of the provincial development plan in the planning system of Tehran province.

AghaMohammadi (2019) introduced four strategic factors affecting land use, including land management, economic activities or the level of general well-being, human or population, and space respectively.

Hataminejad and Amoo (2019) conducting a research on the pathology and evaluation of land development plans concluded that the most important damages in the field of legal status were the sub-criterion of not accurately defining the position of the programs and paying attention to the legal documents guiding plans and decisions, in the management field, the sub-criterion of oil economy governance and the rentier economy as the main component in the non-institutionalization of the regional-spatial view, in the structural field, the sub-criterion of the traditionality of the planning system in accepting the preparation approach, and in the content field, the sub-criterion of deep regional inequalities to the extent that the preparation plans have a very long way to spatial balancing.

Aqatabar Roudbari et al (2018) fulfilled a research about a strategy for the development of higher health education through land use and concluded that due to the affinity and ratio of higher education with social development theories, planning in higher education has a special place in the development of countries and land preparation as a guide and a clear road map for planning the higher education sector can guide higher education systems in a systematic, sustainable manner, based on regional needs and advantages and international requirements in the horizon of the country's science and technology perspective.

Najar, Talebi, Piri and Yari (2018) came to the conclusion during a research that the infrastructures of developing a curriculum based on land use include eight main factors of human infrastructure, cultural infrastructure, regional management system, legal and legal infrastructure, macro environment policies, delegation, adapting the curriculum to the land use, social support and financial infrastructure.

In their research, Mousavi and Kahaki (2017) identified the indicators of Iranian Islamic development in the realization of land preparation, including ecological justice, cultural justice, physical justice, social justice and economic justice.

Okeke (2015) conducted a research on spatial planning for land use management and concluded that racial inequality, determination of impossible patterns, paving the way for investment in infrastructure, environmental protection, paying attention to justice issues in the field of using land, inappropriate housing, water and food are the most important factors in the land management.

Soltani (2013) in the course of his research introduced the obstacles appearing in land development plans, including the main administrative and structural, economic, geographic and territorial, study and research, political and security, and social and cultural obstacles, and realized four important sub-obstacles in the main structural administrative obstacle, respectively, non-commitment of high-level and middle-level managers to the implementation of land development plans in the course of management changes, inconsistency between the organizations in charge of land development in the preparation, implementation and monitoring stages, the lack of a clear strategy in the organizations responsible for implementing the proposed scenarios of land development plans, and the weakness of the supervisory foundations. .

Achieving development in any society, first of all, requires the existence of national determination and determination to progress and define the development model that fits the needs of the society, and

secondly, it requires having a development roadmap that can achieve development capabilities and opportunities on the one hand and bottlenecks and current and future challenges, on the other hand, by taking advantage of previous experiences, to put the most favorable development path in front of the society. Therefore, the national document of land planning as a document necessary for enabling the outline of the organization of the country's territorial space as well as the policies of the physical development of the land, is of absolute importance and necessity (Jabbari, Sameni and Ebrahimi Khosafi). Although a relatively large number of researches have been conducted on land planning, most of these researches have been conducted on societies other than educational systems, specifically the higher education system, and the results of research on land planning in non-educational systems, especially geographic and political systems, cannot be generalized to the system of scientific-applied higher education. Therefore, it seems there is a need to carry out independent researches about land use planning in the development of higher scientific-applied educations and to examine the challenges and obstacles of land use planning. The results of this research and other researches in scientific-applied higher education can help the specialists and planners of this educational system in the direction of development and progress. As a result, this study was conducted with the aim of explaining the challenges and obstacles of the application of land use planning in the development of scientific-applied higher education.

2. Methodology

The present study was applied in terms of purpose and qualitative in terms of execution method. The research community consisted of land development planning documents in 2001-2020 and experts included faculty members, managers and experts of scientific-applied higher educations in 2023, which based on the principle of theoretical saturation, 35 cases of land development planning documents and 23 experts were selected with targeted sampling method as samples. In the targeted sampling method, samples are selected to help the researcher gathering the most to obtain data and information.

The research tools included note-taking of documents and semi-structured interviews with experts. Note-taking was done in such a way that all 35 land use planning documents were fully reviewed and the content related to the challenges and obstacles in the use of land use planning was noted down. Also, the interview was conducted in such a way that first, based on the theoretical foundations or the documents related to land use planning, questions were designed to interview the experts, and then, the samples or the experts including faculty members, managers and experts of scientific-applied higher education were chosen. Interviews were conducted individually at a pre-arranged time and place with the experts, and as previously coordinated with them, the audio of the interviews was recorded for re-examination in accordance with ethical considerations and the most important points were noted down. The duration of the interview with each of the experts lasted about 35-50 minutes, and at the end, all the experts were thanked and appreciated for agreeing to record the interviews and actively participating in the research and answering the interview questions. It should be noted that the psychometric indicators of the findings obtained from taking notes from documents and interviewing with experts were so properly evaluated that their validity was confirmed by the opinion of experts and triangulation method in which the reliability, 0.85, was obtained by the method of contingent coefficient between multiple coders.

The implementation steps of this study were carried out in such a way that first the theoretical foundations or documents related to land use planning were identified and thoroughly examined, noting down its important contents. Also, based on theoretical foundations or documents, questions were designed with the help of supervisors and consultants to interview experts. After the experts were identified and selected as a sample, the importance and necessity of the research and compliance with ethical considerations were discussed with them, and the place and time of the interview and its conditions were coordinated. The interviews were conducted individually according to the previous planning and in addition to recording the interviews and obtaining the consent of the interviewees to record the interviews, important and key contents were noted down with the help of research colleagues. At the end, the interviewees were

appreciated and the psychometric indicators and data analysis began. For this purpose, the data were analyzed by thematic analysis method in Maxqda-12 software.

3. Findings

In this study, there were 35 land use planning documents and 23 experts, including faculty members, managers and experts of scientific-applied higher educations. In Table 1, the frequency and frequency percentage of gender, education, teaching experience and work experience of experts are presented.

Table 1. Frequency and frequency percentage of gender, education, teaching experience and work experience of experts

variable	class	frequency	frequency percentage
gender	Female	7	30.43
	Male	16	69.57
education	Bachelor's degree	2	8.70
	Master's degree	8	34.78
	Phd.	13	56.52
Teaching experience (years)	1-5	3	13.04
	6-10	2	8.70
	11-15	1	4.35
	More than 15	17	73.91
Work experience (years)	1-15	2	8.70
	15-25	10	43.48
	More than 25	11	47.82

As can be seen in Table 1, most of the experts are male (69.57 percent) and have a Phd.(56.52 percent), more than 15 years of teaching experience (73.91 percent) and more than 25 years of work experience (47.82 percent). In Table 2, the content analysis of the challenges and obstacles in the application of land use planning in the development of scientific-applied higher education is presented.

Table 2. Content analysis of challenges and obstacles in the application of land use planning in the development of scientific-applied higher education

Overarching theme	organizing theme	basic theme
Assessing the skills training needs	Information bank, labor market, products and regional participation	1. The use of an educational survey instead of assessing educational needs,
		2. The extent of the participation of the Ministry of Labor in providing the labor market information system and examining the current situation of the population, resources and employment. 3. The amount of attention paid to regional activities, jobs, productions and products and the transformation of experiential training into specialized training,
		4. The development of human resources in line with the reform of the job pyramid and the creation of a foundation for entrepreneurship and commercialization,
		5. Creating interaction and organized communication between education and the labor market,
		6. Assessment of needs according to the dominant provincial and regional productions and products,
		7. Development of courses and training courses based on the amount of information and data from customers and the participation of actors, agents, beneficiaries and producers,
		8. Attention and creation of equal opportunities for company applicants in scientific-applied training courses,
		9. Training and job empowerment of regions based on skill

			enhancement and production-oriented, and 10. Existence of interpersonal discourses and using the point of view of experts, elites and local and regional specialists in assessing needs.
		Designing and revising curricula	1. paying attention to ethnicities and local and regional deprivations in designing and revising curricula, 2. Using job certification standards and job analysis in skill curricula, 3. Designing courses and curriculum based on local and regional job and geographic needs, and 4. delegating the authority to design and revise curricula to provincial units and facilitate it by local educational centers
Ecosystem, and population	ecology regional	Economic activities and scientific-applied commercialization	1. Helping to organize and guide the production and economy of the provinces by prioritizing scientific-applied skills and job training, 2. Obtaining demographic and economic information and distributing social development activities, 3. Balanced distribution of facilities and increasing the productivity of production units through balance in population and activity dispersion and 4. Paying attention to the quantity and quality of human resources, local facilities and capabilities through entrepreneurship and revitalization of domestic and local jobs and businesses.
		Education, empowerment and scientific-applied professional qualifications	1. Identifying the capabilities and empowerment of working human resources with the aim of preventing its waste, 2. Preventing the migration of the population of the regions by promoting and expanding production and service jobs, 3. Attempting to design and approve the system of Professional qualifications and the legal requirement to employ graduates on a provincial and regional basis, 4. Interaction and communication of the university with the industry sector in various fields, and 5. Continuous communication of the university with the Ministry of Labor and Social Welfare to design and use the job information bank system.
Organization and optimal spatial and place polarization of geographic arrangement		Polarization and mission orientation of scientific-applied education centers	1. Paying attention to the preparation of skill training, territorial area and geographical information of regions, 2. Observing the minimum necessary distance from each other in creating scientific-applied education centers, 3. Support of the government and the private sector in the implementation of skill training and the establishment of educational centers in deprived areas, 4. Helping to revive scientific-applied institutions affiliated to private sectors, 5. Efforts to rank educational centers based on purely scientific-applied indicators and 6. Real clustering and specialized transformation of centers according to dominant activities and the existence of knowledge-based growth centers in different regions
Provincial and regional governance		Local participation management	1. Better management and planning through systematic evaluation of education and reduction of concentration in decisions, 2. Reduction of higher education costs through the use of information obtained from strategic plans, 3. Planning from hierarchically top to bottom, centralized and intervention in the smallest matters, 4. Efforts to reduce uninformed and unmotivated management by creating an objective planning and organizing perspective in the

	upstream managers, 5. The multiplicity of headquarters decision-making centers, the lack of delegation of authority and power to the provinces, and 6. The involvement of nonstandard management and non-scientific-applied structures in making decisions and policies of the scientific-applied system
Application of scientific-applied higher education of application, laws and upstream documents	1. Attention to geographical features, protection of natural resources and environment, 2. Compilation and presentation of implementation model of scientific-applied application using land application models, 3. Creation of legal committees and Assisting in the implementation of the higher education training document related to skill training and the preparation of training certificates, 4. The participation of research centers in the implementation of scientific-applied training programs, 5. Criteria and indicators different from higher education for ranking educational centers and scientific-applied instructors, 6. Failure to grant permission to establish scientific-applied centers in the saturated areas 7. Approving the statutes of scientific-applied higher education centers in the Ministry of Science and 8. Removing or reducing the share of 15% of tuition by the university headquarters from educational centers
Challenges and obstacles to the use and application of land use	1. The lack of a market information system for the design of scientific-applied programs and courses, 2. The lack of a framework and model for scientific-applied and systematic planning, 3. The impact of political currents on the development of scientific-applied education and managing it by non-scientific-applicatives, 4. Lack of belief in scientific-applied education in the Ministry of Science, Research and Technology, 5. The involvement of Jame University staff structures in the smallest scientific-applied affairs and non-specialist clustering, 6. Change of Jame University staff and provincial managers with the use of faculty members and non-scientific-applied experts outside the university and 7. Non-transparent and untimely notification to educational centers by the university headquarters in the field of development and expansion of centers and scientific-applied courses

As in Table 2, 50 basic themes, 8 organizing themes, and 5 comprehensive themes were identified for the challenges and obstacles of land use planning in the development of scientific-applied higher education; So that comprehensive themes include assessment of skill training needs (with two themes organizing labor market information bank, products and products with local and regional participation and curriculum design and revision), ecosystem, ecology and regional population (with two themes organizing economic activities and commercialization scientific-applied and training, empowering and scientific-applied professional qualifications), organization and optimal spatial and place polarization (with an organizing theme of the geographical arrangement of polarization and mission-oriented scientific-applied education centers), provincial and regional governance (with an organizing theme of partnership management local) and scientific-applied higher education training (with two themes organizing the training, upstream laws and documents and challenges and obstacles to the use and application of the training of the land). Therefore, in Figure 1, the theme analysis model of the challenges and obstacles in the application of land use planning in the development of scientific-applied higher education is presented.

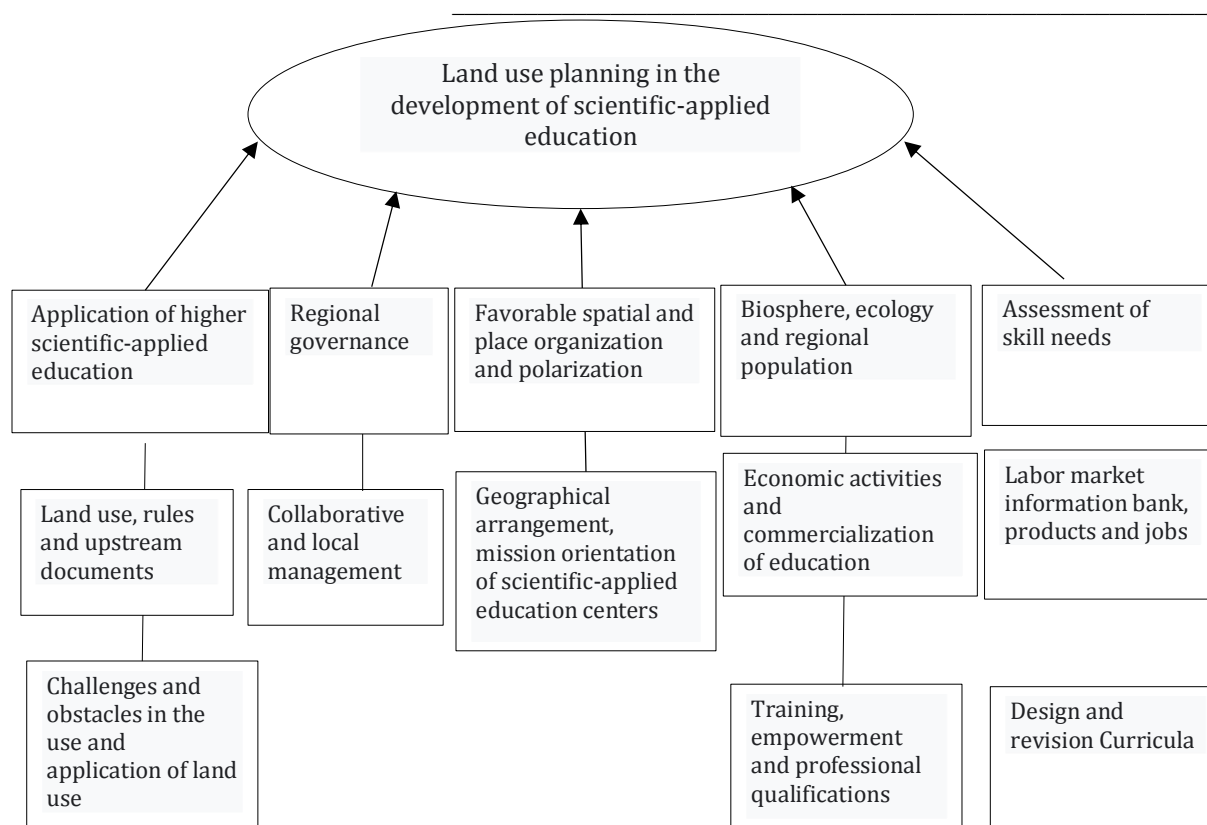


Figure 1. Thematic analysis model of challenges and obstacles in the application of land use planning in the development of scientific-applied higher education

4. Discussion

Land planning is a type of planning that pays attention to the land as a fundamental and determining factor in achieving development goals. Also, land use planning has an important role in political, economic, social, cultural and educational development that can lead to the development of higher education. As a result, this study was conducted with the aim of explaining the challenges and obstacles of the application of land use planning in the development of scientific-applied higher education.

The findings of this study showed that 50 basic themes, 8 organizing themes, and 5 inclusive themes were identified for the challenges and obstacles of land use planning in the development of scientific-applied higher education; So that comprehensive themes include assessment of skill training needs (with two themes organizing labor market information bank, products and products with local and regional participation and curriculum design and revision), ecosystem, ecology and regional population (with two themes organizing economic activities and commercialization scientific-applied and training, empowering and scientific-applied professional qualifications), organization and optimal spatial and place polarization (with an organizing theme of the geographical arrangement of polarization and mission-oriented scientific-applied education centers), provincial and regional governance (with an organizing theme of partnership management local) and scientific-applied higher education training (with two themes organizing the training, upstream laws and documents and challenges and obstacles to the use and application of the training of the land). Although no research was found on the challenges and obstacles of land use planning in the development of higher education, the findings of this study are in agreement with the findings of Mirmohammadi et al (2021), Jafarian et al (2019), AghaMohammadi (2019), Hataminejad and Amoo (2019), Aqatabar Roudbari et al (2018), Najari et al (2018), Mousavi and Kahaki (2017), Okeke (2015) and Soltani (2013).

The findings of this study can be interpreted as that in higher education, governance refers to the legal allocation of power among the diverse decision-making structures of universities and higher education institutions, and the diverse executive structures and management of universities, and who should make decisions and what is the focus of decisions and what decisions refer to. The basic purpose of distribution of economic, social, and population activities along with open and hidden capacities depend on the developments and transformations of time and needs, which is mainly for the purpose of optimal utilization of facilities and also to specify the role and responsibility of the region based on its capabilities and capabilities in harmony with other regions. This is why experts admit that land use planning will not be practical without regional planning, so the role of the region in land use planning is extremely important and fundamental. In addition to that, the targeted development of higher education, especially scientific-applied educations, which are considered costly for education centers, will lead to a waste of budget and human resources in different parts of the country. In scientific-applied education, as in other sub-systems of higher education, the upstream documents, especially the national land planning document, should be the criteria for the action of the scientific-applied system, but due to the challenges that the higher education system is facing, looking at the past and current situation, especially in the category of the university communication, with the market and design of demand-oriented curricula, student admission, applying a quantitative approach in issuing licenses for the formation and operation of scientific-applied education centers, and issuing teaching licenses to many university graduates, etc., has made this educational system fully use the programs the land is confronted with many challenges that solutions must be used to deal with the identified challenges. Another important point is that in planning the development of the land based on the abilities, capabilities and talents of each region, the harmony and coordination of the works and results of the national functions of each land at the national level creates a special role and responsibility for different regions of the country. Based on these roles and responsibilities, growth and development programs can be implemented according to regional planning. For this purpose, knowing the internal and external environment of scientific-applied education as a very complex structure as well as the environment in the sense of local and regional space in the matter of land use planning is very vital. On the other hand, human resources are one of the most important determinants of sustainable development in any society, undoubtedly, human resources are considered the richest assets of a country, including universities, institutes and educational centers that teach science together with practice by producing knowledge and training human resources. The experts needed by the society shape the expansion of innovation and scientific creativity and the growth of entrepreneurship and commercialization.

Also, for any land use planning in the development of scientific-applied higher education, it is necessary to pay attention to two basic approaches or actions, one is to examine, recognize and explain the field of scientific-applied education in the complex of higher skilled education, and the other is to examine, recognize and explain the population structure, social and economic issues of each region and province for decision making. Therefore, the planning of higher scientific-applied education aims to study and carefully examine the components and resources that scientific-applied education relies on with the aim of creating a balance in the development of these educations by taking advantage of the various facilities and capabilities of each region and the provinces are based on real information about the potential and actual situation of human resources and jobs. The planning of scientific-applied education as a sub-category of land-use planning and higher education planning is measures such as organizing and regulating the provincial units of institutes and centers of scientific-applied education with the approach of proper educational needs assessment, fair distribution of resources, and creation of equal opportunities. This important planning includes design and implementation of the system of professional qualifications with the aim of distributing the educational mission of the required specialist manpower and reforming the pyramid of the working manpower, using regional advantages, paying attention to regional governance, reducing concentration, preventing the accumulation of facilities and the participation of beneficiaries in decision making.

According to the findings of the present study and the fact of planning in the field of scientific-applied higher education and takes the important factor of space, governance and regional factors into consideration the following practical suggestions are presented.

The formation of the planning council for the development of scientific and applied higher education under the chairmanship of the university president and the deputy secretary of research and technology at the headquarters of Jame University and the regional planning committees headed by the elected heads of the provincial units of the scientific and applied education regions

Identifying, recruiting and promoting scientific-applied managers through training, development and empowering them to use land use planning techniques and techniques in different regions, provinces and neighborhoods with the aim of organizing and developing scientific-applied trainings in line with technological changes

Coordination of comprehensive scientific-applied university with decision-making centers in the field of land use planning in order to observe a systemic approach between various governmental and non-governmental structures and institutions of the country

Establishing a structural connection between the society, comprehensive scientific-applied university and industry by the Ministry of Science, Research and Technology and coordination between these institutions in the planning of higher education

Identifying, employing and promoting transformational professors and lecturers by the Scientific-Applied Jame University with an emphasis on provincial and regional potentials

Creating a balance in the field of educational facilities and opportunities at the national and regional level

Establishing communication between the scientific-applied Jame university, provincial units and scientific-applied education centers with other economic and social sectors of each region

Decentralized planning and policy-making in the field of scientific-applied education and delegation of authority in regional legislation and implementation of appropriate education

Helping to create entrepreneurial structures and knowledge-based companies in provincial units and centers of scientific-applied education according to the potential of the regions with the aim of promoting higher skill education and job development

Creating a favorable framework in the field of reforming student admission with the aim of establishing relative regional balance with the quality of scientific-applied education

Policymaking and moving in line with principle 44 of the Constitution and helping to attract investment in the scientific-applied education sector in investment-prone areas or areas where less work has been done

Preventing the excessive growth of scientific-applied education centers in saturated areas

Acknowledgments

We hereby express our thanks and appreciation to the supervisors and advisors, research colleagues and experts who contributed to this research.

References

- AghaMohammadi D. (2019). Identifying and prioritizing strategic factors affecting on Land use planning from the national security perspective. *Strategic Management Studies of National Defense Studies*. 2(8): 29-55. [Persian]
- Amoako C, Adamtey R, Doe B. (2022). Fire risks management in emerging Ghanaian cities: land use planning responses for siting petrol and gas stations in the Tamale Metropolis. *GeoJournal*. 87: 3065-3076.
- Aqatabar Roudbari J, Barimani Kh, Aghamirzaee Mahalli T, Saffarian Hamedani S. (2018). Spatial planning: An strategy for development of health higher education. *Teb va Tazkiyeh*. 27(2): 113-123. [Persian]
- Chen M, Liang L, Wang Z, Zhang W, Yu J, Liang Y. (2020). Geographical thoughts on the relationship between 'Beautiful China' and land spatial planning. *Journal of Geographical Sciences*. 30: 705-723.
- Das S, Gupta K. (2019). Soil survey to support land use/land cover planning in BPS and BPM region in Gangajalghati block, West Bengal, India. *Spatial Information Research*. 27: 573-586.
- Enoguanbhor EC, Gollnow F, Walker BB, Nielsen JO, Lakes T. (2022). Simulating urban land expansion in the context of land use planning in the Abuja City-Region, Nigeria. *GeoJournal*. 87: 1479-1497.
- Gashaw T, Tulu T, Argaw M, Worqlul AW. (2018). Land capability classification for planning land uses in the Geleda watershed, Blue Nile Basin, Ethiopia. *Modeling Earth Systems and Environment*. 4: 489-499.
- Ghorbani R, Ziari K, Sejoudi M, Farhadi E, Abullah Hussein Sh. (2021). An evaluation of the interaction of higher education and industry functions from the spatial planning perspective. *Town & Country Planning*. 12(2): 479-519. [Persian]
- Harris P, Kent J, Sainsbury P, Thow AM. (2016). Framing health for land-use planning legislation: A qualitative descriptive content analysis. *Soc Sci Med*. 148: 42-51.
- Hataminejad H, Amoo E. (2019). The pathology of Iranian land use planning. *Journal of Regional Planning*. 9(34): 27-38. [Persian]
- Jabbari H, Sameni A, Ebrahimi Khosafi M. (2017). Explaining the requirements for drafting a national document for the development of the physical territory. *Journal of Physical Development Planning*. 2(2): 75-92. [Persian]
- Jafarian B, Sarvar F, Borna R. (2019). Modeling obstacles to the realization of plans for land use in Tehran province with a futuristic approach. *Journal of Geography*. 16(59): 77-94. [Persian]
- Kharghani S, Selseleh M. (2009). Applied scientific education: Adjacent educational system or basic pillar in higher education? Tehran: Engineering Education Conference. [Persian]
- Kim I, Arnhold S. (2018). Mapping environmental land use conflict potentials and ecosystem services in agricultural watersheds. *Sci Total Environ*. 630: 827-838.
- Latifi Gh. (2010). The history of spatial planning evolution in development programs in Iran: Pre and post revolution of 1979. *Social Development & Welfare Planning*. 1(1): 111-147. [Persian]
- Li X, Ma X. (2017). An uncertain programming model for land use structure optimization to promote effectiveness of land use planning. *Chines Geographical Science*. 27: 974-988.
- Liang J, Zhong M, Zeng G, Chen G, Hua S, Li X, et al. (2017). Risk management for optimal land use planning integrating ecosystem services values: A case study in Changsha, Middle China. *Sci Total Environ*. 579: 1675-1682.
- McClure M, Machalaba C, Zambrana-Torrel C, Feferholtz Y, Lee KD, Daszak P, et al. (2019). Incorporating health outcomes into land-use planning. *Ecohealth*. 16(4): 627-637.
- Mirmohammadi SM, Kazemian Gh, Rezaee S. (2021). The requirements of spatial planning implementation in the process of management and development. *Quarterly Journal of the Macro and Strategic Policies*. 9(2): 360-389. [Persian]
- Mousavi M, Kahaki FS. (2017). Priority assessment of Iranian Islamic development indicators in the realization of spatial planning of Khorasan Razavi province with the justice-based approach. *Geography and Development*. 14(45): 93-120. [Persian]
- Najar Z, Talebi B, Piri M, Yari G. (2018). Designing a model for infrastructures of decentralized curriculum development based on land use planning. *Journal of Curriculum Studies*. 13(48): 141-168. [Persian]
- Okeke D. (2015). Spatial planning as basis for guiding sustainable land use management. *Agriculture, Forestry and Fisheries African Approaches to Spatial and Green Planning*: WII Press.
- Salvacion AR. (2021). Mapping land limitations for agricultural land use planning using fuzzy logic approach: a case study for Marinduque Island, Philippines. *GeoJournal*. 86: 915-925.

- Seghezzo L, Venencia C, Buliubasich EC, Iribarnegaray MA, Volante JN. (2017). Participatory, multi-criteria evaluation methods as a means to increase the legitimacy and sustainability of land use planning processes. The case of the Chaco region in Salta, Argentina. *Environ Manage.* 59(2): 307-324.
- Soltani N. (2013). Evaluation land use planning projects face obstacles in Iran integrate approach. *The Journal of Spatial Planning.* 17(3): 63-84. [Persian]
- Tomer MD, James DE, Sandoval-Green CMJ. (2017). Agricultural conservation planning framework: 3. land use and field boundary database development and structure. *J Environ Qual.* 46(3): 676-686.