Cumhuriyet Üniversitesi Fen Fakültesi
Fen Bilimleri Dergisi (CFD), Cilt:36, No: 3 Ozel Sayı (2015)
ISSN: 1300-1949

Cumhuriyet University Faculty of Science
Science Journal (CSJ), Vol. 36, No: 3 Special Issue (2015)
ISSN: 1300-1949

Sustainability Evaluation of Land Use in the Comprehensive Plan for Maragheh

Mohammad AJZA SHOKOUHI[1], Maliheh MIRZABAKI*[2]

[1]*Faculty of Letters and Humanities, Department of Geography and Urban Planning,*

[2] *Ferdowsi University of Mashhad, Mashhad, Iran*

Received: 01.02.2015; Accepted: 06.06.2015

Abstract. This article intended to evaluate the extent of sustainability of the proposed land use in the Comprehensive Plan for Maragheh (Horizon 2018), used methods for development evaluation, and selected the appropriate criteria for these methods to evaluate the proposed suggestions regarding land use as a basic component of urban development. Considering the nature of the study, the comparative analytical method was employed. After a series of general evaluation criteria related to sustainable development and their appropriate sub-criteria were developed, indicators of sustainable development were used to evaluate and test the suggestions regarding land use. For this purpose, a hierarchical structure of indicators and sub-indicators was developed, the final weights and degrees of importance of the sub-indicators were determined based on the Delphi method and considering the views of urban development experts and, finally, the hierarchical analysis approach was used to obtain the degree of compatibility of the Plan with these criteria. Results of this research suggest various degrees of compatibility between the proposed land use in the Comprehensive Plan and the indicators of sustainable development. The maximum degree of attention to the sustainability of land use was paid in relation to transportation and warehousing and urban road network with values of 14.59 and 10.28, respectively, and the minimum to public sports arenas and administrative-law enforcement offices with values of 4.05 and 4.25, respectively.

Keywords: Comprehensive plan; urban land use; sustainable development; Analytic Hierarchy Process (AHP)

1. INTRODUCTION

The question of land use (that is, the way land is used, distributed, and protected) has always been a main topic in urban development. In fact, the natural and socio-economical features of land are considered among the main factors that determine the shape of urban development, the quality of urban improvement, and the manner of spatial organization of the various urban activities. Based on this, intervention in organizing land use (and planning for it) is a complicated and difficult process with a long background in the history of modern urban development in the world, and it has assumed numerous forms (Mehdizadeh,2000).

As research on urban development in the world in recent decades has shown, the optimal model for urban living cannot be obtained without planning land use. At the same time, urban land use is one of the main aspects of urban development, and this subject has acquired a special status following the urban disorders, problems, and difficulties of recent decades. In fact, the ultimate goal in planning land use is to establish some kind of social justice and ecological balance in the process of urban development and improvement. It also has to address human qualitative goals such as perception of beauty and feelings of spatial identity and of belonging to the environment because, ultimately, these factors prepare the ground for the satisfaction and welfare of citizens. Therefore, urban land use projects are an important tool for achieving the macro social, economic, and physical goals, and not only influence investments and decisions concerning the urban population but also play an important

* Corresponding author. *Email address: m.mirzabaki@yahoo.com*

Special Issue: The Second National Conference on Applied Research in Science and Technology

http://dergi.cumhuriyet.edu.tr/ojs/index.php/fenbilimleri

role in determining the degree of urban growth and the quality of the physical environment of the city (Hossenzadeh & etal, 2006).

Moreover, studies have indicated that in urban projects in Iran urban land use is one of the components that receive the least attention. Study of land use is one of the main and basic factors in any comprehensive urban plan, and the existing land use situation forms the basis of the process for developing any urban project. Determination of suitable urban land use in development projects is usually studied as a part of urban planning, although urban land use needs special planning because it is an important, sensitive, and determining part of development projects. The land use component must be considered both in the policy-making and in the execution of urban planning (ibid, p. 73). Moreover, the role played by urban planning, and the ultimate fate of urban projects, largely depend on the degree of intervention in and control of urban land use. From this point of view, one of the most important and effective factors in the development of urban planning, and in the richness of urban projects, is the provision of the prerequisites for planning land use.

At the same time, planning land use is also one of the most important and influential components of sustainable development because it has a close relationship with the environmental, economic, and social domains of sustainable development. It also includes the main environmental, economic, social, and physical-spatial goals, so that it experiences content changes with changes that take place in the approaches to, and in the main elements of, development projects. In other words, sustainable development provides a framework for evaluating projects and programs to assess the degree of closeness to or distance from sustainable development in the goals of a project (Marsousi & Peyravi,2008).

During the past few decades, the concept and definition of « land and space, » and the criteria of using it, have completely changed and, as a result, the principles and goals of « planning land use » have improved qualitatively and found harmony with « sustainable development. » These developments have taken place in response to widespread failure of the conventional comprehensive plans and the emergence of new viewpoints and goals in the domains of the environment, social justice, quality of urban life, etc. (Mehdizadeh, 2000). However, the body of research conducted on evaluation of results obtained from the performance of urban projects in Iran shows that, in the suggestions regarding physical urban projects (comprehensive, detailed, pilot, and land preparation plans), the various dimensions of sustainable development did not receive sufficient attention, which led to problems and instability in the physical form of cities(Ebrahimzadeh, 2006).

Therefore, considering the influence of urban projects on cities and citizens, and taking into consideration the failure in solving the increasing problems of urban life, it is necessary, and unavoidable, to make changes in the theoretical framework and in the processes of the current projects. Sustainable development indicators in the environmental, economic, social, cultural, and physical dimensions can be used as suitable criteria in solving the problems and shortcomings to achieve economic welfare, social-cultural health of citizens, and sustainable urban development (Malaki,2011).

Therefore, this research intended to study and evaluate the proposed land use in the new Comprehensive Plan for Maragheh (Horizon 2018) to determine to what degree the proposed project regarding urban land use took note of considerations related to sustainable urban development in its decision making process. Moreover, identification of the strong and weak points of this Comprehensive Plan prepares the ground for making necessary reforms during the execution of this and other Comprehensive Plans. Therefore, the main questions of this research were as follows:

1. To what extent is the proposed urban land use project compatible with the principles and indicators of sustainable urban development?

2. To what extent is the proposed urban land use project compatible with the physical-spatial indicators of sustainable development?

3. To what extent is the proposed urban land use project compatible with the socio-economic indicators of sustainable urban development?

2. THEORETICAL PRINCIPLES OF THE RESEARCH

Planning is an activity human beings have engaged in from the start. No action achieves the desired goal, whatever the goal is, unless it is included in a plan. The actions required for achieving goals follow these basic stages: the goals are defined, the tools used in achieving them are selected, and the tools are employed. These three stages together make up the planning process. Therefore, planning can be defined as" an informed decision for finding suitable ways of satisfying human desires and of supplying the required resources." (Asayesh & etal, 2012).

In the domain of urban planning, planning is a tool for managing changes in a logical way and it can be interpreted as a formal framework for this management (Chabot & et al,1998). Since planning tends to assume credit as a scientific field or profession, it must be possible to make a systematic evaluation with the purpose of judging planning efficiency. In other words, good projects and planning processes must be distinguished from bad ones. Moreover, urban planning requires the creation of an integrated system of various planning levels that show the way the lower and higher-level systems are connected to, and in harmony with, each other (Oliveira & Pinho,2010).

Urban land use planning is considered the main core of urban planning, and it classifies and locates the various type of land use. Urban land use planning, as a part of the urban planning process, deals with the location, area, and per capita of land required for the various urban land uses while, at the same time, paying attention to its joint relationships with urban transportation and facilities. Bier and Higgins believe land use planning determines what activity takes place on a certain piece of land, how this activity should be carried out, and what costs the execution and management of the project will entail (Chapin, 1972).

From the functionalist perspective, urban land use planning is a tool for the physical and functional organization of various urban activities with the goal of increasing urban efficiency and preventing disorganization and chaos in the urban physical system. In the sustainable development perspective also, the term land use includes all economic, social, and cultural activities that people engage in on land. In fact, the ultimate goals of land use planning are to establish a kind of « environmental balance» and «social justice » in the process of urban improvement and development, and to address qualitative goals such as perception of beauty and feelings of spatial identity and dependence on the environment. Knowing the shortcomings and limitations faced in answering urban needs, attention must be paid to the indicators related to quality of life, social welfare and comfort, and protection of natural and historical sites. (Mehdizadeh, 2003).

The concept of evaluation can be defined as « evaluation, or assessment, is a method and tool for recognizing the actual or probable effects of performances, activities, and projects. » Evaluation, as a method and tool for recognizing the results and consequences of urban development and of the prepared comprehensive plans, is employed because these results and consequences are evident in the environmental, social, economic, and physical aspects of these urban development and comprehensive plans.

Evaluation has also been defined as an activity that happens at different intervals in the decision-making process for advancing the project and for drawing conclusions from the studies conducted on planning. Moreover, evaluation provides a basis for the actual explanation of decision-making instances for the various participants involved in the planning process (Mousa Kazemi,2007).

Furthermore, evaluation must include assessment of the specified consequences of the planning proposals for the life of people or social groups. Temporally, various kinds of evaluation are performed before, during, or after the project. Evaluation prior to the execution of the project takes place at the start of the planning process and compares the various possible options to select the best solution for the advancement of the project. Analysis of documents related to planning before the execution of projects includes the general concept of progress to be made in the project through specifying the various factors involved in achieving high standards in project quality or by using methods such as discussion analysis and project reconstruction. Evaluation during project execution can result in making a series of changes in the directions of the planning process. This type of evaluation concentrates on results of the project and on the resources used in it, and it requires a series of information that must be provided by a qualified information system. In evaluation after the execution of the project, the consequences resulting from the execution of the project are considered. This type of evaluation reviews all the stages of preparation and execution of the project, and makes it possible to judge the success of the project (Oliveira & Pinho, 2010).

3. METHODOLOGY

This research was based on the framework of evaluation prior to the execution of the project. Considering the nature of the subject, the comparative analytical method was used because the research was based on comparing the content of the suggestions in the project with the criteria of sustainable development.

Available documents and statistics including books, articles, approved urban projects, and directions related to and descriptions of services provided by these projects, theses, and maps of the city were used. Field studies were conducted through observations, interviews, and impressions obtained from field visits. To do this, a series of general evaluation criteria related to sustainable development, and the suitable and related sub-criteria, were determined, the desired situation considering the special characteristics of the city was defined, and the proposals in the mentioned Plan regarding land use were evaluated and tested by using the indicators of sustainable development. The AHP model was employed to determine the degree of compatibility between the Plan and these criteria.

The AHP method is a decision-making approach that makes paired comparisons between criteria and options in the format of a matrix. Paired comparisons between criteria and sub-criteria are performed quantitatively and based on relative weights. Using the Delphi method, and after determining the degrees of importance of the indicators and sub-indicators by considering the views of five experts in urban development, the weight of each indicator and sub-indicator was calculated using the Expert Choice software. The final weight of each land use was then determined and, finally, the degree of sustainability of the proposed land use project for Maragheh was evaluated considering the above-mentioned points.

4. INDICATORS AND SUB-INDICATORS

Indicators are the most basic measurement criteria and the most vital signs that represent the situation in a society. In fact, indicators, as concise information, represent the situation of systems such as cities. Therefore, based on what was said above, and considering techniques selected for analyzing effects through searching for examples of executed projects, and taking into consideration international indicators of sustainable development, twelve sub-indicators were selected for the four main environmental, physical, social, and economic indicators.

Table 1. Indicators for evaluating sustainability of urban land use in the Development and Improvement Plan for Maragheh.

Indicators	Sub-indicators
Environmental	Not damaging preserved areas
	Developing green spaces and reducing destruction of forests and green spaces
	Preserving historical and cultural sites
	Avoiding development on floodplains
	Locating annoying industries and services
Physical	Balanced distribution of land uses
	Reusing previously-developed land
	Using abandoned urban land
Socio-economic	Making optimal use of land
	Preventing land speculation
	Providing access to public transportation
	Achieving economic growth through execution of development plans

Source: (ECI,2003:120-121),(Spiekermann & etal,2003:50),(UNCD,Agenda21,1992)

It must be mentioned that the following points were considered in selecting the indicators:

- Indicators that were common between, or more frequently repeated in, samples of evaluations performed on sustainable urban development
- Indicators suggested by reputable institutions such as the United Nations or the European Commission
- Indicators that were more consistent with the general planning conditions in the country and with the unique characteristics of Maragheh
- Considering the subject of the research, those indicators were selected among the considered ones that were more related to urban land use

5. THE STUDY REGION

Maragheh, with an approximate area of 2647 square kilometers, is located in northeastern Iran along the Sufichai River on the southern foothills of the Sahand Mountain, has latitude of 37˚22′ to 37˚25′ north, longitude of 46˚12˚ to 46˚17′, and altitude of 1390 meters.

Maragheh is one of the 19 cities in East Azarbaijan Province. It borders Tabriz to the north, Bostan-abad to the northeast, Hashtrood to the east, Malakan and West Azarbaijan Province to the south, Charavimagh to the southeast, Bonab to the west, and Oskoo and Ajab Shir to the northeast. According to the latest administrative divisions in Iran, Maragheh has two counties (the Central and the Saraju counties), six rural districts, and 166 inhabited villages (the Statistical Center of Iran, 2007:23). Maragheh is one of the historical and ancient cities of Azarbaijan with a rich historical and cultural background, and is highly attractive due to its numerous capabilities for development and because of its influence on the southwest of the province. Moreover, its long history and natural features attract tourists.

6. RESEARCH FINDINGS

The indicators and sub-indicators will be studied in the following sections:

6.1. The environmental indicator and its sub-indicators

Attention to the environment and its protection form the basis of environmental evaluation and, in other words, are its essential goal. Since the environment is considered one of the main pillars of sustainable development, avoiding damage to it is one of the measures of sustainable development but, unfortunately, it has been neglected in the growth and expansion of cities in recent years. In general, the sub-indicators selected for the environmental indicator are as follows:

6.1.1. Not damaging preserved areas

Nature preserves are in fact pure and virgin areas that are protected to establish an ecological balance in various regions and, obviously, any damage inflicted on them will result in irreparable loss of environmental equilibrium in the related region. The current texture of Maragheh faces development restrictions in the eastern, southwestern, and northeastern parts of the city because they are located in the fossils region. This region is very important because it contains large quantities of ancient plant and animal fossils (of the Miocene and Pliocene epochs), and it is one of the few places on earth that the density and variety of discovered fossils have turned given them the reputation of « the fossil paradises of the world. » The fossils region covers an area of 1026 hectares and is located south of the Sahand Mountain on the border between the Mardughchai River in the east and Sufichai River in the west. Despite the importance of this region, land with residential use has been divided, developed, and sold by various cooperatives. These pieces of land have mostly been developed in the eastern part of the region. In the proposed land use project also, land in the fossil region has been allocated to various uses. Therefore, avoidance of damage to preserved areas is considered among the most important sub-criteria.

6.1.2. Developing green spaces and reducing destruction of forests and green spaces

Agricultural and horticultural uses within the city limits are the most important land uses. In the proposed Comprehensive Plan, in addition to preserving the existing orchards, land suitable for horticultural production has been allocated for this use. Moreover, in the proposed land use project the entire area allocated to green spaces is 343.4 hectares (about 10% of the total area of the city). Per capita green space (in the Plan) has increased from the current 1.3 to 18 square meters. Furthermore, considering the ban on increasing land used for horticultural and agricultural production, land use for horticultural production in Horizon 2018 has been set at the current level.

6.1.3. Preserving historical and cultural sites

Because of its long history, and considering it was selected as the capital city during the Mogul Dynasty, Maragheh has numerous historical sites that belong to different historical eras. In general, the historical monuments and textures of Maragheh can be divided into two groups: the valuable textures and the historical texture of the city that encompass the central part of the city, and the valuable historical monuments registered by the Cultural Heritage, Handicrafts, and Tourism Organization.

Construction around monuments has influenced their value and importance and has caused their destruction. Moreover, reconstruction projects, such as the Jam-e Jam Project, that have been designed and are being built have destroyed part of the central texture and, because they are not in harmony and homogeneous with the textures around them, are turning into an ill-sorted patch. Furthermore, projects called Development and Improvement Projects are being executed around historical towers. In all, the suggested area allocated to cultural and historical use in the proposed Comprehensive Plan is 257476 square meters (per capita of 1.35 square meters) that, compared to the current total of 29833 square meters and per capita of 0.2 square meter in 2006, shows an increase of 227643 square meters.

6.1.4. Avoiding development on floodplains

One of the problems Maragheh faces, especially in the northeastern part of the city that is considered the newly developed texture and in the southeastern border areas, is the large number of floodplains and waterway networks that have created problems for the physical development of the city. Moreover, the Sufichai River that runs from the north to the south of the city, and is a valuable natural resource, creates a suitable landscape besides supplying water for the establishment and development of orchards. In all, about 50 hectares of the urban area proposed as green space includes areas located

in the floodplains that extend from east to west in the eastern part of the city and in the north of the Golshahr Township and that have been allocated as land for establishing a forest and creating green space. At present, the total surface area of the river and floodplains amounts to 377382 square meters (per capita of 2.5 square meters), and in the proposed project it has declined to 239358 square meters (has been reduced by 138024 square meters).

6.1.5. Locating annoying industries and services

Carpet weaving workshops and automobile repair shops reduce the residential value of land because of the pollution they cause and create problematic urban textures. Therefore, in the section on spatial distribution of workshops in the new Comprehensive Plan, it is stated that carpet weaving workshops and automobile repair shops will be mostly established in the southeastern corner of the central core of the city. A part of public facilities and infrastructure including slaughterhouses and wastewater treatment facilities will also be stationed outside city limits because of the pollution they cause.

6.2. The physical indicator and its sub-indicators

6.2.1. Spatial imbalance in the distribution of activities

At present, one of the problems that Maragheh faces is that it has one center and there is no balance between its central and eastern parts so that services and commercial activities are concentrated in the central area of the city and the residential areas are predominantly in the eastern and northeastern parts. Continuation of this trend; i.e., preserving the one-center structure of the city and strengthening the role played by this center, will lead to spatial imbalance in the distribution of activities: gradually, as people start to live in the eastern part, this trend will intensify and the eastern part will practically assume a residential function. Therefore, the new Comprehensive Plan has suggested uses with neighborhood functions at the neighborhood scale, those with district functions at the district scale, and those with functions for the entire city at the urban scale.

6.2.2. Reusing previously-developed land

Present uses resulting from the execution of the Detailed Plan of the city were compared with land uses suggested in the new Comprehensive Plan to study the indicator of reusing previously-developed land. Based on this, all uses proposed in the Detailed Plan were considered realized and existing land uses. These included about 860.3 hectares: 41.9% for residential areas, 46.9% for urban road network and parking spaces, and 11.2% for services. Moreover, 17.95 hectares of land planned for residential purposes in the Detailed Plan were used for services instead. Of the area allocated for residential purposes in the Detailed Plan, 26.8% has been used as commercial centers, 16.3% as industrial sites, 11.3% as public sports arenas, 9.6% as religious institutions and sites, and about 5.6% as miscellaneous public facilities and infrastructure. Furthermore, of the area allocated to orchards in the Detailed Plan, 47.78 hectares were used as residential areas and for the services sector (38.68 hectares, or 81%, as residential areas), 2.18 hectares (4.6%) for commercial buildings, 1.58 hectares (3.3%) for industrial sites, 2.6% for business establishments, 2.4% for warehouses, and 2.2% for public facilities and infrastructure. All changes in land use approved by the commission overseeing article five on land use changes from the time the Detailed Plan was approved up to the time the new Comprehensive Plan was prepared (mostly from commercial to residential uses) were recognized as legal in the new Comprehensive Plan. So were changes in land use that, during the same period, took place in some areas outside the city limits.

6.2.3. Using abandoned urban land

Developing abandoned urban land is one of the most important development opportunities in any region. In fact, these land areas are unutilized land that can be made better use of compared to land that is not abandoned (and is limited in area).

Comparison of the existing situation with land uses proposed in the Detailed Plan shows that a large part of the uses suggested in the Detailed Plan has not been realized and the related land pieces (mainly in the eastern part of the city, totaling 915.69 hectares, and constituting about 35% of the total urban area) remain abandoned. This high percentage of unrealized but approved land uses suggests that the anticipated rise in population has not happened, and that the suggested levels of land use exceed those needed by the current population. Some land uses proposed in the Detailed Plan that have not been realized yet and, based on conducted studies and determined needs have the capability of being realized (especially those uses that are consistent, and in agreement, with the nature and structure of new Comprehensive Plan because of their location), were approved in the new Comprehensive Plan.

6.3. The socio-economic indicator and its sub-indicators

In addition to paying attention to the environment and avoiding damages to it, the social environment where people live must also receive attention so that sustainable development can be achieved in all its aspects. Therefore, the criterion of social justice is included among the indicators and criteria related to sustainable development, especially because improved economic conditions allow the realization of social justice and the protection of the environment. Based on this, the following sub-indicators were selected for the socio-economic indicator:

6.3.1. Access to public transportation with emphasis on easy access

At present, the urban road network in Maragheh covers an area of 421.8 hectares, which is 16.2% of the total urban area. This is a low percentage because, on average, 20-30% of the urban area must be devoted to this network. In the proposed Comprehensive Plan, the area devoted to this network has increased to 731.3 hectares (which is 22% of the urban area). In anticipating the main required urban road network, attempts were made to satisfy this need by considering the weaknesses of the existing network, by considering the expected traffic volume in future, and through making the minimum possible amount of demolition and investments. Moreover, it was attempted to use, as much as possible, the existing routes, or the abandoned and free land areas, for the network. In the new Comprehensive Plan for Maragheh, the mutual effects of land use and transportation network were considered in deciding on the manner of developing the centers and in locating them, and widths of the streets vary based on street rating and on land uses around the streets.

6.3.2.Making optimal use of land

Considering the question of sustainable development and protection of the environment against excessive development and expansion and prevention of environmental destruction in Maragheh, the policy to prevent excessive expansion, to make maximal and optimal use of land capable of development, and to prevent destruction of agricultural lands and orchards around the city attracts interest.

According to the new Comprehensive Plan, it becomes clear the population of the city has not increased as anticipated in the previous Comprehensive Plan and Detailed Plan. Therefore, the proposed land uses within city limits have not been realized and about 867.3 hectares of land (33% of the total urban area mostly located in the eastern part of the city) remain undeveloped, and land allocated to residential areas in the Detailed Plan (about 180.4 hectares) remains vacant. Since there are large vacant spaces and undeveloped areas within the city limits, there is no need for development outside the city limits until the end of the Horizon 2018 Plan. In fact, development within the current city limits, and filling the vacant textures, are the top recommendations from the environmental perspective. The large land area capable of development within the urban area makes development outside the city limits unnecessary until the end of the Comprehensive Plan because the undeveloped land within the city limits will satisfy the needs until the end of the Horizon 2018 Plan.

6.3.3.Preventing land speculation

Comparison of the trend in population increase with the expansion of city limits since 1986 indicates that the rise in population has not been proportional to the physical development of the city: the population has grown from 100000 in 1986 to 149000 in 2006, while the city area has increased from 927 to 2597 hectares in the same period. Since proportionality between population growth and physical development of the city has been lost (land mongering city), land speculation has been intensified. Land mongers and speculators have bought these undeveloped land areas, which are mainly located in the undeveloped eastern part of the city. In other words, the large land area within the city limits has caused land speculators to buy large pieces of land and to remove them from the reach of city planners and development officials. Ownership of a large number of land pieces within the city limits by a small number of land mongers has increased demand for land and led to unwarranted increases in land value.

6.3.4. Achieving economic growth through execution of development plans

The following points concerning the general characteristics of the present day socio-economic structure of Maragheh are worth mentioning:

- Maragheh has a young population whose needs include jobs, education etc. and, if these needs are not suitably satisfied and job-creating investments are not made, widespread unemployment will follow increasing migration from the city.
- Rate of participation by women in the activities of the society in 1996 increased compared to 1986, and this increased presence of women in economic activities requires suitable planning to continue.
- During the decade from 1986 to 1996, the importance of the building sector has declined and it has experienced the negative growth rate of -2.73%. Therefore, policy-making and plans must encourage sustainable positive growth in this sector.
- Family size is larger compared to the other cities in the province and, hence, the economic conditions of the urban population are worse compared to those in other cities of the province. Consequently, economic planning must focus on creating productive and sustainable employment.
- The real unemployment rate is 11.54%, which is higher compared to the 7.53% unemployment rate in the other cities of the province.

In all, the rates of growth in the various sections of the economy varied during the 1986-1996 decade, with the mining, industrial, building, trade, and agriculture sectors experiencing substantial growth.

According to the new project, the extent of job-creation and the changes in the economic structure of the city in the Horizon 2018 Plan will be as follows:

- The agriculture sector grew by 6.6% during the 1986-1996 decade, which increased the relative share of this sector by 1.96%. In the proposed plan, it is anticipated that this sector will lose 0.7% of its share by 2018, and that there will be 2915 people engaged in agricultural activities.
- The mining sector employed 0.4% of the workforce in 2006, and this share will remain the same up to 2018.
- The share of the industrial sector in the economy will also remain the same, and it is anticipated that it will employ more people.
- It is anticipated that the number of people employed in the building, transportation, warehousing, and financial services sector will also increase.

- The number of people employed in the business sector is anticipated to rise provided touristic capabilities are utilized, touristic and recreational projects are implemented, and the business role of the city is emphasized.

In all, it is anticipated that from 55000 to 56000 job opportunities will be created in the Horizon 2018 Plan. Therefore, considering the different rates of growth in the various sectors of the economy in the Horizon Plan, the economic structure will change by 1.8%, which indicates the relative stability of activities.

7. CONCLUSION

This project was implemented to evaluate the proposals in the Comprehensive Plan for Maragheh in the domain of urban land use using the sustainable development approach. Attempts were made to assess these proposals by employing an evaluation method and the criteria suitable for it, and to evaluate the proposals for urban land use in the Comprehensive Plan by selecting environmental, physical, social, and economic criteria and their related sub-criteria.

The study indicated various degrees of attention were paid to sustainable development indicators in the proposed land use project. The transportation and warehousing and urban road network sections received the maximum attention to sustainable development with 14.59 and 10.28%, respectively, and public sports arenas and administrative-law enforcement sections the minimum. Table 8 lists the proposed land uses based on the priorities they received in terms of their compatibility with the indicators of sustainable development.

Table 1. Land uses priorities based on scores received in their degrees of attention to the sub-indicators of sustainable development.

Land use	Priority (based on the scores received for paying attention to sustainable development)
Transportation and warehousing	14.59
Urban road network	10.28
Business services	8.41
Orchards and agricultural lands	8.37
City limits	7.78
Health-treatment	7.68
Residential	7.56
Parks and green space	6.39
Cultural-religious	5.69
Urban installations and infrastructure	5.33
Education and higher education	4.91
Tourism and tourism accommodation	4.71
Administrative-law enforcement	4.25
Public sports arenas	4.05
Total	100

8. SUGGESTIONS

Using the method proposed in this research, it was possible to calculate land use scores in terms of attention paid to each of the indicators and sub-indicators of sustainable development. This will allow assessment of the weak and strong points of projects in relation to achieving the goals of sustainable development. Moreover, the introduced indicators and sun-indicators can be used to compare two or more projects so that the project that is most compatible with the goals of sustainable urban development can be selected.

Furthermore, considering results of this research, a suitable method was introduced to evaluate proposals related to land use with respect to attention paid to the indicators of sustainable

development. Using this method, it was determined to what degree the proposals of the Comprehensive Plan paid attention to each of the studied indicators and sub-indicators, and the obtained results allowed making suggestions for amending and revising the proposals offered in the Comprehensive Plan.

REFERENCES

[1]. Ebrahimzadeh, Isa and Abdolreza Mojir Ardakani, 2006, Evaluation of Urban Land Use in Ardakan in Fars Province, the journal Agriculture and Development, spring and summer of 2006

[2]. Karim Hosseinzadeh Dalir and Saeed Malaki, 2007, Study of Changes in Urban Land Use in the Comprehensive Plan and Detailed Plan for Ilam, the journal Geography and Regional Development, No. 8, spring and summer of 2007

[3]. Mojtaba Rafieian et al., 2008, Evaluation of Development Strategies for Metropolitan Regions from the Perspective of Sustainable Development, Case Study: The Urban Complex Plan for Tehran, the quarterly Urban Development, No. 19, spring of 2008

[4]. Ziari, Keramatollah, 2009, Planning Urban land Use, 9th edition, Yazd University publications

[5]. The Physiognomy of Maragheh, 2004, the Management and Planning Organization of East Azarbaijan, Deputy of Plan and Budget, February 2004

[6]. Sherraine, Hossein, 2003, Spatial Organization, Danesh Afarin Publications, Tehran

[7]. Shariat Sayyed Mahmud and Sayyed Masoud Monavvari, 1996, An Introduction to Evaluation of Environmental Effects, Iran's Environment Protection Organization, Tehran

[8]. The Development Plan Project for Maragheh, the Management and Planning Organization of East Azarbaijan Province, winter of 2006

[9]. Farhoudi, Rahmatollah et al., 2006, Khavaf, a Model for Evaluation and Analysis of Land Use, the journal Geography and Development, autumn and winter of 2006

[10].Gharagozloo, Zohreh, 1986, The Role of Evaluation in Urban and Regional Planning Process and Its Common Techniques, the Building and Housing Research Center, the Ministry of Housing and Urban Development

[11].Gharakhloo, Mehdi and Seyed Hadi Hosseini, 2006, Indicators of Sustainable Urban Development, the journal of Agriculture and Regional Development, No. 8, spring and summer of 2006

[12].Marsousi, Nafiseh and Ali Peyravi, 2008, Analysis of Urban Land Use using the Sustainable Development Approach, Case study: the Saadiyeh Township in Shiraz, the journal Agriculture, No. 17, spring and summer of 2008

[13].The Statistical Center of Iran, General Population and Housing Census, 1996

[14].Malaki, Saeed, 2011, Assessment of Sustainable Development in Urban Areas using Planning Techniques, Case study: Ilam, the journal Geography and Development, No. 21, spring of 2011

[15].Mousa Kazemi, Seyed Mehdi, 2007, Evaluation of Sustainable Urban Development, Concepts, Methods, and Indicators, Peyk-e Noor, volume 5, No. 2, summer of 2007

[16].Mehdizadeh, Javad, 2003, Planning Land Use from the Perspective of Sustainable Development, the Farnahad Consulting Engineers, Tehran

[17].Mehdizadeh, Javad, 2000, Planning Land Use, Change in Perspectives and Methods, the quarterly Urban Management, No. 4, winter of 2000

[18].Naghshe Mohit Consulting Engineers, 2006, The Development and Improvement Project for Maragheh, the Ministry of Housing and Urban Development,

[19].Nazarian, Asghar, 2002, The Iranian Urban Geography, Payam-e Noor publications, Tehran

[20].Yekani fard, Seyed Ahmad Reza, 2005, Explanation and Introduction of an Optimal Model for Urban Land Use in Iran, the journal Municipalities, No. 71, Tehran

[21].Chapin, Francis. Stuart ,1972, Urban land use planning, Second edition, University of Illinois. These du doctorat, Alain Iarrius universte du Toulouse ll le Mirail T. Ioulouse. pp.3.

[22].Ludwig, L. and S. Starr .2005. Library as place: results of a delphi study. Journal of the Medical Library Association 93(3), 315-327.6;16:321-335

[23].Oliveira,Vitor and Pinho,Paulo. 2010 a . Measuring success in planning, Developing and testing a methodology for planning evaluation : Town Planning Review,81(3) , 307 –332.

[24].Oliveira,Vitor and Paulo Pinho. 2010 b. Evaluation in Urban Planning: Advances and Prospects. Journal of Planning Literature. 24(4), 343 -361.
[25].www.ostan-as.gov.ir
[26].www.UN.org