



**ORIGINAL ARTICLE**

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## **A Study on Changes and Realization of Urban land Use Extent of Esferayen City during Decades 2001 to 2011**

**<sup>1</sup>Mahdi Vatan Parast, <sup>2</sup>Hamid Saremi, <sup>3</sup>Farshid Khorasanian**

1 Quchan Branch, Islamic Azad University, Quchan, Iran

2. Accounting Department, Quchan Branch, Islamic Azad University, Quchan, Iran

3. Department of Geography, Shirvan Branch, Islamic Azad University, Shirvan, Iran

### **ABSTRACT**

*In the present paper has been tried with comprehensive comparison in revising urban user plan in 2013 by the proposed land use adopted detailed plan of Esferayen city in 2004, the realization extent of proposed users in urban development plans of Esferayen is studied. The main objective of this study is to determine the extent of application of the proposed implementation in detailed plan approved in 2004. Main research question is: Does the proposed land use in detailed suggested plan in 2004 so far has been realized? The research method is descriptive - analytical and information has been collected through library research and field work. The survey result and comparison between urban users in decades of 2001 and 2011 in Esferayen the city indicates the lack of full realization of all users except business users in the quo status. In the study of the cause of the lack of proposed land uses 'full realization the matters such as lack of urban planners 'sufficient accuracy at the time of preparation of the proposed users in ignoring relation between urban Population and users needed levels in Preparation and approval of the long duration of project, the inattention to public participation in the preparation of plans, Private ownership, lack of human and financial resources, the results are not according to urban management unit. Some of the reasons of lack of full realization of the proposed land uses include lack of sufficient precision of urban planners when preparing land uses as the relationship between urban population and the levels required by land uses is ignored, long time spent for preparing and approving plans, lack of attention to public participation in preparing plans, private ownership, lack of attention to financial and human resources and to management of urban unit.*

**Keywords:** Member, per capita, detailed design, implementation, stub city, land use, per capita, master plan, realization, Esferayen.

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### **INTRODUCTION**

One of the major studies for identifying cities and distribution of urban activities in physical studies is the study of urban land use [1]. Urban land use is so important that some of urban planners in developed countries consider it the same as urban planning. Land use planning refers to how to use, distribute and preserve lands addressing local and spatial organization of urban activities and performances based on demands and needs of urban society. It is the heart of urban planning and classifies and maps types of land uses. The concept of land use is considered as a sustainable subject determined in terms of capacity and capability of the land. In other words, urban land use system means highlighting type of land use in cities, directing spatial organization of city, determining constructs and how they match together and with urban systems [2].

Organizing and creating an appropriate space with different functions for optimal access of citizens is common goal of almost all urban development projects. To this end, urban master plan is implemented to perform its approved implemental plans [3].

In recent decades, the city of Esferayen has been influenced by immigration influxes, concentration of investment opportunities and labor and increasing demand for land which increased physical area of the city. This development often occurred without planning. So there is an imbalance in land uses of Esferayen and some of them are in bad conditions. In the present paper, it is tried to study the extent of realization of urban development plans of Esferayen by comparing urban uses in Revised Comprehensive Plan, 2013' with land uses approved and proposed by Master Plan 2003.

One of the important issues in preparing urban development plans is evaluation of the extent of realization of master plans prepared in order to minimize or remove obstacles of realization of urban development plans by evaluating master plans and examining factors affecting them.

Meanwhile in the city of Esfarayen with the area of about 1200 hectares, increased in-migration followed by rapid growth of urbanization has increased the need for various land uses. On the other hand, selection of the city as the third largest city in the province of Northern Khorasan made the increase of land uses inevitable. This research aims at analyzing the extent of increase or decrease of individual land uses in 2001's and 2011's to prevent outcomes resulted from changes in land uses and enhance future plans by examining such changes and.

**General purpose**

Analysis of changes and the extent of realization of urban land use in Esfarayen in 2001's and 2011's.

**Partial goals**

1. Determining the current conditions of urban land use of Esfarayen
2. Comparison of existing land use with land uses proposed by Master Plan.

**Research hypotheses**

Considering the subject proposed, the following hypothesis is presented:

It seems that land uses proposed by Master Plan have not been realized in Esfarayen.

**METHODOLOGY**

This research is based on the purpose of an applied research and is an analytical-descriptive research. Data required can be obtained by different ways. Considering the subject of the research, "analysis of changes and the extent of realization of urban land uses of Esfarayen during 2001's and 2011's, data was collected by library and field studies. In library studies, books, theses, statistics, maps, tables, papers, journals, etc. were used. In field studies, data collected by performing interviews with scholars and experts familiar with the affairs of planning as well as interviews with administrators of such plans and seeking their opinions.

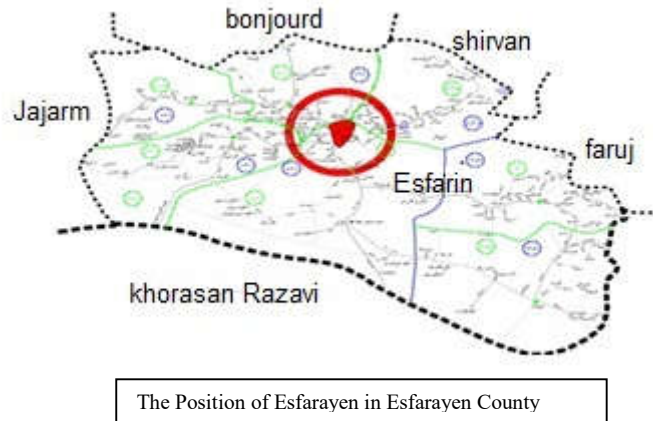
**Introducing the study area**

Esfarayen is the capital of Esfarayen County in North Khorasan Province with the area of about 1200 hectares. As to geographical position, it is located in 36° 55' of the northern latitude and 57°60' of the eastern longitude. Its heights from sea level are 1345, 1200, 1270 and 1230m in northern, southern, eastern and western ends, respectively.



Figure 1: the position of Esfarayen County in Northern Khorasan province





As to its name, some of authors and historians believe that the city was founded by Esfandiyar so that it is called Esfarayen; it seems that the judgment is based on mythological narratives. Some linguists consider the name derived from "Sepehr Aeen" meaning "divine religion" based on its lexical root. Since ancient times, Esfarayen has been called "Mehregan", "Mehrejan", "Sepehraeen", "Esperaeeen", "Esperain", "Esbrain", Zabrin" and "Mianabad". Its first name was Mehregan which is read Mehrejan in Arabic.

The most important causes of Esfarayen emergence:

- Diversity of climate and altitudes, plains and deserts
- Communication and being located in the neighborhood of Nyshabour (Khorasan Om al-ghara (mother of readers)) with historical importance
- Bordered with ancient Gorgan and connecting Nyshabour with Caspian Sea
- being located on the Silk Road
- surface water resources

According to political divisions in 2004, the current Esfarayen has two cities of Esfarayen and Safiabad and two districts of central district and Bam and Safiabad district. Rural districts of Azari, Damankooch, Rooin, Rezaabad, Milanlu are from central district and rural districts of Bam and Safiabad is from Bam and Safiabad district.

According to 2006 census, the county's population was 53132 accounting for about 13.5% of urban population of the province. Since it is located on the Sabzevar-Bojnourd road, Esfarayen has a special position. Table 1 presents Esfarayen's population and households in the last half century.

Table 1: population and households in the last half century in Esfarayen

2021	2010	2006	1996	1986	1976	Demographic indicators
172165	58901	53132	41062	27029	11361	Population (people)
19717	16271	13397	8785	57056	2505	Number of households
3067	3062	3097	4067	4075	4054	Average household size
-	2.61	4.25	9.07	-	-	Average annual growth (period)

Urban space of Esfarayen has expanded during the last half century due to migration, increased birth rate, etc. Diagram 1 indicates urban sprawl of Esfarayen over the last half century.

Diagram1: urban sprawl during the last 50 years

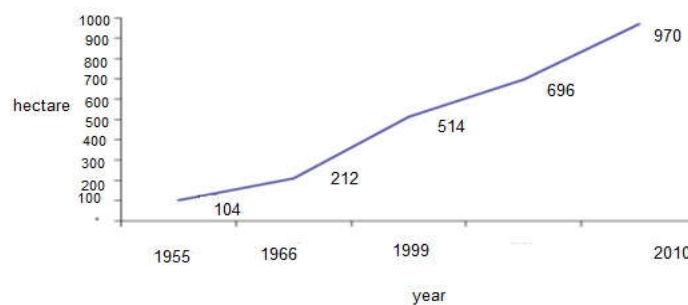


Figure 2: Esfarayen position in the area and its surrounding duties



**Fig 3. Land uses proposed in 2004 Master Plan**

The area studied in Master Plan of Esfarayen is 1152 hectare. The areas of land uses proposed in Master Plan approved in the respective year are shown in the below table:

**Table 2: land uses proposed in 2004 Master Plan**

Use group	The area of land use proposed in Master plan
Residential	5107965
Commercial	107675
Cultural	68047
Religious	30216
Educational	495150
Higher education	31567
Care health	156328
Green space	1182263
sport	244088
workshop- industrial	264984
Utilities- equipments	160464
Tourism- hospitality	22417
transportation	293994
Administrative-	253579

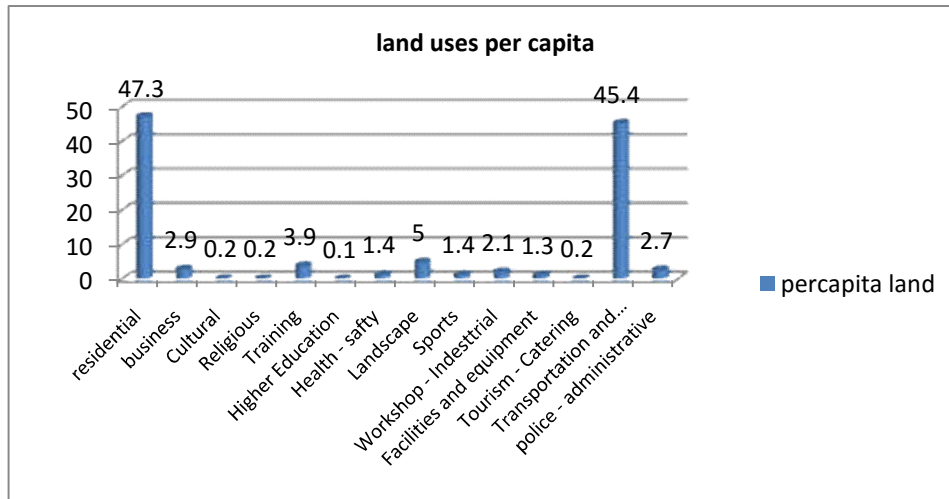
Status quo land uses in 2013 revised comprehensive plan

In 2013 revised comprehensive plan, all existing land uses in the area approved are according to tables 3 and 2:

**Table 3: status quo land uses in 2013 Revised Comprehensive Plan**

Use group	The area of the existing land use 2013 (m <sup>2</sup> )	Per capita with the population 58901
Residential	2787207	47.3
Commercial	168284	2.9
Cultural	12398	0.2
Religious	14710	0.2
Educational	230552	3.9
Higher education	7111	0.1
Care health	83512	1.4
Green space	296327	5.0
sport	80449	1.4
workshop- industrial	122181	2.1
Utilities- equipments	76372	1.3
Tourism- hospitality	11021	0.2
transportation	2674097	45.4
Administrative-	160975	2.7

Diagram 3: status quo land uses per capita (2013)



### Study and comparison of qualitative and quantitative physical conditions of different uses and determination of status quo deficiencies and needs

This section is devoted to qualitative and quantitative positions of different types of land uses.

#### a) Residential uses

Residential use throughout Esfarayen has the area of 278.7 hectares with 47.3m<sup>2</sup> per capita.

Minimum per capita standard of (former) Department of Housing and Urban Development is 40m<sup>2</sup> for the cities of more than 50,000 populations so according to this standard there is no deficiency. Considering the area of land use proposed, 51080 hectares, and the status quo area of land use, 252.8 hectares, there is 258 hectares deficiency according to the area proposed in Master Plan.

#### b) Commercial use

The area of commercial use in Esfarayen is 16.8 hectares and its per capita is 2.9m<sup>2</sup>. According to standard per capita of (former) Department of Housing and Urban Development (2.5m<sup>2</sup> per person) and per capita of Master Plan approved for Esfarayen (1.5m<sup>2</sup> per person), there is no shortage of commercial use.

#### c) Cultural use

Cultural use area in Esfarayen is 1.2 hectares and its per capita is 0.2m<sup>2</sup>. Per capita approved by (former) Housing and urban development ministry is 0.4-0.75 m<sup>2</sup>. According to per capita of 0.75m<sup>2</sup>, Esfarayen has a shortage of 3.2 hectares for cultural spaces and according to Master Plan per capita; 1m<sup>2</sup>, there is a shortage of 4.7 hectares.

#### d) Religious use

Religious use allocates an area of 1.4 hectares. Its per capita is 0.2m<sup>2</sup>. According to Master Plan approved for Esfarayen, religious use per capita is 0.4m<sup>2</sup> and according to (former) Department of Housing and Urban Development; it is 0.3-0.5 m<sup>2</sup>. If 0.5m<sup>2</sup> per capita is considered per citizen, Esfarayen needs 1.5 hectares religious spaces and according to Master plan per capita, it needs 0.9 hectares.

#### e) Educational use

Education services include all levels of public education and other educational centers. Public education includes preschool, elementary school, intermediate school, high school and vocational-technical school. Total area of educational lands in status quo Esfarayen is 23 hectares and its per capita is 4m<sup>2</sup>.

According to per capita standard proposed by (former) Department of Housing and Urban Development for educational use, 5m<sup>2</sup>, by subtracting the present amount of educational use in Esfarayen, there is a shortage of 6 hectares. Also according to Master Plan per capita approved for Esfarayen (6.7m<sup>2</sup>) there is a shortage of 16 hectares.

#### f) Higher education use

The area of higher educational use in Esfarayen is 0.7 hectares with the per capita of 0.1m<sup>2</sup>. Status quo per capita of higher education is obtained by the number of students in higher education centers. Esfarayen has one branch of Payam Noor University and one branch of Islamic Azad University. The total number of students is about 5000 and status quo per capita is 0.1 m<sup>2</sup>.

According to per capita proposed by (former) Department of Housing and Urban Development for higher education (30m<sup>2</sup> per student) and considering the population of 5000 students, Esfarayen has 14.3

hectares shortage in higher education spaces. Also according to Master Plan per capita for Esfarayen (0.5 m<sup>2</sup>), there is 2.9 hectares shortage in higher educational spaces.

It is of note that Islamic Azad university building with the area of 0.8 hectares is being built in the eastern prayer square and if it is operated, there are 13.5 and 2.1 hectares shortage according to (former) Department of Housing and Urban Development and Master Plan per capita, respectively.

#### **g) Health care and social welfare use**

Health care and social welfare use in Esfarayen has the area of 8.35 hectares with the per capita of 1.4m<sup>2</sup>. According to per capita proposed by (former) Department of Housing and Urban Development (1.5m<sup>2</sup>) and Master Plan (2.1m<sup>2</sup>) there is a shortage of 0.5 and 4 hectares, respectively.

#### **h) Green space use**

Green space use includes parks, green spaces of squares, forest parks and etc. Total area of green space use in Esfarayen is 29.7 hectares and its per capita is 5m<sup>2</sup>. According to standard per capita proposed by (former) Department of Housing and Urban Development (8m<sup>2</sup>), the city has a shortage of 17.4 hectares and according to Master Plan per capita (16.9m<sup>2</sup>) there is a shortage of 68.3 hectares.

#### **l) Sport use**

Sport use in Esfarayen has the area of 8 hectares and its per capita is 1.4m<sup>2</sup>.

According to Master Plan per capita (3.5m<sup>2</sup>) and (former) Department of Housing and Urban Development per capita (1.1-1.5 m<sup>2</sup>), there is a shortage of 12 and 0.2 hectares.

#### **j) Manufacturing, industrial and workshop use**

Total area of manufacturing, industrial and workshop use in Esfarayen is 12.2 hectares and it's per capita, 2.1m<sup>2</sup>. It is of note that there is an industrial complex with the area of 7.5 hectares and a 0.8-hectare abandoned mine (total 56% of status quo use) in the zone studied. By abstracting both areas, the respective use per capita is 1.06m<sup>2</sup>. Since there is legal ban for industrial land use (annoying industries) within the city, determining the level of need requires refinement of the respective use and removal of annoying industries from inside the city.

#### **k) Utilities use**

Utilities use in Esfarayen has the area of 7.6 hectares with per capita of 1.3m<sup>2</sup>.

According to (former) Department of Housing and Urban Development standard per capita (2.5m<sup>2</sup>), Esfarayen has a shortage of 6.9 hectares and according to Master Plan (2.3m<sup>2</sup>) it is 5.9 hectares.

#### **l) Tourism- hospitality use**

Tourism-hospitality use in Esfarayen has the area of 1.1 hectares with 0.2m<sup>2</sup> per capita.

According to Ministry of Housing standard per capita (0.5m<sup>2</sup>), Esfarayen has a shortage of 1.7 hectares and according to Master Plan per capita (0.3m<sup>2</sup>), it is 0.6 hectares.

#### **m) administrative-disciplinary use**

Administrative-disciplinary use in Esfarayen has the area of 16.1hectares and per capita of 2.7m<sup>2</sup>. It is of note that (former) Department of Housing and Urban Development standard per capita for the respective use is 1-2m<sup>2</sup>. So there seems no shortage according to (former) Department of Housing and Urban Development standard per capita. However, according to Master Plan per capita which is 3m<sup>2</sup>, there is 1.7 hectares shortage.

#### **Summary**

Considering the studies performed, in sum and according to Master Plan approved and (former) Department of Housing and Urban Development (whichever is higher), the city has a shortage of 389 hectares. Table 4 indicates the comparison of the status quo land uses per capita with standard per capita proposed by Department of Housing and Urban Development and per capita of Master Plan.

Table 4: comparison of status quo land uses per capita and standard per capita proposed by Department of Housing and Urban Development and per capita of Master Plan

Status quo per capita shortage relative to Master Plan per capita	Status quo per capita shortage relative to standard per capita	Per capita proposed by Master Plan	Standard per capita of Department of Housing and Urban Development	Per capita with the population of 58901	status quo land use area 2013(m <sup>2</sup> )	Land use group
shortage	No shortage	5 0	Per capita ≤40	47.3	2787207	Residential
No shortage	No shortage	1.5	Per capita ≤2.5	2.9	168284	Commercial
shortage	shortage	1	≤ 0.75Per capita0.4 ≤	0.2	12398	Cultural
shortage	shortage	0.4	≤ 0.5Per capita0.3 ≤	0.2	14710	Religious
shortage	shortage	6.7	≤ 5Per capita3 ≤	3.9	230552	Educational
shortage	shortage	2.1	≤ 1.5Per capita1 ≤	1.4	83512	Health care

shortage	shortage	16.9	≥ 8 Per capita	5.0	296327	Green space
shortage	shortage	3.5	≤ 1.5 Per capita	1 ≤	80449	Sport
shortage	shortage	2.3	≤ 0.5 Per capita	2 ≤ 0.2 ≤	76372	Utilities
shortage	shortage	0.3	≤ Per capita	1 ≤	11021	Tourism-hospitality
shortage	No shortage	3	≤ 0.5 Per capita	0.2 ≤	160975	Administrative-disciplinary
			≤ 1 capital county	2 ≤		

**Study and comparison of the extent of realization of land uses and percentages of their realizations**

According to studies performed, cultural use with 5.6 hectares has the lowest extent of realization of land use with only 18% followed by higher education with 24.5 hectares and 23% realization.

Table 5 indicates areas and percentages of unrealized land uses in Esfarayen.

As seen in the table, cultural, higher education and green space each with less than 30% realization are the most unrealized uses.

Sport, industrial-workshop, educational, utilities, religious and tourism-hospitality uses are realized between 30 and 50%.

Residential, transportation, health care, administrative-disciplinary uses are realized more than 50%.

Commercial use has realized beyond what has been predicted in the Plan with more than 100%.

Table 5: Realization level and percent of land uses suggested in Master plan of Esfarayen

Realization percentage (percent)	Difference of status quo land use with that of suggested (m <sup>2</sup> )	Status quo land use area within the limits approved in 2013 (m <sup>2</sup> )	Land use area proposed in 2004 Master Plan	Land use area	
Less than 30%	18	55649	12398	68047	Cultural
	23	24456	7111	31567	Higher education
	25	885936	296327	1182263	Green spaces
Between 30 and 50%	33	163639	80449	244088	Sport
	46	142803	122181	264984	Industrial-workshop
	47	264598	230552	495150	Educational
	48	84092	76372	160464	Utilities
	49	15506	14710	30216	Religious
	49	11396	11021	22417	Hospitality-tourism
Between 50 and 100%	50	2580798	2527167	5107965	Residential
	50	148438	145556	293994	Transportation-warehouse
	53	72816	83512	156328	Health care
	63	92604	160975	253579	Administrative-disciplinary
More than 100%	156	-60609	168284	107675	Commercial

**Factors affecting lack of implementation of land uses**

Land use change is one of the problems that urban development projects face with since the beginning to organize the cities. To establish predetermined land use plans, it seems that completely unknown nature of demands and human needs and their changes in one hand and technical weakness in accurately estimating capabilities and abilities of the land for establishment of activities before employment, and

lack of understanding final potentials as well as changes in terms of function and position occurred after the plan has been prepared for a particular region on the other hand may provide the required opportunity for changing land uses and incidence of mismatch between use and the body [4]. Therefore, in many cases of preparing a plan for land uses and allocating a land to uses, logical establishment of activities isn't provided in urban spaces. In other words, failure to comply with the terms of the plans from some organizations causes the uses not to be realized or changed [5]. Following reasons can be cited for failure of Comprehensive and Master Plans in three theoretical topics of methods and procedure, administrative and managerial: [6]:

1. Diminishing urban planning to physical planning and lack of attention to urban design
2. Detailed, sparse, indirect and non-targeted studies
3. Discontinuity between steps of planning, plan preparation, implementation and management
4. Limiting future development of the city within inflexible land use map
5. Lack of participation of citizens and interest groups in decision making process
6. Converting urban development process into a set of formal and inflexible administrative procedures
7. Lack of adequate attention to operational capabilities (financial, technical and organizational)
8. Failure to predict supervising tools, pursuing and modifying
9. Not using public and local facilities in implementation and management'

### **Regulatory issues**

Law is a basis on which management is formulated and moves along it. Regulations are one of key factors in quality of the environment. Due to the changing and dynamic nature of urban areas and their surrounding have, most of plans prepared aren't able to adapt with such conditions and have less success. After Islamic revolution, terms of urban land may have been one of effective factors contributing urban sprawl. Ownership and transfer of land in a large scale especially in the first decade is noteworthy [7]. In this context, the purpose of the law has played a role in instability of the environment and the society surrounding the city especially land use changes in Esfarayen.

### **CONCLUSION**

By studying and comparing status quo land uses in 2013 and land uses suggested by 2004 Master Plan, it is found that in all land uses except commercial use, there is less than 100% realization of the suggested use indicating public tendency to this type of use in the city due to its profitability. On the other hand, lack of realization of other land uses is resulted from lack of enough attention of urban planners to the connection between urban populations and uses levels required when preparing land use plans.

In Esfarayen urban development plan, inefficiency of urban planning in Master and comprehensive Plans is manifested in the absence of full of implementation of the proposed land uses.

On the other hand, considering inefficiency of urban planning in the manner of master and comprehensive plans, it is necessary to use new methods of urban planning rather than current master and comprehensive plans.

In current conditions and continued process of planning by master and comprehensive plans, urban planners should consider not only physical factors but also economic, social, cultural, political and geographical factors in the process of land use planning.

### **REFERENCES**

1. Shia, Esmaeel (2000), an introduction to urban planning bases, press center of science and industry university, land use, Tehran.
2. Ziari, Keramatallah (2000), Planning of new towns, second edition, Samt University Publication, Tehran.
3. G. Shayer Chima (2003), Urban management, Dr. Parviz Zahedi, urban planning and processing publication. 290.
4. Shiia, Esmaeel (1999), Urban planning workshop, press center of science and industry university, Tehran.
4. Hoseinin, Sayyedali (2006), Technical and administrative bases of urban and regional regulations in Iran. First edition. Rasht: Haghshenas
5. Hosseini, Sayyed Javad; heidari, Mohammad Reza; Saleh, Saeed and Mehranfar, Mostafa (2008), Sustainable public participation in renewal and reconstruction of distressed urban areas, first edition, Mashhad.
6. Mazand Plan Counseling Engineers (2013), revised development comprehensive plan of Esfarayen.
7. Khakpoor, Baratali; Pileh, Aliasghar; Golafruz, Mehri (2011), evaluating the extent of realization of educational, health care and green space uses in Master Plan of Bojnourd.

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