

CASE STUDY

Identification of regional development drivers by scenario Planning

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ABSTRACT: Looking ahead is a deeply rooted motivation and even basic human has been faced with this problem, then it cannot be said that noticing future is a feature of modern humans. Merely in the contemporary era due to rise of awareness of human knowledge on one hand and escalating worries about the acceleration of unknown events on the other hand the thought of thinking of future of societies became popular in a more severe frame. The future is something that humans can design with their purposeful measures and then shape it. Increased complexity and precariousness in the few decades has led planners and policy-makers turn to scenario planning making in such circumstances. Adaptability of future methods in urban and regional planning, provides a meticulous approach for regional planning which is mostly based on the interpolation, compatibility and participation. This research was conducted with the goal of regional development and the feasibility of the program in Shemiranat County and through scenario planning in regional planning. Information needed for this research was compiled using an open and structured questionnaire through Delphi method and comments of experts and data from MICMAC in three cycles and then using interactive analysis techniques, they were analyzed in the software. Finally, according to Schwartz scenario writing was conducted. The results show that Shemiranat will face four main scenarios. The four scenarios will be described.

Keywords: Future research, Regional development, Scenario writing, Thrust power

INTRODUCTION AND ISSUE

Caring about the future in this era in the near age can be related to human values as “freedom”. Peter Schwartz in his book “The Art of vision”, wrote that “this book is about freedom. People in Western societies, seemingly free, but because of the unpredictability of events they feel restricted. Surprisingly, as every year, every decade we are surprised by social changes that occur suddenly. How individuals, businesses and establishments could be planning for the future, when they don’t know what tomorrow will bring? Deep and true confidence come from our understanding of the possible consequences which is the outcome of our choices. In this context of unpredictability means freedom, ability to operate with confidence and wide knowledge about uncertainty”

(Schwartz, 1991) civilized humanism has always been planning to find solutions to improve methods and quality of life. Understanding the future and long-term planning is of capital importance. This trouble has long been ignored by policy-makers and academics. Deficiency of knowledge about the future of smart planning tools and how to apply them in the planning process is affected (Myers, 2000). In ancient civilizations, there was a trend toward predicting events. For example, supernatural power that has been associated with witchcraft. Carcasses of dead animals and other natural disasters were analyzed to make notice of the future. Later the crystal ball, stars and celestial spirits were used to foretell the future (Pillkahn, 2008).

About the difference between the concept of prudence and foresight it should be pointed out that the prediction is an action that takes place within the

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framework of foresight. In other words, any prediction is a prospective of practical aspects. Perhaps we can argue that the prediction is in service of foresight (Hajiani, 2012). In general, future study followed three main orders:

The seventies were based on economic and political studies, eighties and nineties based on social-economic surveys and finally scientists such as Peter Schwartz and Joe Coates the twenties studies were centered on alternative scenario (Heidari, 2014). In fact, future researching as an aspect of strategic thinking, reviews and identifies future in a certain subject. In fact, future researching, as operational aspects, seeks to build a picture of futures which can be identified in conditions of uncertainty (Heidari, 2014).

Urban planning and regional decision makers in a world full of changes and revolutions, requires the development of new approaches to anticipate and prepare for the future. The decision-makers at all spatial scales are facing new challenges about the increasing complexity of decision-making environment. Rappert believes in recent years among scientists, there was despite development of science and technology for encompassing uncertainty, human efforts for future planning based on existing knowledge have been inadequate. This thinking was grounded due to need to build up new approaches for responding to future alterations in the environment changes and forecasting methods in uncertainty (Rappert, 1999).

We need to arrange some fine patterns which are according to native condition and features. This ay level of realization of projects increases and also lands in Iran will be managed and planned in a more appropriate way. Since planning at various levels is a kind of interference in the future with the aim of creating the future, science of future researching can help this significantly. District planning can apply principles and methods of future researching appropriately because of too much complexity and this way it can present finer plans and eventually makes its ends which is removing imbalances and reaching fairness. This study sought to identify the driving forces affecting the region of Shemiranat in Tehran using futures researching approach. In this regard, identifying the most important driving forces, scenario writing of the future is done for planning the future of the region in Shemiranat correctly.

THEORETICAL BASIS AND RESEARCH BACKGROUND

In an area of rapid changes, complexity and uncertainty are in a high degree, and future researching adaptation in urban planning leads a meticulous approach to urban management, which is based on interpolation, participation and Adaptation (Ratcliffe and Krawczyk, 2011).

Scenario planning is based on a combination of scenario analysis and strategic planning. Scenario-based planning, planning to systematically explore alternative lines of development in the outdoor world and the consequences of them for business are all your industry or region. On that point is no planning method for global scenario. Alternatively, at that place are a bunch of different ways to create and use scenarios and techniques in planning and decision-making fields. In fact, based on scenario planning it should be looked upon as an attitude and an approach, combined with a set of methods (Lindgren and Bandhold, 2003). Scenario-based preparation, is a strategic planning tool for efficient long-term planning in terms of uncertainty. Scenario thinking helps us go on logic, forwarding forces, key components, key players and our potential. The concept of scenario planning was applied after World War II and in the US Department of Defense. Scenario planning method was applied for military purposes in the 1950s, in RAND Corporation. In 1960 the methodology was widely applied to anticipate the social scenario, public policy analysis and decision making. In the late 1970's and the work plan was developed after Pierre Walk it had a fresh dimension. In recent decades the use of scenario planning has increased significantly and it is more or less a standard tool in most companies and in Consulting Engineers (Stojanović, *et al.*, 2014). Scenario planning is different with most forecast approaches, because it generally gives a qualitative description of how to confront the moment with future and it does not need a statistical accuracy. In scenario writing some of possibilities come out as a consequence of the state of uncertainty while forecasting has the intent of identifying and estimating the uncertainty. Creating a visual sense of foresight as a method is different from scenario writing because visioning presents a full icon to render strategies (Stojanović, Mitković and Mitković, 2014). For operating in a world of uncertainty, people need to have the ability to see this. In order to understand

again, people challenge their assumptions about how the world's people are questioned. This means they will be capable to clearly view the universe about you. Scenarios help people change their attitude for truth and for more comparing this attitude with truth as it is or I is being created (Schwartz, 1991).

Scenario planning history goes back to the Manhattan Project in World War II. When scientists used a computer simulation called Saeidr to predict exploding effects of Kebmebatmyra. After the war, the US military used scenario planning to develop defense strategies (Hanafizadeh, et al., 2010). After World War II, the center of scenario planning in America needed two main requirements for the Department of Defense (DoD). First, it need to apply comments of great groups of experts new technique called RAND future thinking from experts and second simulation of good examples for future environments which may lead to policies replaced and then the outcomes will be reviewed (Randt, 2015). Kahn (1940) in RAND company discovered a new technique called future-present thinking. He founded Houdssan institute, an institute for writing stories about people in the future, so help people pay attention to things out of the imagination (Chermach,

2001). Given the importance of thinking ahead and thinking about the future and understanding the importance and role of human, in recent years several methods have been discussed in future arenas. According to various aspects, objectives and components of the environment seek to reach a plan for, understanding, learning and comprehension of what may occur in the future (Babaghyby, 2010). Table 1 demonstrates features of future planning techniques. In recent years scenario planning in various urban projects have been conducted which in the Table 2 some samples of plans along with their main features were presented.

MATERIALS AND METHODS

In order to identify the drivers of regional development in Shemiranat, Delphi scientific method was used as the primary method. For this purpose, conditions and regional issues were identified through library features. And so, based on the findings of the library findings and questionnaire findings, an open-ended questionnaire was prepared and they were circulated among experts who were recognized as the expert panel in Delphi method.

The experts were senior professionals of the various regional offices in Shemiranat, along with a

Table 1: Features of future planning techniques (Jaizuluddin, 2011)

Good use	Restriction	Advantage	Approach	Techniques
Short-term and pre-determined factors.	Unexpected events	Simplicity: an authentic historical basis	Extrapolation of historical data	Detection
Initial test subject, interest-operation of expert opinions	Expertise available,	Economic purpose	Experts debate focused	Critical technologies
Testing and approval;	Influence factor: Criteria for selection	Free process impact	Arbitration is a large group	Delphi
Mass involvement Possible future, related to the identification	Create questions, focusing source Believable; the views of the authors, thought	Anti-ago decision to see	Making the future possible alternative	Scenarios

Table 2: features projects conducted on the basis of scenario planning (Chakraborty, 2010)

Feature	Variables in the Scenario	Tools of Analysis	Patterns and Scenarios
1	Density growth (76)	Prediction model Travel (47)	Center, cluster or satellite (58)
2	Location growth (73)	Scenario building tools GIS (10)	Compact (43)
3	Homogeneous or heterogeneous growth (50)	Analysis and economic model (6)	Dispersion (39)
4	Design (25)	Land use model (4)	Corridor
5	Process or the Growth (20)	The basic model Travel (3)	Redevelopment (24)

Note: numbers in the parenthesis show number of projects based on scenario plan.

number of experts as well as experts of the Ministry of Roads and Urban Development Consulting engineers. After selecting the members, the first round questionnaire with 9 questions for the open-ended questionnaire was developed and awarded to experts. After collecting them, responses were analyzed and variables were extracted by experts and next, second round started. The questionnaires are structured to respond to inquiries on the Likert scale. The original questionnaires were distributed with 50 main questions again among those who had filled it in the first step. Then to analyze information and identify the driving forces, powerful software MICMAC and scenario matrix method was applied and overall process of this research is based on the Fig. 1.

Make your Mac or matrix effects cross by Theodore Gordon and Helmer was first developed in 1966. It was this simple query, “Is predicting the future can be based on the potential effects of future events on each other is mutual?” (Gordon, 1994) Helmer claims that causal relationships cannot be thought without someone uncovers a later time. He describes a space planning (which currently goes beyond the horizon of the plan), which is divided into sub-intervals and the so-called “scene” is called And the occurrence of an event, some scenes

in the form of successive scenes with cross effects. This model, in addition to reviewing and studying events, contains events in itself where their fluctuations are influenced by values expected in a stage on process surface and the effects are tangible on possibilities of events in secondary scenes.

There are several ways for different applications of this technique. Gordon and Hayward have considered three types of relationship between the variables. Suppose E1 event occurs. A second event as the result has no effect E1, E2 may be admitted, maybe as a consequence of events E1 and perhaps even be strengthened by the events E1 to stop. Thus, the effect of E1 to E2 can be one of the following three ways (Weimer-Jehle, 2008):

- * Unrelated;
- * Amplifier;
- * Stopping.

Amplifier and stop modes of communication can be made more clear explanation of some of the mechanisms. Communications amplifier, such as the second event in which the probability of the occurrence of the first event to be strengthened, including those of several mechanisms that can be pointed to these two cases:

- * Event E1, E2 event to make practical or possible.

This type of relationship, a relationship of “em-

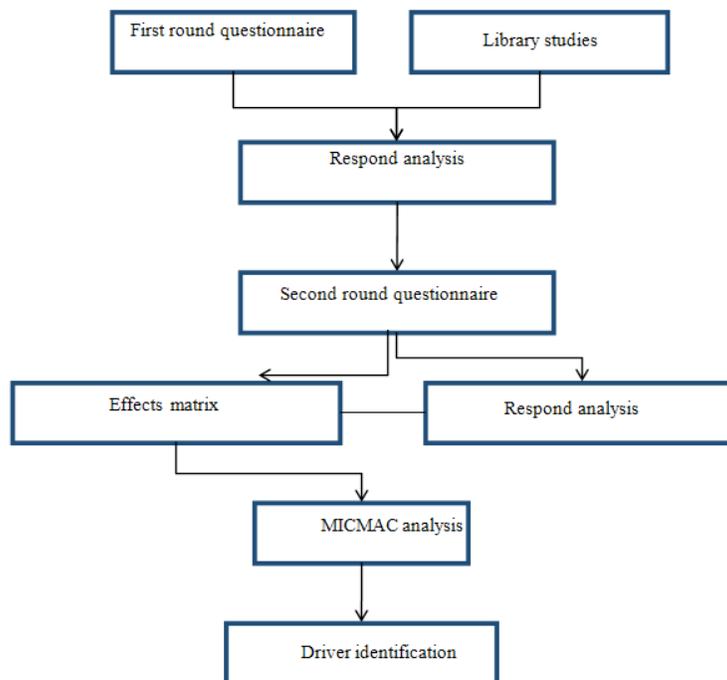


Fig. 1: General Process Research

powering” they say.

- * Event E1, E2 for the event required the effective application E1. This type of relationship amplifier can be “promoting” called.
- * Stopping relationships, those relationships that possibility in its second event of the occurrence of the first event is the result of the following mechanisms:
- * Impractical because of the E1 and E2 is impossible. Stopping this type of relationship as “worthless” is named.
- * The absence of E2 to E1 required the effective application. This type of relationship stopping “agnostic” is called.

The Mick Mac software is projected to do complex calculations Matrix crossover. In this method of software, first key variables and criteria are identified in the field and then are entered on a matrix such as matrix of analysis of effects and the level of communication among the variables with field of experts will be recognized. The variability in the rows variables effect on the bar. Thus the variables of rows, columns influential variables, are impressionable (Kippenberger, 1999).

The data are measured with numbers from zero to three. Number “zero” as “no influence”, the number “one” as “weak effects”, the number “two” as “moderate impact” and the number “three” as “high impact” are. So if the number of variables is known n a $n \times n$ matrix obtained in which the effect of variables on each specified (Asan, 2007). This matrix can be obtained with the corresponding graph also displays a graph in which each node to influence the other by the “Arrow,” and the effectiveness numerically, on top of that arrow is displayed. Finally, based on the topology variables, the software is able to extract the key factors act rankings (Godet, 1991).

With a very simple method, we can understand that the direct impact of variables in the matrix formed by selecting the act of communication groups, is measurable. A variable that causes a direct effect only on a circumscribed number of other variables, the system also affects a piece of. Likewise, direct influence may be a variable taking into account the relevant column in the matrix, investigated. So on a regular basis the total numbers of each row represent a variable influencing the total numbers of each column represents the corresponding variable is affected. After all environment variables and the receiver can display them in a conceptual diagram or an axis (Tasyrgzary-influence) display (see: Fig. 2). It is noteworthy that

the matrix has a direct correlation between variables and first-rate show. If the investigation is related to the degree to second and third, respectively, in the matrix can be two, three and out and the results also show that the levels of other variables (Godet, 1991; Godet, 2003; Godet, 2006).

The study area

Shemiranat City is located in one of counties of Tehran Province which is in the north of the province and mountainous area. In terms of natural position, it is regarded a mountainous area except a little width in south of the areas and north of Letian Dam and it is formed of southern heights in Central Alborz (Amizazodi, 2010). Table 3 demonstrates population change during 1996 – 2011 in Shemiranat.

The city is located on the widest part of the Alborz mountains and part of the south wall of the central Alborz passes from ranges of Koochak to the summit of Tochal and Shahrestanak ranges passes in northern Tehran through the city (shows in Fig. 3). Also it encompasses part of middle wall of central Alborz from Feel Mountain in the east to Dizin gardanhee and Sical Mountain in the west and northern parts.

Great mountains of Kharsang and Kolonbaste sarak Chal with steep slopes and snow-covered peaks over 4,000 meters' high are located in the most northern part of the city (Shemiranat Tourism Master Plan, 2012).

RESULTS AND DISCUSSION

In the second step of the research which is associated with scenario arrangement 7 main scenario making steps were conducted by Schwartez method which are as follows:

- * Determining main topic of scenario;
- * Determining key factors;
- * Determining forcing drives;
- * Determining the most important driving forces and key uncertainties;
- * Identifying and determining the logic scenario;
- * Scenario arranging;
- * Prioritization of scenario.

The first step: identifying the main theme scenario

The main issue of the original scenarios and possible scenarios in this research area is Shemiranat of Tehran. And the aim of developing scenario writing is arranging possible futures for that region by a logical and scientific approach. In fact the process of attending scenario

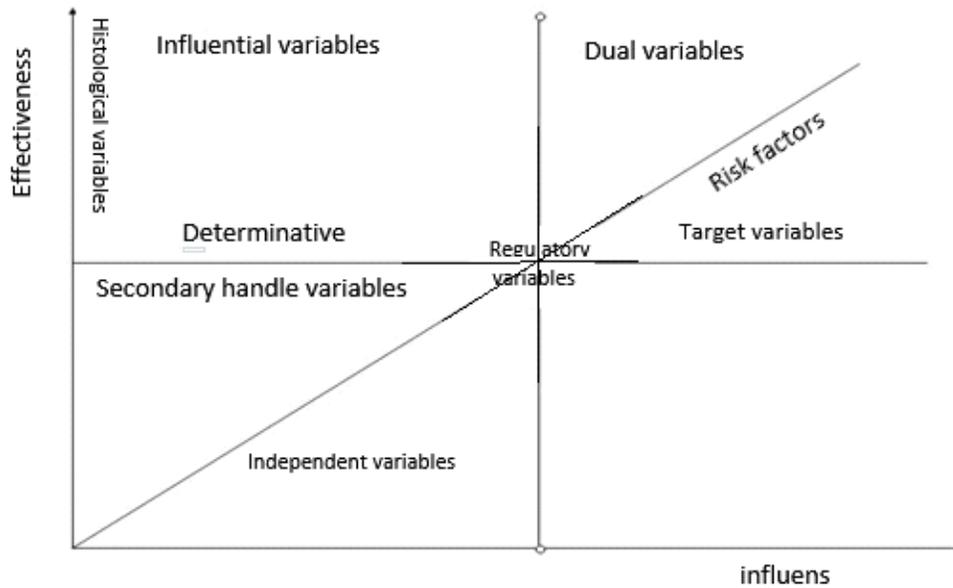


Fig. 2: Influence effect diagram

is for answering the question that how will be the situation in the region of Shemiranat in the next 20 years?

The second step: identifying key factors

This step includes creating a list of variables that are determined by the system under study and also internal and external environments (Godet, 2012). At this stage to identify the variables affecting the development of the region of Shemiranat the Delphi method is used. For this purpose, a team of specialists who were interested in participating in a Delphi study had been identified. The experts and senior professionals of the various regional offices in Shemiranat, a number of experts as well as experts of the Ministry of Roads and Urban Development and also consulting engineers were used. After selecting the members, the first round questionnaire with 9 questions was prepared in an open-ended questionnaire format and was next presented to experts. After collecting responses, they were analyzed and the variables were extracted. Next using library and document studies, including studies in Tehran Province and the development plans of cities like Lavasan, Ushan Fasham and Meigun, variables extracted were improved. And 50 variables were identified in Table 4.

Description of the relationships between variables

The questionnaire was fully constructed and it was prepared using a Likert scale with answers of very important, fairly important, less important and not matter and distributed among professionals again. After collecting responses, variables with a maximum not important answers and little significant were removed from effective variables by experts and finally 24 variables were left for analysis (Table 5).

The matrix on Fig. 4 prepared matrix filling up is 62.85%, which indicates that 85/62% of selected factors have an impact on each other. From 576 relations, relation 214 was zero which means no influence on each other. This allocated 15/37% of this amount to the matrix volume. Table 6 shows profile Matrix details.

The third step: identifying the driving forces

Key variables in this study were obtained with the help of specialized classification directly as a result of the scoring panel. Total all relations in a row of the matrix indicates the importance of the effect of a variable and sum of a column indicates the impact on the whole system of a variable (the level of direct influence). The most points for column matrix with 50 points is for integrated management area, position towards Tehran is 47 points, and having a good

Table 3: Population changes during 1996 to 2011 in Shemiranat (Statistic Center of Iran, 2011)

	Population	Urban points	Rural points	Urbanization level
1996	30398	17349	13049	57.07
2006	38311	22498	15813	58.72
2011	44061	23700	20361	53.79



Fig. 3: The position of Shemiranat in Tehran Province map

nature has 43 points, and private sector investment in the region with 40 points, have the greatest impact on system, respectively (illustrated in Table 7).

Table 6: Profile Matrix

Marker	Value
Matrix size	24
The number of zero width	214
Total value of 1	149
Total value of 2	126
Number Value 3	
Total	362
The filling level	62.85

Variables of private sector investment in the region, attracting foreign investment, tourism infrastructure development and population growth, had the greatest influence of other variables, respectively. In this system, the position of each factor and its role is very clear. But the situation is more complex than the stable system. The distribution of variables affecting regional development in Shemiranat is shown on dispersion page of relative stability. Table 8 shows condition of variables influencing in Shemiranat Area.

Step Four: determining the most important driving forces and key uncertainties

This step includes classifying key factors and driving forces based on two criteria. First is first, the level of importance to the success of the original

issue or decision that has been identified in the first step. Second is the degree of uncertainty surrounding those factors and trends. The primary thing is to distinguish two or three factors or trends that are associated and are of maximum uncertainty (Schwartz, 2009). Experts defined importance and uncertainties as follows (Ralsten, 2012):

- * Impact / importance: the power of influence of the environment on future results and key decision factors for business decision makers will appear.
- * Uncertainty: the unpredictable and uncertain developments and future results are called uncertainty (Table 9).

Step Five: identifying and determining the logic scenario

Scenario logic constitutes reasonable grounds, known scenario logic underlying the scenarios or story. Logic scenario, the scenario or logical structure confers some sort of organizer features screw. Logic scenario is a plausible hypothesis about the changes to come. Each distinct logic has a scenario and a debate about the future. This logic is a different sense of discontinuity and uncertainty in the fundamental forces that lead to a different perspective of the future (Electronic magazine of foresight association, 2011). The purpose of logic scenario, is why and how the plot. In other words, rational activities and processes involved to design a scenario are considered in this section. Why do the driving forces have such behavior? Logic and justification

Table 4: variables identified in the first step

Order	Variable	Order	Variable
1	Enough water	26	Development of agricultural processing industries
2	Being Near Tehran	27	Design of informational sites in different languages
3	Having healthy air	28	Agricultural exports
4	Having a pleasing nature	29	International conferences and exhibitions
5	Natural protected areas	30	Preserving the rural context
6	Latyan Dam	31	Stopping the construction in the area
7	Jajroud River	32	Improving water resources management
8	Creating Integrated Management Area	33	Preventing the destruction of gardens
9	Decentralization and strengthening of local councils	34	Support and strengthening the agricultural sector
10	Tehran subway continues	35	Comprehensive instrument of regional development
11	Increasing construction in the region	36	Specific funding for research
12	Improving the regional road network	37	Health centers with international standards in the area
13	Beautify and improve the landscape in the area	38	Encouraging the private sector to develop infrastructure
14	Avoid land abuse	39	Tourism area
15	ski resort	40	Holding different meetings
16	Using the power of indigenous human resources	41	Hotels and inns
17	International competitions Winter Games	42	Welfare centers, recreation and tourism
18	Creating sustainable jobs in the region	43	Re-native settlers in the region
19	Creating high-quality artistic and cultural center	44	Preventing the construction of second homes
20	Commissioning of local media	45	Industrial towns in the region
21	Foreign Investment	46	Increasing international communication
22	Attracting foreign tourists	47	Improving the economic situation
23	Attracting domestic tourists	48	Academic and scientific centers in the region
24	Construction regulations	49	Preventing the development of means of communication
			Population increase
25	Environmental Protection	50	Population increase

Table 5: final variables identified

ID	Variable	ID	Variable
V1	Specialized treatment centers	V13	Environmental Protection
V2	Agricultural development	V14	The development of winter sports
V3	The development of industries related to agriculture	V15	Investment in mining sector
V4	The industrial towns	V16	Development of tourism infrastructure
V5	Creation of knowledge-based companies	V17	Foreign Investment
V6	Preventing construction of old homes	V18	Private sector investment in the region
V7	Regional population growth	V19	Subway development
V8	Improving the regional road network	V20	Creating a tourism district
V9	Having good nature	V21	Increased construction
V10	Sustainable job creation in the region	V22	Construction codifying
V11	Integrated Management Area	V23	Position towards Tehran
V12	National and international festivals and conferences in the region	V24	Higher Education Development

are any behavior source of the driving forces in the construction of this section. Without an understanding of the logic scenario, decision makers cannot accept a scenario plausibility: can a scenario could happen? Is there any necessary adaptations? How a scenario could happen? Why a scenario may occur? (Fahey and Randall, 1998).

Step Six: storytelling (scenario)

According to behavior and condition of forcing powers and their effect on key factors in developing Shemiranat district, it can be done in four main scenarios: one of which is district management and the other one is investing method. As can be seen in Fig. 6, there can be found 4 senario including:

The first scenario (Diamond Alborz)

As mentioned above, private sector investment and integrated management of regional spatial of Shemiranat are the most important uncertainties that shape the relationship between space and the behavior of other key factors. If the private sector invests in the region of Shemiranat, tourism will begin to spread in various aspects and winter sports, higher education institutions, health centers, agricultural, residential construction, knowledge-based firms

will prosper Private sector investment is an active and integrated management practice at all levels. And the destruction of natural resources can be prevented. So this scenario helps to plan and prepare a decision to pay special attention to these two axes and pave the ways to achieve this scenario. In this scenario, economic and employment factors are active and forces and native people are provided with potentials available in the area. Generally, in the first scenario, it need a strategic and integrated plan in which the private sector invests for gaining an income and using capabilities of the area and also management of private sector will be monitored.

The second scenario (prairies only)

A buru racy system which is complex in an Iranian planning system made investing better in some areas and besides the lack of a unified system of space management made these activities be conducted in a disorganized way. Growth of construction and unprincipled complexes in Shemiranat and waste of water resources and land in the region makes the area face an unplanned vision, a condition that now there is evidence in this area. So, in the second scenario, private sector has increasingly grew which was active in all fields and makes a profit.

	1: v1	2: v2	3: v3	4: v4	5: v5	6: v6	7: v7	8: v8	9: v9	10: v10	11: v11	12: v12	13: v13	14: v14	15: v15	16: v16	17: v17	18: v18	19: v19	20: v20	21: v21	22: v22	23: v23	24: v24	
1: v1	0	2	0	3	2	2	0	3	0	2	0	0	1	2	1	0	0	3	0	0	1	3	2	0	0
2: v2	0	0	0	3	3	3	1	2	1	0	2	0	0	0	0	0	0	2	1	1	1	2	0	1	
3: v3	1	0	0	0	2	3	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	2	0	0	
4: v4	2	2	0	0	3	3	1	3	1	0	1	0	0	0	0	0	0	2	2	1	1	0	0	0	
5: v5	1	1	1	2	0	1	1	1	1	0	0	1	1	0	1	2	1	0	2	2	0	2	0	2	
6: v6	1	2	2	3	2	0	2	1	3	1	0	1	2	2	2	3	3	0	3	2	0	3	0	2	
7: v7	2	1	1	3	2	2	0	2	2	0	0	2	2	1	1	1	1	0	2	0	2	1	0	2	
8: v8	3	2	0	3	3	3	3	0	1	0	0	0	0	2	0	0	0	3	1	0	3	1	0	3	
9: v9	0	0	0	3	1	2	2	0	0	2	0	1	1	0	1	1	1	0	2	2	0	2	0	2	
10: v10	3	0	0	0	0	1	0	1	2	0	0	0	0	0	0	0	0	3	2	1	3	1	0	1	
11: v11	3	3	2	3	3	3	3	1	3	2	0	3	3	1	1	2	3	0	2	2	0	2	0	2	
12: v12	2	0	0	1	1	1	0	1	1	1	0	0	3	1	2	2	3	1	2	1	0	2	0	3	
13: v13	1	0	0	3	3	3	2	2	1	0	0	3	0	0	0	0	1	0	2	2	0	2	0	3	
14: v14	2	0	0	1	1	2	0	1	1	0	1	1	0	0	3	1	1	2	1	1	3	2	0	1	
15: v15	2	0	0	1	2	2	1	1	1	0	0	1	0	3	0	2	1	2	2	1	1	2	0	1	
16: v16	1	0	1	1	2	3	1	0	2	0	0	1	0	1	2	0	1	0	2	2	0	3	0	1	
17: v17	2	0	2	1	3	3	0	0	1	0	0	1	1	1	2	2	0	0	2	1	0	2	0	1	
18: v18	3	2	1	2	2	1	0	2	0	3	0	1	2	2	2	1	1	0	0	0	3	1	0	0	
19: v19	0	1	1	2	3	3	3	1	3	1	0	1	1	1	2	2	2	0	0	2	0	1	0	1	
20: v20	1	3	2	2	2	2	0	1	3	0	0	1	1	1	2	2	1	0	2	0	0	1	0	1	
21: v21	3	3	0	3	1	2	1	3	3	0	1	3	3	2	0	1	3	3	1	0	1	0	1	0	3
22: v22	1	2	1	1	1	1	1	0	1	0	0	0	0	1	0	0	0	0	3	0	0	0	0	0	
23: v23	3	3	3	3	3	3	2	2	0	3	0	1	3	3	3	2	1	3	1	2	2	2	0	2	
24: v24	2	2	0	1	2	2	0	1	1	0	0	1	0	1	1	0	0	0	2	2	0	0	0	0	

Fig. 4: Matrix (No impact: 0; 1: low impact; 2: moderate impact; 3: High impact)

Table 7: Factors and their effects

Order	Index	Total line value	Total column value
1	Environmental Protection	27	39
2	The development of winter sports	22	29
3	Investment in mining sector	11	17
4	Development of tourism infrastructure	22	45
5	Foreign Investment	23	47
6	Private sector investment in the region	40	51
7	Tehran subway	30	24
8	Creating a tourism district	31	29
9	Increased construction	23	32
10	Construction codifying	18	18
11	Position towards Tehran	47	4
12	Higher Education Development	28	21
13	Specialized treatment centers	28	24
14	Agricultural development	25	26
15	The development of industries related to agriculture	26	28
16	The industrial towns	24	24
17	Creation of knowledge-based companies	25	22
18	Preventing the construction of old homes	29	20
19	Regional population growth	31	41
20	Improving the regional road network	28	29
21	Having good nature	43	22
22	Sustainable job creation in the region	13	38
23	Integrated Management Area	50	0
24	National and international festivals and conferences in the region	18	32
	Total	662	662

Table 8: scattering variables affecting

Influential variables	Integrated management and location to Tehran and having a good nature
Variables planar	Private sector investment, population growth and tourism zone
Variables influence or result	Environmental protection, national and international festivals and conferences in the region, the development of winter sports, tourism infrastructure development, improvement of road networks, the development of agriculture-related industries, the development of the agricultural sector, to create sustainable jobs in the region, attract foreign investment and increased construction
Independent variables	Investment in the mining sector, construction regulations, the establishment of industrial zones, creation of knowledge, the development of higher education, preventing the construction of old homes, specialized treatment centers, Subway of Tehran to regional development

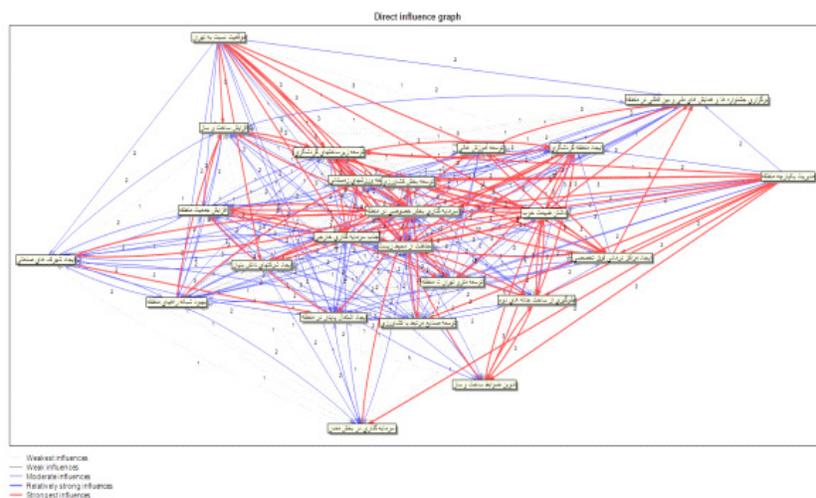


Fig. 5: Direct Influence Graph

But managing for the activities is not good and also actives are done without planning. In this scenario, exploitation of natural resources has intensified and placed on all aspects of the natural and man-changed region. In this scenario, lack of integrated management of spatial and severity of economic and commercial activities in Shemiranat transformed the region. In general, the lack of a unified management environment and increased private sector mad an undesirable scenario in the drawing area streams.

The third scenario (Valley of Fear)

In this scenario economic sanctions and the slump in the country reduced private sector activity. But along with the change of government and regional managers it led to a new and integrated approach to space management in areas such as Shemiranat. But the reluctance of the private sector in Shemiranat makes the limited projects done by the government that are less regional economic development and prosperity. The third scenario without a plan outlining the situation in the region Shemiranat and forget it either from the private sector, public sector management and institutions. In this scenario, there is no space Integrated Management Plan for the future and no vision for the development of the region, there Shemiranat. As comfortably as the reasons why the private sector also reduced its activities in this area. So in this scenario further changes in the demography of the region’s human and the region will somehow forget. And because there is no space integrated natural position also cannot help the development of the region. As a result, the region experienced a slowdown stems.

The fourth scenario

When space management and the private sector of a region experiencing isolation and exclusion zone will surely stay away. In this scenario, the private sector any

projects and programs in the region and regional suitable Shemiranat development. As well as the Public Sector Management Plan area are left without stems. The fourth scenario situation in the region stems Shemiranat to draw very bad manner so that any investment from the private sector and spatial planning is an integrated and coordinated forget. In this situation all industrial sectors, tourism, infrastructure, academic, mining and agriculture without doing behalf and development-static state of stagnation and lead screw. So in this scenario too vague and highly undesirable situation facing is the Shemiranat the future.

Seventh step: Prioritize Scenarios

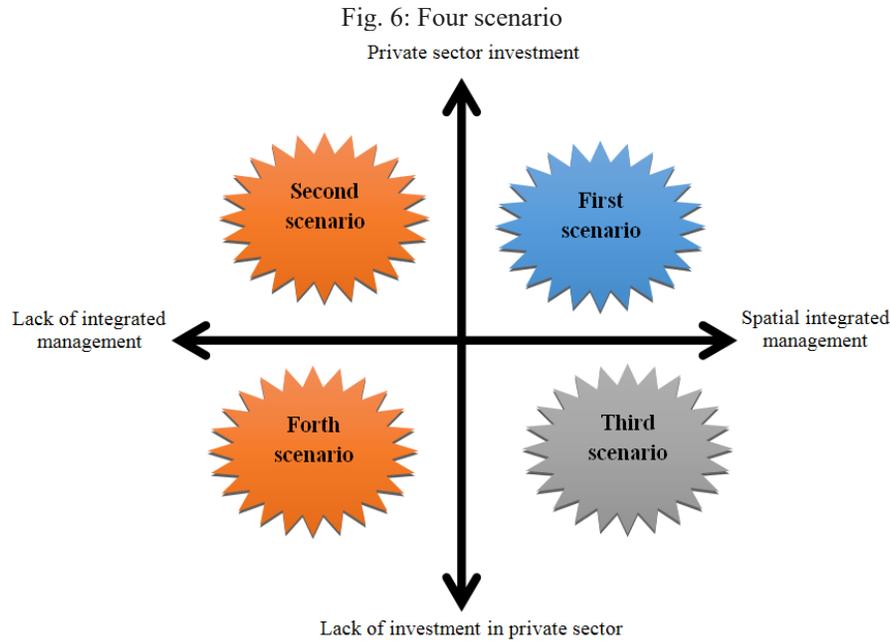
Shemiranat regional scenarios to prioritize and detect any changes in the key factors in each scenario is analyzed in the [Table 10](#).

CONCLUSION

Foresight is a systematic process, participation and perceptions collector which establishes medium-term outlook and long-term future with the aim of updating decisions and mobilizing common action. The most important functions can be assigned foresight to identify new trends, consistent objectives or needs identification, protection and promotion decisions and policy preferences of coordination with stakeholders, research and education to improve external communications with users and, ultimately, to determine priorities. Given the importance of foresight and its impact on macroeconomic programs, the success and efficiency of the processes have been worries of those managing the countries. The future research is not planned, but also it can be argued that it is complementary of planning and the results can be used in better planning and meeting planning goals. The research was conducted with the aim of identifying factors that can influence regional

Table 9: matrix uncertainty and the impact of key factors and forcing powers

	Low	Average	High
High	Spatial integrated management Level of investments	Development of tourism infrastructure, improving the road network Development of agriculture-related industries, the development of the agricultural sector	The creation of knowledge-based companies
Average	Investing in mining	Attracting foreign investment and increase construction	
Low			Development of agriculture-related industries



development of Shemiranat as driving and influential factors. Using the Delphi method and comments of experts in various fields, factors which are influential in the development of the area were identified and key and forcing factors were identified. Key variables in developing this area include integrated management, position to Tehran and having nice nature in which relative position to Tehran suggest the area must use this relative merit for improvement and a special strategic plan should be provided in order to determine what factors in this context can act as the driving force of development. Another comparative advantage of the region's beautiful nature is pleasing climate in the near Tehran as a very influential factor in regional development. The next important factor is the integrated management area. The area includes Lavasan, Oushan, Fasham and Meigoun each of which has its own management, and this is detrimental for the region. The Schwartz method was developed four scenarios, each of which show the potential condition of the region. It is possible that the region Shemiranat faces with them. Scenario planning is a key tool in strategic planning which can lead to more accurate arrangements of the strategies if applied in district planning. The research dealt with development of Shemiranat area with a new approach in which a new scenario graph method was applied and this makes planners look upon it with a wider view and to have a comprehensive and integrated management and regional planning for it.

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Table 10: Key factors in the region's three scenarios Shemiranat

Order	Index	First scenario (first priority)	Second scenario (second priority)	Third scenario (third priority)	Forth scenario (Forth priority)
1	Keeping environment	Protected nature	Environmental degradation	Environmental degradation	Environmental degradation
2	The development of winter sports	Winter sports alder grows	Increased winter sports	Recession Winter Sports	A lack of winter sports
3	Investment in mining sector	Rational exploitation of mines	Increase the rational exploitation of mines	Reduce the rational exploitation of mines	No rational exploitation of mines
4	Development of tourism infrastructure	Developed tourist infrastructure	Increased infrastructure program	Developed tourist infrastructure	Non-developed tourist infrastructure
5	Foreign Investment	Foreign Investment	Increase foreign investment	Reduced foreign investment	Lack of foreign investment
6	Private sector investment in the region	Private sector investment in the region	Increase private sector investment in the region	Reduced private sector investment in the region	The lack of private sector investment in the region
7	Tehran metro to regional development	Tehran subway to regional development	Tehran metro to regional underdevelopment	Tehran metro to regional underdevelopment	Tehran metro to regional underdevelopment
8	Creating a tourism district	Creating a tourism district	Increase in tourist areas	Decline in tourist areas	Depression tourist areas
9	Increased construction	Sustainable construction	Construction unstable	Construction slowdown	Construction slowdown
10	Construction codifying	Construction codifying	Rules of construction	Rules of construction	Unplanned construction
11	Position towards Tehran	-	-	-	-
12	Higher Education Development	Higher Education Development	Lack of development of higher education	Depression Higher education	Lack of Higher Education
13	Specialized treatment centers	Specialized treatment centers	Lack of specialized medical centers	Lack of specialized medical centers	Lack of specialized medical centers
14	Agricultural development	Agricultural development	Lack of agricultural development	Lack of agricultural development	Lack of agricultural development
15	The development of industries related to agriculture	The development of industries related to agriculture	Lack of development of industries related to agriculture	Non-agricultural development of related industries Buck	Lack of development of industries related to agriculture
16	The industrial towns	The industrial towns	Increased industrial estates	Stagnation in industry	A sharp downturn in industrial sector
17	Creation of knowledge-based	Knowledge-centered companies	Lack of knowledge-based companies	Recession knowledge-based companies	Bankruptcy knowledge-based companies
18	Prevent the construction of second homes	Prevent the construction of second homes	Rise building second homes	Reducing building second homes	The sharp rise building second homes
19	Regional population growth	Balanced regional population	Population increase	population reduction	The sharp decline in population
20	Improving the region's road network	Improving the region's road network	Burnout way communication	Burnout way communication	Burnout way communication
21	Having good nature	-	-	-	-
22	Sustainable job creation in the region	Sustainable job creation in the region	Unstable employment	Recession employment	Severe recession employment
23	Integrated Management Area	Integrated Management Area	Lack of integrated management	Lack of integrated management	Lack of integrated management
24	National and international festivals and conferences in the region	National and international festivals and conferences in the region	The increasing number of national and international festivals and conferences in the region	Reduction of national and international festivals and conferences in the region	Failure to hold any national and international festivals and conferences in the region

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