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Article

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Formulating Managerial Strategies for Development of Green Buildings (Case Study: Tehran Municipality-district1)

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Abstract: Planning is researchers' main concern in recent years to enhance environmental standards in metropolises and one of the pillars to achieve to sustainable development. One of the presented strategies to improve environment quality in urban areas is architecture and constructing consistent with the environment. In addition to economic function in saving energy resources, this idea has environmentally favorable impacts. In this research, it has been tried to specify strategic location of construction development consistent with the environment (green buildings) in Tehran Municipality by using SWOT analysis. According the results, strategic location in relation with construction development consistent with the environment in Tehran Municipality- district 1 is conservative; therefore, seven strategies were proposed in order to eliminate current weaknesses by using opportunities. The most important managerial strategies for construction development consistent with the environment include absorbing international investments from actively environmental bodies in order to reduce primary costs, encouraging investors in order to increase public willingness to invest, and necessity to construct green buildings by governmental bodies (banks) to motivate society.

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1- Introduction

Today, number and size of buildings and various residential and commercial buildings are increased more than before. In a way that, total area of buildings on the earth is about one-sixth of water areas including rivers, lakes, seas, and oceans. The growth and development in buildings include different needs to energy resources (Askari & Ameri, 2012). Currently, many energy resources are fossil fuels in the world. Excessive and uncontrolled use of them will result in creating environmental many issues and problems (Bianchini & Hewage, 2012). Buildings and urban architecture are one of the influential sectors in energy subject (Ortiz et al., 2009). Some studies have indicated that 20 to 40 percent of energy consumption in the world is used for constructions and buildings (Dong, 2014). With urbanization growth, industrialization, and improvement of life styles, demand for energy is increasing (Skogsberg, 2005). In building management, energy consumption is related to cooling and heating systems. Thus, it is necessary to minimize energy consumption by using innovative and efficient systems. Currently, minimizing energy consumption with environmentally irreparable effects is counted as a national strategy in energy management in developed countries. In the meantime, buildings and constructions have top priority (Blengini & Di Carlo, 2010). In order to minimize the impact of greenhouse gasses and reduce using fossil fuels, many studies have been done. Today, the trend toward green buildings is increasing. However, it has not been considered adequately. Green buildings produce carbon dioxide 40 percent less than ordinary ones (Yudelson, 2008). Green building means a building that creates the least pollution and intervention in the environment (Hoang et al., 2009). Environmental and secure construction increases the value of construction plans, and reduces side effects on the environment. Generally, this method has one or a few advantages such as efficient use of energy resources, water, protecting natural resources, health promotion, and residents and public health (Lamble et al., 2011). In electronic information and communication era, any system with any activity faces with rapid changes. This confrontation forces the system to plan in an unstable environment. One of the conditions of survival in today's complex environment is to have futurology features and trend toward environmental monitoring. Environmentally potential opportunities can be used optimally by futurology using internal capabilities. Thus, it is necessary to formulate and implement a strategic plan (Reza et al., 2011). One of the features in Iran's 1404 Perspective Document is to have advanced and capable knowledge about environmental issues and energy management as well as achieve to the first place in science and technology of environment management and natural resources in the South West of the Asia (Ghafghazi et al., 2011). Thus, this paper aims to recognize effective and encouraging factors and existing obstacles for mentioned factors participation on constructing green buildings thereby to present a model for LEED[2] license and develop green building in Iran. Therefore, the first step to achieve this matter is to formulate a strategic plan for green buildings by identifying internally and externally stimulus and inhibiting factors facing the activity. Strategic management process consists of three

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[2]- Leadership in Energy & Environmental Design

steps including formulation, implementation, and evaluation. Formulation means to determine system duty, identify factors threatening external environment or creating opportunities, and detect strengths and weaknesses. Long-term purposes, considering various strategies, and selecting certain strategies are carried out to continue activity. The purpose of external opportunities and threats is economic, social, cultural, ecological, environmental, political, legal, governmental, technological and competitive events and processes that may benefit or harm system in future greatly. Opportunities and threats are beyond the control of a system; therefore, external term is used (David, 2000). Investigation and analysis of external environment to explore opportunities and threats alone cannot lead to achieve goals, but strategic managers should consider inside the system to identify internal strategic factors (Alipour et al., 2010). Since no system can have unlimited resources, decisions should be made about which of different strategies can benefit the system the most. Implementation of strategies requires that system consider annual goals, determine policies, motivate employees, and allocate resources so that formulated strategies to be implemented and evaluated in the next step (David, 2000). Today, speed, intensity, and variety of changes in different political, cultural, and social fields create opportunities and threats widely, variously that cannot ignore them, and they can have positive or negative impacts on different aspects in human life. A threat can be changed into an opportunity by suitable reaction, timely, logical, scientific, and accurate management. Therefore, if opportunities are not used appropriately, they will become a challenge and consequently a threat and vice versa. Implementation of construction plans with a focus on building in accordance with the environment (green building) is not excluded from this thought and attitude. It has opportunities and threats and many opportunities can be created for its growth and progress. As mentioned before, this paper aims to identify opportunities and threats facing construction plans focusing on constructing in accordance with the environment (green building) and to formulate managerial strategy about these plans. It has been tried in this research to regard a set of pre-determined decisions and activities and implementation of designed strategies to achieve the goals. Thus, research questions are as follows:

1. How is construction status in accordance with the environment in Iran?

2. What strategies should be adopted to move toward progress in this regard?

In order to answer these questions, other sub-questions are proposed including what are strengths and weaknesses of construction plans in accordance with the environment in Iran, what is the importance degree of each of them? What are opportunities and threats facing plans? What are the appropriate strategies with current condition? Which strategies have the highest priority?

2- Literature Review
a) Foreign Researches

Kats (2014) stated about construction costs of green schools in America that their cost is only more than percent of ordinary ones, but economic benefits of green schools are 20 times more than ordinary ones.

Yudelson (2008) concluded in a study that by six billion tons carbon dioxide can

be prevented with suitable changes in accordance with environmental principles. According to previous studies, buildings cause directly use 12 percent of healthy water, 30 percent raw material, 30 percent of total issued greenhouse gasses, 31 percent mercury, and 70 percent electronic consumption materials. Elsewhere in this research, it has been mentioned that green buildings are optimal 30 percent more than ordinary ones in energy consumption and they save water consumption by 30 to 50 percent.

b) Iranian Researches

Mahmoodi Zarandi and Pakari (2013) stated in a research entitled "designing suitable details of green roof to reduce building energy consumption" that if garden roofs or green roofs are designed and implemented accurately and climate considerations are regarded, they will help extremely to reduce energy consumption. Creating greenness in the roof space, through preventing solar radiation, transpiration-cooling climate in the city, region, and indoor air, has positive impact. Cooling is done by reducing thermal fluctuations on outer surface of roof and increasing roof thermal capacity that keep cool the space of under the roof and increase heat in winter. This is one of the mentioned issues in green buildings plan.

Valiollahi and Moti Birjandi (2010) concluded in a research entitled "a look at clean energies and structures compatible with the environment in designing cities and buildings" that today, macro and micro use of clean energies, creating green cities, buildings, and structures, attracting globally environmental support, social welfare based on globally environmental criteria, and attracting global eco-tourists, are counted as

development indicators. They also proposed fuel cell structure both at micro and macro levels in green cities as a structure compatible with the environment in their article.

3- Theoretical Principles
Green Building

Green buildings refer to those ones that protect environmental resources in a lifetime a building from designing and building to exploitation and reconstruction. In these eco-friendly buildings, not only use of renewable energies has top priority and their energy consumption is slight in them, materials are evaluated environmentally in them. The ultimate purpose of green building is optimal use of resources and to reduce negative impact of building on the environment. Constructing green buildings or buildings compatible with the environment can be an appropriate solution to reduce pollution of fossil fuel consumption and increase buildings' energy efficiency in metropolises (Kibert, 2016).

One of the most important goals of green building is to reduce heating, cooling, and electric energy consumption as well as increase building energy efficiency. In order to reduce energy consumption and create green building, building designers should reduce existing energy waste in building. Therefore, the solution is to use high-performance windows and insulation of walls, roofs and floors.

Applied strategy in constructing green building by energy engineers is to design building with using solar energy approach that is mostly implemented in buildings with optimal energy consumption. In these buildings, the position of windows, walls, balconies, canopies and trees should be navigated so that they lead to create shadow

in winter and the highest solar gain in winter. Moreover, suitable location of window may lead to increase light in day and reduce lighting electrical energy consumption during the day. Some of the most effective solutions in this part are as follows (Rosenthal, 2015):

- Active solar energy
- Passive solar energy
- Photovoltaic energy
- Roof garden
- Smart management system in building

Green building or in other words green architecture means to reduce energy consumption and carbon dioxide, prevent uncontrolled climate changes, control natural resources consumption, and protect the environment. Green architecture is a process compatible with natural resources in during the life cycle of buildings. From idea to design, construction, operation, maintenance, repair and demolition are compatible with the environment and its construction requires two-sided cooperation of designing team members. Architectures, engineers, and employers try to develop and fulfill traditional expectations of building in any step of completing green building project to be at high level economically, and in terms of durability and comfort. Even though technologies have been developed continuously to fulfill activities in constructing greener building, green buildings have been designed to protect overall impact of the built environment on human health and the environment through optimal use of energy, water, and other resources (Gibbs & O'Neill, 2015).

Natural building is a similar concept to green building. It is a building that it generally has smaller floor and its aim is to use natural raw materials that exist in each area domestically. One of the other related subjects is sustainable design (environment-orientation) and green architecture. Environment-orientation is to remove the needs of the present generation without compromising the ability of future generations to meet their needs. Although some green buildings plans do not consider empowerment of buildings, others do not care about it. The principles of green building can be embedded easily in empowerment activities of existing buildings like building new structure. According to 2009 report, the U.S. governmental services have been founded 12 buildings with sustainable design, fewer prices, and the least energy consumption (Kalantzis, 2016).

Construction Along with the Environment (Green Buildings) in the City of Tehran

In terms of urban design, Tehran Municipality district 1 has semi-rural area that can be considered as "city garden". Shemiranat that is located in the Southern Alborz Mountain has a suitable ground for more construction projects as an old and important area with its climate features because of its mountainous area and particular structure that is a combination of modern and traditional urbanization. Thus, in terms of its unique urban fabric, this area has been studied (map1).
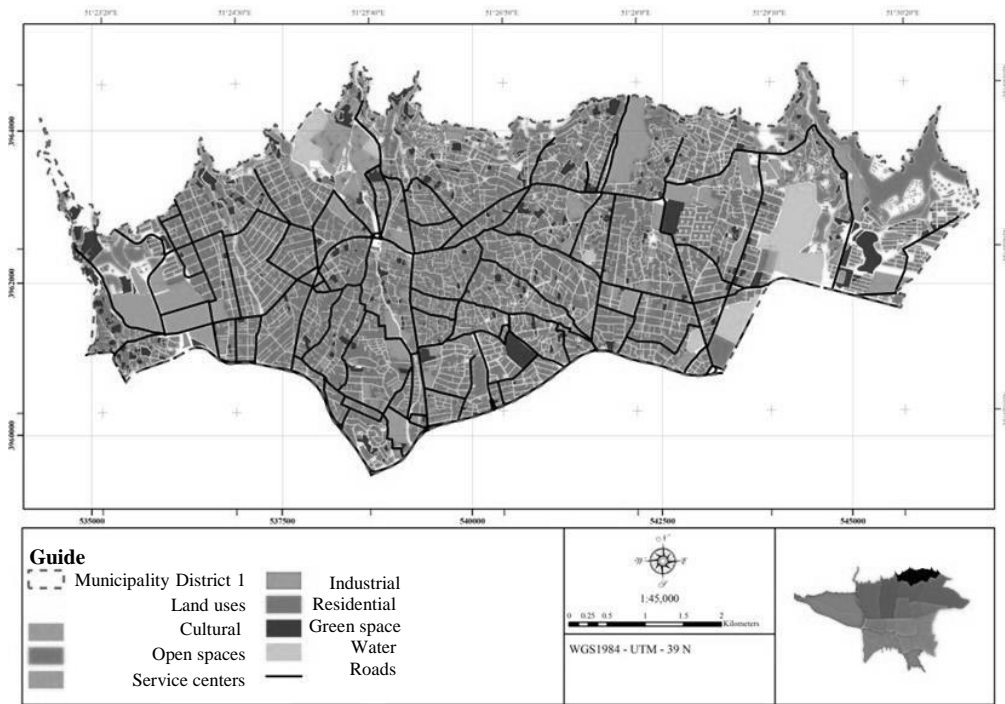
Map1. Distribution of urban land uses in Tehran Municipality-district 1

Reference: (http://region1.tehran.ir)

4- Research Methodology

This research was done in five steps. In the first step, weaknesses, strengths, opportunities, and threats facing green buildings in Tehran Municipality-district 1 were detected. In the following, internal and external factors were evaluated and SWOT matrix was formed. Finally, according to the obtained results of SWOT matrix, strategic location of projects was specified and managerial strategies were formulated to promote it. Figure 1 represents research process.
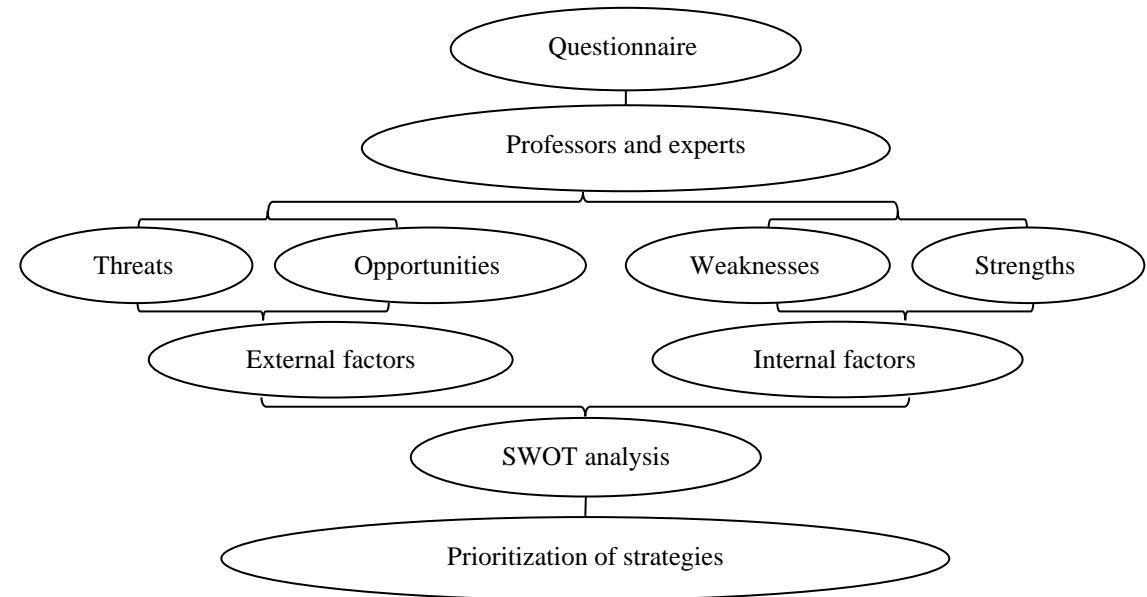

Figure1. Research process

Reference: (Researchers' findings)

First1: Identifying Strengths, Weaknesses, Opportunities, and Threats Facing Construction in Accordance with the Environment (Green Buildings) in the Area of the Research:

In this part, strengths, weaknesses, opportunities, and threats in external environment of constructing in accordance with the environment (green buildings) were identified by using experts' opinion and interview with them. One team was selected consisting of 30 experts in civil engineering, urbanization, architecture, environment, and natural resources. Then, according to team members' opinions, the most important strengths, weaknesses, opportunities, and threats in external environment of constructing in accordance with the environment were identified.

Step2: Forming Internal Factors Evaluation (IFE):

In this step, the most important strengths and weaknesses about constructing in accordance with the environment are listed. These factors should be between 10 to 20 items. They should include the most important ones in the organization (Hill & Jones, 2013).

1. First, strengths and weaknesses are listed.

2. These factors are taken weights from zero (without importance) to one (very important). Each weight represents its relative importance in success. The overall weights should be equal to four.

About ranking, according to joint or exclusive strengths and weaknesses, rank +1 or +2 allocate to strengths, and -1 or -2 allocate to weaknesses.

Allocation of ranking is in a way that if the strength is exclusive, it will be +2, and if it is joint, +1 will be given to the factor. About weaknesses and threats, if a weakness facing organization is exclusive, the rank will be -2, and if it is joint and non-exclusive, -1 will be given to that factor (Heidarzade., 2011).

3. To determine final score of each factor, the weight multiplies that score.

4. Total final scores of each factor are calculated and final score is specified.

5. In IFE matrix, if final score is more than zero, strengths are more than weaknesses respectively, and if final score is less than zero, strengths are less than weaknesses.

Step3: Forming External Factors Evaluation matrix (EFE)

In this step, the most important opportunities and threats facing construction in accordance with the environment (green buildings) are listed. About 10 to 20 factors resulting in opportunity or threat in an organization are determined. To form this matrix, following steps should be done (Alipour et al., 2010):

1: Determining factors that results in opportunity and success and then those factors that threat the organization

2: Weighting these factors from zero (unimportant) to one (very important). The weight indicates relative importance of the factor. Total weights should be one. To allocate score, considering exclusive or joint opportunity and threat, +1 or +2 is allocated to opportunities and -1 or -2 is allocated to threats. Ranking is so that if the opportunity is exclusive, +2 is allocated to that factor and if it is joint opportunity, +1 will be allocated. About threats, if they are exclusive, -2 will be allocated, and if the threat is joint, -1 will be allocated to that factor (Heidarzade., 2011).

3: the weight of each factor is multiplied in its relevant rank to obtain final score.

4: The total scores of each variable should be obtained, in order to determine organizations' score.

5: In IFE, if final score is more than zero, the opportunities are more than threats, and if it is less than zero, opportunities are less than threats.

Step4: Analysis of SWOT matrix

SWOT can be a base for managers and experts' decisions to determine strategic goals (Nahman & Godfrey, 2010). SWOT matrix can provide a proper base to formulate strategies by considering internal and external factors in a system. SWOT model can be a primary step of processing that accelerates the achievement of the ultimate goal by adopting necessary policies in line with internal and external factors. SWOT has a wide territory. In fact, it is a conceptual framework for systematic analyses that makes possible investigate external factors in a region and a system including opportunities and threats and internal ones including strengths and weaknesses and it presents managerial strategies. To develop these strategies, SWOT matrix

can be used. First, it is necessary to prepare a list of strengths, weaknesses, opportunities, and threats called as SWOT profile.

Step5: Formulating managerial strategies for constructing in accordance with the environment:

After the analysis of internal factors (strengths and weaknesses), external ones (opportunities and threats), and SWOT analysis, strategic location of constructing in accordance with the environment (green buildings) is specified, and then, considering to its position i.e. aggressive, conservative, defensive and competitive, possible strategies are identified in accordance with ideal management of these plans. The results of summary and analysis of completed questionnaires by experts about development of constructing in accordance with the environment (green buildings) have been presented in the form of identifying internal and external factors in tables 1 and 2.

Table1. Identified internal factors facing development of green buildings

Row	Strengths/ weaknesses	Strengths and weaknesses facing development of green buildings	Normalized weight	Score	Final score
1	**Strengths**	High progress speed of environmental sciences and energy in country	0.058	+2	0.116
2		Up-to-date knowledge in the country in relation with civil and urban development	0.052	+2	0.104
3		Saving energy consumption	0.050	+1	0.050
4		Return on investment	0.048	+1	0.048
5		Particular geographical location of Tehran Municipality district one	0.045	+1	0.045
6		Historical background about garden cities	0.041	+2	0.082
7		Buildings compatible with the environment	0.036	+2	0.072
8		Governmental bodies' support	0.035	+1	0.035
9		Spiritual value and importance of the environment in society perspective	0.033	+2	0.066
10		Public belief of community members to development and progress	0.027	+1	0.027
1	**Weaknesses**	Lack of governments policies on environmental issues	0.072	-2	-0.144
2		Ignorance of some executive managers in the country to environmental issues	0.071	-2	-0.142
3		Lack of information related to green development and construction in accordance with the environment	0.064	-2	-0.128
4		Risk in investment	0.061	-1	-0.061
5		Relatively high initial cost	0.058	-1	-0.058
6		Public unwillingness to investment	0.054	-1	-0.054
7		Lack of similar working experiences	0.051	-2	-0.102
8		Lack of advanced tools and equipment	0.50	-1	-0.050
9		Lack of expert force	0.049	-1	-0.049
10		Community members' ignorance toward environmental outcomes in metropolises	0.044	-2	-0.088
Total scores					-0.231

Reference: (Researchers' findings)

Table2. Identified external factors facing development of green buildings

Row	Threats/ opportunities	Opportunities and threats facing development of green buildings	Normalized weight	Score	Final score
1	Opportunities	Attracting international investment	0.071	+2	0.142
2		Attracting and encouraging investors inside the country	0.069	+2	0.138
3		Constructing green buildings by governmental investors (banks)	0.065	+2	0.130
4		Formulating legal necessities in relation with observing environmental principles in governmental constructions	0.063	+1	0.063
5		Exchanging science and technology with developed countries	0.060	+1	0.060
6		Opportunity to use public media in order to increase public understanding of green development	0.057	+1	0.057
7		NGOs	0.054	+1	0.054
8		Young people in society as a majority	0.052	+1	0.052
9		Possibility of cooperation between related organizations (ministries of power, road and urbanization, environment organization, and municipalities)	0.049	+1	0.049
10		Holding seminars and technical task groups on green development	0.047	+1	0.047
1	Threats	Lack of cooperation and coordination between related organizations related to urban management	0.054	-1	-0.054
2		Lack of long-term strategic goals in relation with urbanization in accordance with the environment	0.052	-2	-0.104
3		Rise in land price and housing in recent years	0.046	-2	-0.092
4		Excessive growth of building towers in Tehran Metropolises	0.044	-2	-0.088
5		One-product economy and close relationship of other activities with foreign policies	0.042	-1	-0.042
6		High unemployment rate in society and loss of motivation in young people	0.040	-1	-0.040
7		Sharp drop in average and poor households' living conditions in recent years	0.038	-1	-0.038
8		Unknown society members' citizenship rights	0.035	-1	-0.035
9		Lack of use limit of community members of fossil energy resources	0.033	-2	-0.066
10		Lack of cultural exchange in relation with urbanization with developed countries	0.028	-2	-0.056
Total scores					0.177

Reference: (Researchers' findings)

5- Research Findings

The results related to examine external and internal factors have been represented in diagram1. Final score of IFE and final score of EFE are inserted in horizontal and vertical axis respectively and strategic location of developing construction in accordance with the environment is determined. According to diagram1, it is located in conservative status i.e. WO strategy that weaknesses can be removed by taking advantage of opportunities. Then, strategies of development management program of green buildings were formulated in conservative location with considering a set of weaknesses and opportunities and given important weaknesses and opportunities.
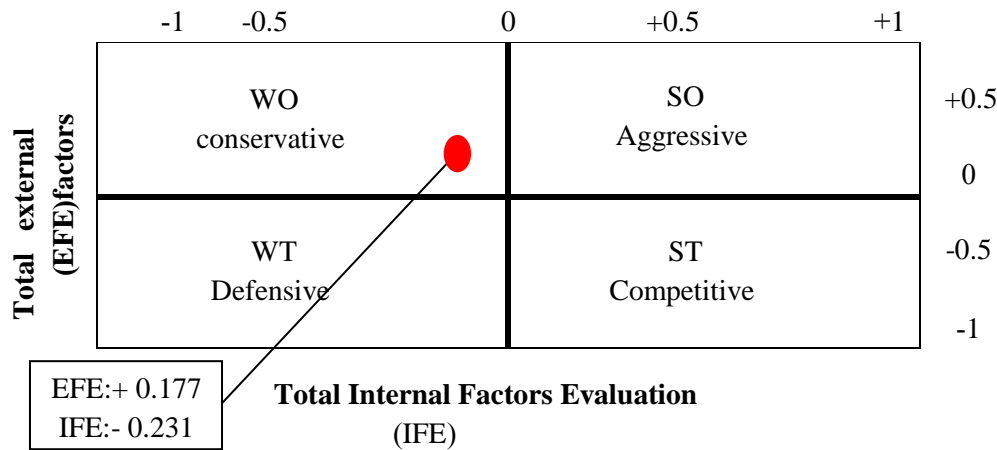
	-1	-0.5	0	+0.5	+1	

Diagram1. Internal and external factors
Reference: (**Researchers' findings**)

Given strategic location of program, other strategies were avoided (aggressive, competitive, and defensive). Seven conservative strategies were formulated to achieve long-term purposes given the mission of developing construction in accordance with the environment (green buildings) to achieve vision as follows:

WO1: Proposal by the government to parliament to formulate legal requirements in relation with environmental principles in governmental constructions

WO2: Holding technical working groups and seminars about environment importance and green development for executive managers

WO3: Using public media (broadcasting, newspapers, and journals) to increase public awareness in society about environmental importance and green development

WO4: Necessity to construct green buildings by government investing bodies (banks) to stimulate society

WO5: Attracting international investment by environmentally active bodies to reduce initial costs

WO6: Encouraging investors to increase community members' willingness to invest

WO7: Exchanging science and technology with developed countries to take advantage of their similar working experiences

Finally, identified strategies were prioritized to implement given total internal and external factors. Using Quantitative Strategic Planning Matrix (QSPM) for mentioned strategies, total score of each factor and total scores of factors for each strategy were specified after determining attractiveness score and determined importance factor (table3). Findings indicated that the priority of top detected strategies have been represented in table4.

Table3. QSPM matrix of development strategies for green buildings in Tehran Municipality district 1

	Effective factors on development of green buildings in Tehran Municipality district 1	Importance factor	WO1		WO2		WO3		WO4		WO5		WO6		WO7	
			Attractiveness score	Total score	Attractiveness score	Total score	Attractiveness score	Total score	Attractiveness score	Total score	Attractiveness score	Total score	Attractiveness score	Total score	Attractiveness score	Total score
S1	High progress speed of environmental sciences and energy in country	0.058	3	0.174	3	0.174	3	0.174	4	0.232	4	0.232	4	0.232	3	0.174
S2	Up-to-date knowledge in the country in relation with civil and urban development	0.052	3	0.156	2	0.104	3	0.156	3	0.156	4	0.208	3	0.156	3	0.156
S3	Saving energy consumption	0.050	2	0.10	2	0.10	2	0.10	3	0.15	3	0.15	3	0.15	3	0.15
S4	Return on investment	0.048	3	0.144	3	0.144	3	0.144	3	0.144	4	0.192	3	0.144	3	0.144
S5	Particular geographical location of Tehran Municipality district one	0.045	3	0.135	3	0.135	3	0.135	3	0.135	3	0.135	3	0.135	3	0.135
S6	Historical background about garden cities	0.041	4	0.164	3	0.123	3	0.123	4	0.164	4	0.164	4	0.164	4	0.164
S7	Buildings compatible with the environment	0.036	3	0.108	3	0.108	3	0.108	3	0.108	4	0.144	4	0.144	3	0.108
S8	Governmental bodies' support	0.035	4	0.14	2	0.070	2	0.070	4	0.14	4	0.14	4	0.14	4	0.14
S9	Spiritual value and importance of the environment in society perspective	0.033	3	0.099	3	0.099	3	0.099	4	0.132	4	0.132	4	0.132	3	0.099
S10	Community members' belief to development and progress	0.027	3	0.081	2	0.054	3	0.081	3	0.081	4	0.108	4	0.108	3	0.081
W1	Lack of governments policies on environmental issues	0.072	2	0.144	1	0.072	2	0.144	2	0.144	2	0.144	2	0.144	2	0.144
W2	Ignorance of some executive managers in the country to environmental issues	0.071	2	0.142	1	0.071	2	0.142	2	0.142	2	0.142	2	0.142	2	0.142
W3	Lack of information related to green development and construction in accordance with the environment	0.064	1	0.064	1	0.064	1	0.064	3	0.192	3	0.192	3	0.192	1	0.064
W4	Risk in investment	0.061	1	0.061	1	0.061	1	0.061	1	0.061	2	0.122	1	0.061	1	0.061
W5	Relatively high initial cost	0.058	2	0.116	2	0.116	2	0.116	2	0.116	2	0.116	2	0.116	2	0.116
W6	Public unwillingness to investment	0.054	2	0.108	1	0.054	1	0.054	3	0.162	3	0.162	3	0.162	2	0.108
W7	Lack of similar working experiences	0.051	2	0.102	1	0.051	1	0.051	2	0.102	2	0.102	2	0.102	2	0.102
W8	Lack of advanced tools and equipment	0.050	1	0.050	1	0.050	1	0.050	1	0.05	2	0.1	2	0.1	1	0.050
W9	Lack of expert force	0.049	1	0.049	1	0.049	1	0.049	1	0.049	2	0.098	1	0.049	1	0.049
W10	Community members' ignorance toward environmental outcomes in metropolises	0.044	1	0.044	1	0.044	1	0.044	2	0.088	2	0.088	2	0.088	1	0.044
O1	Attracting international investment	0.071	3	0.213	3	0.213	3	0.213	4	0.284	4	0.284	4	0.284	3	0.213
O2	Attracting and encouraging investors inside the country	0.069	4	0.276	3	0.207	3	0.207	4	0.276	4	0.276	4	0.276	4	0.276
O3	Constructing green buildings by governmental investors (banks)	0.065	3	0.195	3	0.165	3	0.195	3	0.195	3	0.195	3	0.195	3	0.195
O4	Formulating legal necessities in relation with observing environmental principles in governmental constructions	0.063	3	0.189	2	0.126	3	0.189	3	0.189	3	0.189	3	0.189	3	0.189

Effective factors on development of green buildings in Tehran Municipality district 1		Importance factor	Identified strategies												
			WO1		WO2		WO3		WO4		WO5		WO6		WO7	
			Attractiveness score	Total score	Attractiveness score	Total score	Attractiveness score	Total score	Attractiveness score	Total score	Attractiveness score	Total score	Attractiveness score	Total score	Attractiveness score	Total score
O5	Exchanging science and technology with developed countries	0.060	3	0.180	3	0.180	3	0.180	4	0.24	4	0.24	4	0.24	4	0.24
O6	Opportunity to use public media in order to increase public understanding of green development	0.057	3	0.171	3	0.171	3	0.171	3	0.171	3	0.171	3	0.171	3	0.171
O7	NGOs	0.054	4	0.216	3	0.162	3	0.162	4	0.216	4	0.216	4	0.216	4	0.216
O8	Young people in society as a majority	0.052	4	0.208	4	0.208	4	0.208	4	0.208	4	0.208	4	0.208	4	0.208
O9	Possibility of cooperation between related organizations (ministries of power, road and urbanization, environment organization, and municipalities)	0.049	3	0.147	3	0.147	3	0.147	4	0.196	4	0.196	4	0.196	3	0.147
O10	Holding seminars and technical task groups on green development	0.047	4	0.188	3	0.141	3	0.141	4	0.188	4	0.188	4	0.188	4	0.188
T1	Lack of cooperation and coordination between related organizations related to urban management	0.054	2	0.108	1	0.054	2	0.108	2	0.108	2	0.108	4	0.108	2	0.108
T2	Lack of long-term strategic goals in relation with urbanization in accordance with the environment	0.052	1	0.052	1	0.052	1	0.052	1	0.052	1	0.052	4	0.052	1	0.052
T3	Rise in land price and housing in recent years	0.046	1	0.046	1	0.046	1	0.046	1	0.046	2	0.092	1	0.046	1	0.046
T4	Excessive growth of building towers in Tehran Metropolises	0.044	2	0.088	1	0.044	1	0.044	2	0.088	2	0.088	2	0.088	2	0.088
T5	One-product economy and close relationship of other activities with foreign policies	0.042	1	0.042	1	0.042	1	0.042	2	0.084	3	0.126	3	0.126	1	0.042
T6	High unemployment rate in society and loss of motivation in young people	0.040	1	0.040	1	0.040	1	0.040	1	0.040	2	0.08	2	0.08	1	0.040
T7	Sharp drop in average and poor households' living conditions in recent years	0.038	1	0.038	1	0.038	1	0.038	1	0.038	2	0.076	1	0.038	1	0.038
T8	Unknown society members' citizenship rights	0.035	1	0.035	1	0.035	1	0.035	1	0.035	2	0.07	1	0.035	1	0.035
T9	Lack of use limit of community members of fossil energy resources	0.033	1	0.033	1	0.033	1	0.033	2	0.066	3	0.099	3	0.099	2	0.066
T10	Lack of cultural exchange in relation with urbanization with developed countries	0.028	1	0.028	1	0.028	1	0.028	1	0.028	2	0.056	1	0.028	1	0.028
Total score of the strategy				4.674				4.244		5.296		5.881		5.524		4.817

Reference: (Researchers' findings)

Table4. Prioritization of strategies in relation with development of constructing in accordance with the environment (green buildings)

Priority	WO strategies	Attractiveness score
1	Attracting international investment from environmentally active bodies in order to reduce initial costs	5.881
2	Encouraging investors to increase society member's willingness to invest	5.524
3	Necessity to construct green buildings by governmental investing bodies (banks) to stimulate society	5.296
4	Exchanging science and technology with developed countries in order to take advantage of their similar working experiences	4.817
5	Proposal by government to the parliament in order to formulate legal necessities in relation with observing environmental principles in governmental constructions	4.674
6	Using public media (broadcasting, newspapers, and journals) to increase public awareness in society about environmental importance and green development	4.244
7	Holding seminars and technical task groups about environmental importance and green development for executive managers	3.905

Reference: (Researchers' findings)

6- Conclusion

The study about construction development in accordance with the environment (green buildings) dates back to two decades ago. In most studies, energy is the main subject of economic and managerial discussions and its impact on the environment have been studied indirectly. Issues related to the importance of green buildings for energy management have been discussed in Dong (2014), Kats (2014), Yudelson (2008), and Blengini & Di Carlo (2010). Thus, one of the initial aims in relation with expansion and development of green buildings can be considered as an economic approach. In some studies, environmental aspect of green buildings is the main research subject. For instance, the main function of construction in accordance with the environment has been its impacts on society and environment health in Hoang et.al. (2009), Lamble et.al. (2011). Unlike

other studies, this research, aims to formulate a strategy facing with green development. In this research, 10 strengths, 10 weaknesses, 10 opportunities, and 10 threats were detected. Given final score, the most important strengths include high progress speed in environmental and energy sciences and up-to-date knowledge in the country in relation with civil and urban development. Regarding identified weaknesses, the highest final score is inattention of government and executive managers' policy to environmental issues. Some of the other factors are to attract foreign and Iranian investors as the most desirable opportunities, and lack of cooperation between organizations related to urban management and lack of long-term and strategic purposes in relation with urbanization in accordance with the environment were known as the most important threats. According to SWOT analysis, it was specified that total IFE

(strengths and weaknesses) is negative. Thus, it can be concluded that construction development in accordance with the environment (green buildings) has fundamental weaknesses. As it was mentioned before, managerial weakness and lack of managers' knowledge are the most important weaknesses in this regard. The best-proposed solutions and strategies to reduce managerial weaknesses are to hold technical working groups and seminars about environmental importance and green development for executive managers and to attract foreign and domestic investment as the best strategy for development of green buildings. Regarding organizations' EFE, the results indicated that the total score of opportunities and threats is positive; therefore, it can be concluded that opportunities facing with green buildings have higher weight than threats. According to discussions, currently, managerial strategy for development of green buildings is conservative. As a result, by taking advantage of opportunities, negative impacts of weaknesses can be reduced. This strategy is applied until organization's strategy becomes ideal (aggressive). Since population increase, protecting natural resources, the environment, and optimizing energy consumptions are top managerial priorities in each country, and on the other hand, current energy reserves are exhaustible, appropriate, sustainable, and economical alternative should be taken. One of the methods to optimize energy consumption is to educate and promote eco-friendly technology in new construction.

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