

## Analysis of the urban land use with an emphasis on sustainable development using swot model (The case of Faruj City)

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**Abstract.** Urban land use is one of the basic and major concepts of urban development knowledge and in fact, it is the foundation of its formation and is so important that some urban planners in developed countries consider it as equivalent to urban planning. The aim of this paper is to explain types of uses across Faruj City according to their location and to identify the weaknesses of this city in terms of the required uses and to investigate the size, per capita, density and distribution of any of them and ultimately to provide a model for future development and ways to achieve the desired development. Methodology of this study is based on descriptive - analytical approach so that in order to develop the theoretical framework of the research and a review of previous research, the library (documents) method was used and the results were analyzed using SWOT technique. Research findings suggest that in the section of the internal factors, the strengths of the city outweigh its weaknesses and in the section of the external factors, opportunities of the city tangibly outweigh its threats. Planning sustainable development of city should be based on WO strategies; in other words external opportunities should be used to overcome the internal weaknesses. And also the current status of the city suggests that some of the uses of the city are in an inappropriate status in terms of per capita (per person), and this situation reflects the imbalance and inconsistency between uses that is due to the lack of sufficient attention of urban planners when preparing them. Planners must therefore use ways to make this process both in preparation and in implementation to succeed.

**Keywords:** Planning, land use planning, development, sustainable development, Faruj City, SWOT analysis model

### 1. INTRODUCTION

The success and quality of studies, on the one hand depends on careful preparation of research plan and setting of theoretical plan and selection of appropriate variables and on the other hand, on the practices, methods and tools used to obtain data on the variables. Therefore, it is not enough to make a good and connected plan. In order to achieve the research objectives and its success, it is essential to pay the required accuracy and attention for selecting appropriate method and tool (Salimi, 1999:1).

Therefore, determining practices and methods for research is somewhat dependent on the specific research objectives and should also follow the characteristics of the study population. One of the most important issues of modern life is the way of using urban land and monitoring the way of land separation is the most effective factor in the implementation of land zoning regulations of cities to residential, industrial, commercial, administrative areas and regulations for the use of urban land. Evaluating the way of separating and using these lands may reflect a telling picture of urban landscape as well as the way of allocating urban space to different uses over time and to achieve urban development (Seifoldini, 2002:161). In general, international experiences show that success in the field of urban land use planning depends on the cooperation and coordination of two factors, namely:

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- The presence of proper macro laws and policies in the context of the way of land use
- The use of efficient methods for the preparation and implementation of urban plans and land use planning (Ziyari, 2002:4).

Today, with more complex urban issues, increasing population, the diversity and multiplicity of needs and requirements, we cannot leave cities to continue to survive without any plan and organically; however, today's plans will not only not solve the problems but the results suggest that the current situation in cities is worse. In other words, the current plans of cities with all their features have been further the cause of the problems of today's cities. Problems that the cities face include unethical and improper distribution of different types of uses across city and lack of basic facilities in some poor areas of the city.

Generally, investigating and analyzing ravages of land use in Faruj City was the main objective of this study so that to provide appropriate solutions in order to achieve the main objective of urban planning, i.e. the welfare of the people by creating a better, healthier, more effective and pleasant environment.

## **2. THEORETICAL FOUNDATIONS**

Today, cities are considered as one of the greatest achievements of civilization and one of the most pervasive social phenomena of the present era (Harvey, 1997:12). After the Industrial Revolution, cities have attracted a large percentage of the world's population. For the first time in history, the number of those who live in the cities has reached the number of people living outside the city. During the period from 1990 to 2030, the population of urban areas will grow to about 3/3 billion people that 90% of this amount will be in urban areas in developing countries (Flood, 1997: 163). Increasing development of civil society, affected by population growth and migration, has led to unplanned construction and uncontrollable development of cities (Barton & et al, 2003: 318). Expanding urbanization led to the first UN conference on human settlements in 1976 with the name of human Conference and to the establishment of "Center of the United Nations for human settlements" and it is now known as "United Nations Habitat" (Navabakhsh, 2008: 65). Human Conference emphasized on the establishment of fair conditions for the urban poor sections and the most attention was focused on the provision of housing. In addition, the development of capabilities for the purpose of planning and management of cities with increased possibilities of residence was taken into consideration. In 1980, "Urban Development Department of the World Bank" took measures to explain a case called "the brown agenda" (Cohen, 1991: 28). The purpose of this term is emphasizing the need for environmental awareness with a focus on urban environmental issues such as waste water and solid waste management, air pollution control and other poor aspects of urban environment.

In 1987, the United Nations General Assembly decided to hold the International Conference on the Environment and presented the report of "Our Common Future" to the United Nations. Achievement of this conference was the presentation of the theory of "sustainable development" (Maknoon, 1995:5). Land is considered as the main element in urban development. Therefore, regulating and controlling its uses as well as calculating the real needs of the city to land in order to provide various uses in the present, and extending and adapting obtained figures and quantities to the future will be effective to solve the problem of land and housing and proper urban growth (Kianezhad, 2007:47). Increasing development of civil society, affected by population growth and migration, has led to unplanned construction and uncontrollable development of cities and has created many changes in their spatial construction that was followed by the necessity of deliberate conducting and designing proper environments for cities (Saber Far, 2002:10). One of the main aspects of constructing city is planning urban land use. This issue has gotten a special position after World War II, and especially in recent decades, and in the wake of turmoil and the problems of cities (Ziyari, 2005:15). From the perspective of sustainable development, the term land use includes all economic, social and cultural activities

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that human being does on earth (Sharayeni, 2003:86). According to Biro Higgins, land use planning specifies that what activity should be done on a piece of land, how should be acted and how much will cost to run and manage the intended project (Bahreini, 2002:3). Urban land use planning is spatial or geographical distribution of different functions of the city; functions such as residential, industrial, commercial, administrative, institutional and leisure areas (Abedin Dorkosh, 1993:52). The main and practical core of urban planning is land use planning (Seifoldini, 2002:165).

### 3. RESEARCH METHOD

Given the nature of the topic and the components under investigation, the research method is "descriptive – analytical" approach and in order to develop the theoretical framework of the research and a review of previous research, the library method was used and the results were analyzed using SWOT technique. Finally, this study is practical in terms of its objective and the time criterion is sectional, extensive and intensive and data collection tool was based on the field and library methods.

#### Area of study:

Faruj City is in North Khorasan Province and the capital of Faruj County and is located in the geographical coordinates of 58 degrees and 12 minutes east longitude and 37 degrees and 13 minutes north latitude, 25 km northwest of Ghouchan and 160 km northwest of Mashhad and 90 km East Bojnoord. It is located at an altitude of 1200 meters above sea level and its area is about 350 hectares. The important highlands of the region with high peaks are in the north and south of the Faruj city. Kope Dagh and Hezar Masjed mountains are in the mountainous areas of northern Faruj, and Binalood Mountain is in the south and southeast of this city. These mountains extend in the northwest to the southeast in parallel and have included Faruj city in the Faruj plain and is has an average gradient of about 1.6 percent, which is below, and along the Ghouchan plain. (Cultural geography of the country, 2002:11)

**Table 1.** Existing and standard per capita in Faruj city in 2014.

Use	Uses of the status quo of the area	Population (11071)			Shortcomings	
		total percentage	existing per capita	standard per capital		
Residential	688283.4	28.06	62.16	55	-	
Educational	Kindergarten	157.65	0.01	0.01	4.79	-
	Elementary school	13144.58	0.55	1.19		
	Guidance school	17138.31	0.72	1.55		
	High school	28848.00	1.20	2.61		
	Conservatory	2225.72	0.09	0.20		
	Technical and vocational	12571.56	0.52	1.14		
total	74085.83	3.09	6.69			
Coeducational	22108.62	0.92	2.00	-	-	
Education, research and technology	2602.60	0.11	0.24	0.82	6475.62	
Commercial-services	43223	1.79	3.91	1.7	-	
Athletic	30199.62	1.26	2.73	2	-	
Health Care	44324.98	1.85	4.00	0.87	Inappropriate distribution	
Cultural - Art	7832.80	0.33	0.71	0.3	Inappropriate distribution	
Parks and green spaces	46938.49	1.96	4.24	18	152340	
Religious	9564.86	0.40	0.86	0.75	-	
Urban Equipment	45716.68	1.91	4.13	1.5	-	

Urban installations	7026.53	0.29	0.63	-	-
Transport and warehouse	12679.36	0.53	1.15	3	20534
Military	9038.26	0.38	0.82	-	-
Police Administrative	76725.11	3.20	6.93	2.55	-
Historical heritage	1721.84	0.07	0.16	-	-
Industry and Workshop	7626.87	0.32	0.69	2	14516
Arid	482892.89	20.16	-	-	-
Passages network	1158488.44	48.36	104.64	-	-
Livestock	310.32	0.01	0.03	-	-
<b>City</b>	<b>2395449.45</b>	<b>-</b>	<b>202.81</b>		-

Reference: Naghshan Consulting Engineers, 2014:53

#### 4. RESEARCH ANALYTICAL FINDINGS

One of the most important applications of planning that has been addressed in theoretical foundations of research is the way of collecting data selectively, analyzing purposefully and determining goals, the participation of key decision-makers, explaining and evaluating options, investigating future consequences of today's decisions and actions and more than anything, is emphasis on successful implementation of program. The swot analytical model, as a planning tool, makes it possible to investigate the city as a whole, in relation to the environment and this is considered as one of the unique achievements of planning. Since planning is process by which managers draw the main task or mission of the organization and provide the required means to achieve this mission, this type of planning is usually done by high-level management and high-level managers are responsible to draw the organization's future - and here the city (Moradi Masihi, 2005:10).

In this study, the city has been studied both as a local government (organization) as well as a place (community). In other words, planning has been regulated both as an organization and as a territory for Faruj city.

#### Identifying strengths, weaknesses, opportunities and threats:

To provide urban development solutions and policies in this area, these four factors are considered inevitable to eliminate weaknesses and threats and to improve the strengths and opportunities. Accordingly, the approach for developing Faruj city has been explained by listing the most important strengths and opportunities in order to propose invasive methods based on the use of the competitive advantages of the study area, as well as the most important facing opportunities in order to remove weaknesses in the region and reallocation of resources through proposing revising strategies as well as the most important internal strengths in the region to remove external threats, with emphasis on diversification strategies in order to meet the requirements of Faruj. Then the defensive strategy plan will be implemented to remove the damages of the region; the list of which will be addressed in this section.

**Table 2.** Extracted variables for strategic planning of land use in Faruj city.

<p>X1- Presence of gardens geologically suitable for the construction of cottages                  X2- Consistency of houses with regional climate                  X3- Use of residential units of the city of piped water and electricity                  X4- Use of agricultural land for residential houses                  X5- Refractory materials of some places are not strong- villages that are considered neighborhoods of the city                  X6- Presence of rural tissue and its links with the city and its traffic problem                  X7- High lifetime of buildings                  X8- Wearing of urban buildings                  X9- Creating public assistance schemes with the help of relevant agencies for the restoration and improvement of homes                  X10- Use of non-arable land and favorable for housing in downtown                  X11- Preventing the aggregation of unemployed persons and elimination of deviations in the environment through ruling dilapidated houses, gardens and vacant land                  X12- Use of agricultural lands for residential houses</p>
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- X13- Risk of earthquake and flood for low-resistant houses
- X14- Slow rate of modernization of residential units located in the old areas
- X15- Damaged tissue is a threat that native people leave the tissue
- X16- Public interest to education
- X17- Susceptibility of the students in the region for education
- X18- Presence of many graduated forces to teach in these schools
- X19- Fundraising from neighboring cities through educating volunteers in Faruj city
- X20- Recruiting educated forces of the city in this university
- X21- Some educational spaces are new-built
- X22- Oldness of some schools
- X23- Presence of inconsistent and inadequate spaces in some schools
- X24- Improper distribution of training centers
- X25- Low salaries of teachers for managing their life and lack of study before coming to class and students' academic failure
- X26- Delay in the construction of educational centers in the city
- x27- The possibility to build schools in the city, in dedicated lands by donors
- X28- Construction permits and supporting other parts of the city in providing high school courses to reduce students traffic to the city
- X29- Attract students from around the country
- X30- Presence of spaces favorable for the development of higher education
- X31- Government support for the creation of new academic disciplines
- X32- Risk for elementary students due to the lack of a complete balanced distribution of schools in the city and the location of some of them
- X33- Unfavorable weather conditions in some seasons for traveling of students to educational center of the city
- X34- Lack of support from the government for students' traffic from other areas of the city to the Faruj city and high cost of education for poor families
- X35- Oldness of some educational centers that threats students
- X36- Presence of many clinics and doctors in Faruj city
- X37- Good service of health centers in the city to the citizens
- X38- Lack of local specialized doctors in Faruj city
- X39- Inadequate health per capita compared with existing standards
- X40- Inappropriate access of citizens to health units
- X41- Lack of emergency in Faruj for transportation
- X42- Recruitment of specialized doctors in Faruj city
- X43- Equipping hospitals with up to date and needed facilities
- X44- Creating sewage networks to eliminate health problems
- X45- The possibility of establishing health spaces in each area
- X46- The health network officials of Faruj being affected by political factionalism and not using expert forces in this field
- X47- Reluctance of high ranking specialized doctors to work in this city for reasons such as inappropriate treatment of some of the people and the authorities and lack of recreation and leisure facilities
- X48- Facing health problems due to lack of proper sewage system
- x49- Availability of market and trading places for citizens
- X50- Location of commercial space on the path of passengers' commute
- X51- Presence of high-interaction commercial uses along the Santo road and Imam Reza axis
- X52- Dependent of employment of people on agriculture and ranching and the risk of natural disasters, drought and reduction of purchasing power
- X53- Increase in business density in the central part of the city
- X54- Risk of destroying some of the business units because of the oldness of building
- X55- Presence of inconsistent spaces in proximity to some of the business units
- X56- The high concentration of business units in the central part of the city
- X57- Oldness and wearing of some business units in the city center
- X58- High prices of rental shops in the city center
- X59- Passengers' high traffic on the path that passengers enter the city
- X60- Due to the presence of commercial use on the way of Santo road, clients and applicants (passengers) are present in the Faruj city
- X61- Presence of vacant spaces to turn and change use and better regulation of commercial activities in the city
- X62- Location of city as a center of commercial services and trade in the city
- X63- Sufficient water and electricity in Faruj city
- X64- Presence of sewage network in the Faruj city
- X65- Presence of proper gas system in the city
- X66- Proper settlement of utilities such as gas station in the direction of travel for passengers
- x67- Lack of proper location for garages of other areas of county in city

- X68- Lack of proper urban furniture such as urban bus stations  
 X69- Improper place of cemetery in the southwest part of the city due to the prevailing wind of the West to the East that is very inappropriate, because the infection is transferred to the city  
 X70- Presence of convenient location for transporting inadequate facilities and equipment with other uses in the city  
 X71- The possibility of using the destruction of old facilities  
 X72- Pollution of some urban equipment for people  
 X73- Negative impact of some equipment such as the cemetery, which is located in the city, on peoples' mentality  
 X74- The suitability of the soil and climate of the city with green spaces  
 X75- The suitability of usage in some areas with residential users  
 X76- Urban parks' facilities  
 X77- Inappropriate location of Mountain Park neighborhood in the southern part of the city in proximity to the cemetery or location of the park on the site of the old cemetery  
 X78- Small number and size of these spaces  
 X79- Shortage of green spaces and community gardens in neighborhoods  
 X80- Possibility of establishing park in the neighborhood of the newly established community for not being tired of the urban environment  
 X81- Presence of green space in all boulevards of the city  
 X82- Presence of vacant land in the city to expand green space  
 x83- Drought and lack of water in the city and the risk of the loss of green space in the city  
 X84- Not welcoming parks and staying vacant and the risk of abnormal behavior  
 X85- Weakness in the maintenance of green spaces  
 X86- Destruction of the old gardens and changing them into residential sites  
 X87- Presence of proper sport physics due to mountainous of many areas around the Fauj city  
 X88- Presence of young people interested in sport in Faruj city  
 X89- Presence of sport champions of the city at the provincial and national levels  
 X90- Lack of adequate access to sport centers for the public and different neighborhoods of the city  
 X91- Presence of sport spaces of the city in a specific area of the city  
 X92- Lack of the number of sport spaces in the city  
 X93- Possibility to create a sport space in the main square of the city for sports enthusiasts  
 X94- Creating a suitable context to promote breezy and group sports  
 X95- Efforts in proper distribution of sport spaces in the city  
 X96- Enhancing coordination in the management of sport spaces for optimum use of available resources  
 X97- Threatens for public health due to the lack of adequate exercise space  
 X98- Tendency towards drugs and alcohol due to the lack of sport spaces and facilities  
 X99- Inconsistencies in the management of sports spaces for optimum use of these space  
 x100- Establishing new and newly-built religious center in the city  
 X101- Relevance of religious centers' per capita in the city to urban plans' per capita  
 X102- People's and donors' support of building religious centers in the city  
 X103- Lack of proper accessibility for all urban area to religious centers that are more located in the south of the city and near the old tissue  
 X104- Oldness of some religious centers in the city  
 X105- Building culture to attract young people to participate in religious ceremonies of city  
 X106- Creating and building religious centers in the city using dedicated lands  
 x107- Beautification of religious centers  
 X108- Unsuitable culture building for religious holidays and festive in religious centers and the unwillingness of many young people to participate in these events  
 X109- Newly-built centers  
 X110- High per capita of administrative use in the city  
 X111- Settlement of related departments together in the East and Southeast  
 X112- Considering an area as the administrative zone has caused the accumulation of these buildings in the entrance to the city, which is an unsuitable place  
 X113- Lack of proper location for offices in the city  
 X114- Lack of proper access to some of these centers  
 x115- Irregular distribution of military units in the city  
 X116- Use of appropriate locations for its construction, for easy access of people to them  
 X117- Possibility of establishing military bases in a standard distance from the city  
 X118- Creating proper parking in the administrative centers  
 x119- Incorrect positioning of administrative centers  
 X120 - Traffic of some administrative centers in the city  
 X121- Predicting several parallel streets to ease traffic during the construction of Faruj city  
 X122- Construction of new roads in the city  
 x123- Santo- Imam Reza road is the most important transit axis or cross-town scale  
 X124- Taleghani – Moafagh axis is the most important services and economic axis and an important space for social interaction  
 X125- Lack of appropriate infrastructure in some of the paved city streets and alleys  
 X126- Lack of a comprehensive and prospective plant from the relevant water and gas agencies and detriment of

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different areas of city so often  
 x127- Lack of appropriate space and place to park the car in terminal  
 X128- Lack of proper location for garages of other areas of county in city  
 X129- Funding to eliminate all the shortcomings of the road network  
 X130- Presence of suitable locations for the construction of terminals outside the Faruj city  
 X131- Legislating to create a good network for this developing city  
 X132- Use of experts in the field of transport and traffic to correct existing deficiencies  
 X133- Enabling the bus line from Faruj to other parts of the Faruj city  
 X134- Lack of culture building in the field of traffic and transportation for drivers of vehicles and pedestrians  
 X135- Creating traffic in all the streets of the city in the near future  
 X136- Lack of proper program for storage of agricultural production of the city for perishable products  
 X137- lack of appropriate programs for the transportation of the city and its environs

**Table 3.** Standardization of variables' coefficients in SWOT model in Faruj city.

Land use in Faruj city	Strengths		Weaknesses		Opportunities		Threats	
	Name of the variables	Mean of the coefficients	Name of the variables	Mean of the coefficients	Name of the variables	Mean of the coefficients	Name of the variables	Mean of the coefficients
Residential	X <sub>1</sub> ,X <sub>2</sub> ,X <sub>3</sub>	6/3	X <sub>4</sub> ,X <sub>5</sub> ,X <sub>6</sub> ,X <sub>7</sub> ,X <sub>8</sub>	7/4	X <sub>9</sub> ,X <sub>10</sub> ,X <sub>11</sub>	8/1	X <sub>12</sub> ,X <sub>13</sub> ,X <sub>14</sub> ,X <sub>15</sub>	3/5
Education and training	X <sub>16</sub> ,X <sub>17</sub> ,X <sub>18</sub> ,X <sub>19</sub> ,X <sub>20</sub> ,X <sub>21</sub>	8/3	X <sub>22</sub> ,X <sub>23</sub> ,X <sub>24</sub> ,X <sub>25</sub> ,X <sub>26</sub>	9/4	X <sub>27</sub> ,X <sub>28</sub> ,X <sub>29</sub> ,X <sub>30</sub> ,X <sub>31</sub>	6/1	X <sub>32</sub> ,X <sub>33</sub> ,X <sub>34</sub> ,X <sub>35</sub>	6/7
Health and treatment	X <sub>36</sub> ,X <sub>37</sub>	6/8	X <sub>38</sub> ,X <sub>39</sub> ,X <sub>40</sub> ,X <sub>41</sub>	9/2	X <sub>42</sub> ,X <sub>43</sub> ,X <sub>44</sub> ,X <sub>45</sub>	6/2	X <sub>46</sub> ,X <sub>47</sub> ,X <sub>48</sub>	6/5
Commercial	X <sub>49</sub> ,X <sub>50</sub> ,X <sub>51</sub>	5/1	X <sub>56</sub> ,X <sub>57</sub> ,X <sub>58</sub> ,X <sub>59</sub>	8/3	X <sub>60</sub> ,X <sub>61</sub> ,X <sub>62</sub>	6/2	X <sub>52</sub> ,X <sub>53</sub> ,X <sub>54</sub> ,X <sub>55</sub>	6/5
Facilities and equipment	X <sub>63</sub> ,X <sub>64</sub> ,X <sub>65</sub> ,X <sub>66</sub>	6/7	X <sub>67</sub> ,X <sub>68</sub> ,X <sub>69</sub>	8/4	X <sub>70</sub> ,X <sub>71</sub>	3/9	X <sub>72</sub> ,X <sub>73</sub>	4/2
Green space	X <sub>74</sub> ,X <sub>75</sub> ,X <sub>76</sub>	5/5	X <sub>77</sub> ,X <sub>78</sub> ,X <sub>79</sub>	7/9	X <sub>80</sub> ,X <sub>81</sub> ,X <sub>82</sub>	6/1	X <sub>83</sub> ,X <sub>84</sub> ,X <sub>85</sub> ,X <sub>86</sub>	5/9
Athletic	X <sub>87</sub> , X <sub>88</sub> ,X <sub>89</sub>	5/8	X <sub>90</sub> ,X <sub>91</sub> ,X <sub>92</sub>	7/1	X <sub>93</sub> ,X <sub>94</sub> ,X <sub>95</sub> ,X <sub>96</sub>	5/2	X <sub>97</sub> ,X <sub>98</sub> ,X <sub>99</sub>	4/9
Religious	X <sub>100</sub> ,X <sub>101</sub> ,X <sub>102</sub>	4/7	X <sub>103</sub> , X <sub>104</sub>	5/6	X <sub>105</sub> ,X <sub>106</sub> ,X <sub>107</sub>	4/2	X <sub>108</sub>	5/4
Administrative and military	X <sub>109</sub> ,X <sub>110</sub> ,X <sub>111</sub>	6/6	X <sub>112</sub> ,X <sub>113</sub> ,X <sub>114</sub> ,X <sub>115</sub>	8/1	X <sub>116</sub> ,X <sub>117</sub> ,X <sub>118</sub>	5/2	X <sub>119</sub> ,X <sub>120</sub>	3/6
Road network and transportation and warehousing	X <sub>121</sub> ,X <sub>122</sub> ,X <sub>123</sub> ,X <sub>124</sub>	7/6	X <sub>125</sub> ,X <sub>126</sub> ,X <sub>127</sub> ,X <sub>128</sub>	9/2	X <sub>129</sub> ,X <sub>130</sub> ,X <sub>131</sub> ,X <sub>132</sub> ,X <sub>133</sub>	8/4	X <sub>134</sub> ,X <sub>135</sub> ,X <sub>136</sub> ,X <sub>137</sub>	7/9
The whole city	6/43		8/06		5/96		5/6	

Source: writer

In this regard, the strategies set out in this article are of five types, which are:

**Invigorating strategy:** This strategy is used when the strengths and opportunities are numerous, firm and secure.

**Overcoming strategy:** This strategy uses its logic for internal and external positive factors (strengths and opportunities) to minimize or totally disable internal negative factors (weaknesses).

**Environment control strategy:** This strategy is used when the external threats are inclusive and restrictive, so that urban management is forced to use all its strengths and opportunities to minimize the effects of these threats.

Negative factors' control strategy: This method is used when the weaknesses and threats are strong.

The strategy of internal and external factors for environment control: This strategy is used when the positive terms of strengths and opportunities are abundant or weaknesses include irrelevant elements. In this case, the strategy is focused on reducing threats to set the context for good urban management.

After analyzing variables and the current situation of land use in Faruj city, the amount of data in each of the 137 variables was standardized (Table 3). The land use of the city was calculated. According to surveys carried out, the average of coefficient of strengths is 6/34, of weaknesses is 8/06, opportunities is 5/96 and threats is 5/6. So, in an obvious match, the 8/06 percent weaknesses in land use studies of Faruj show that the existing situation of land use in Faruj has deficiencies compared to population growth of the city.

swot	Internal factors	
	0	10
External factors	Conservative strategy	Offensive strategy
	Defensive strategy	Competitive Strategy

Figure 1. Swot analysis in Faruj.

Table 4. Calculating the percentage of strengths, weaknesses, opportunities and threats and determining land use strategy in Faruj.

Use	SWOT								Type of strategy
	S	W	O	T	Internal s/w	External o/t	Positive s/o	Negative w/t	
Residential	24/90	29/24	32	13/83	54/14	45/83	56/9	43/7	Overcoming Strategy
Education and training	27/21	30/81	20	21/31	58/02	41/31	47/21	52/12	
Health and treatment	23/69	32/05	21/60	22/64	55/74	44/54	45/29	54/69	
Commercial	18/88	30/74	22/96	27/40	49/62	50/36	41/84	58/14	
Facilities and equipment	28/87	36/20	16/81	18/10	65/07	34/91	45/68	54/30	
Green space	21/65	31/10	24/01	23/22	52/75	27/23	45/66	54/32	
Athletic	25/21	30/86	22/60	21/30	56/07	43/9	47/81	52/16	
Religious	23/61	28/14	21/10	27/13	51/75	40/23	44/71	55/27	
Administrative and military	28/08	34/46	22/12	15/31	62/54	37/43	50/2	49/77	
Road network and transportation and warehousing	22/96	27/79	25/37	23/86	50/75	49/23	48/33	49/23	
The whole city	24/50	31/13	22/85	21/41	55/63	44/26	47/35	52/54	



## Analysis of the urban land use with an emphasis on sustainable development using swot model (The case of Faruj City)

SWOT analysis shows that after the determination of internal (strengths and weaknesses) and external (opportunities and threats) factors as well as their coefficients, the percentage of each of these four factors in land use in Faruj has been provided in (Table 4). In the Swot column also the percentage of variables entered in the model in the city has been provided. Then the percentages of the amount of strengths, weaknesses, opportunities and threats have been identified. Finally, based on the calculated percentages, the type of strategy for the improvement of the current situation of land use and elimination of its deficiencies has been selected.

Based on (Table 4), it was found that the status quo of land use in Faruj has significant weaknesses of about 31/13% in its urban structure. It has 24.5% strengths, 22/85% opportunities and 21/41% threats. Strengths and opportunities are also so that they can be used to reduce the weaknesses and threats. Therefore, by definition, the second strategy, i.e. the overcoming strategy is selected, because this strategy uses its logic for internal and external positive factors (strengths and opportunities) to minimize or totally disable internal negative factors (weaknesses). According to the results of (Table 4), strategies for managing the status quo of land use and eliminating its shortcomings are provided that are of great importance for city.

### 5. CONCLUSION

Area of Faruj is 2395449/45 square meters, of which 688283/4 square meter are allocated for residential use, 74085/83 square meters for education, and 482892/89 square meters are for rural lands including agricultural, gardens, and areal and remaining lands are allocated to other uses. The point that should not be neglected about the level and per capita of uses is that although the per capita of most uses is in a favorable situation, but we are faced with the improper and uneven distribution, disproportionate localization and lack of foresight for such spaces in the city. The aim of this research was to recognize and study uses in the Faruj city and the way of the distribution and establishment of uses compared to each other, as well as to evaluate failures and problems of these uses.

Therefore, in this study we investigated the roots of the problems and failures of urban development projects from land use planning aspects and tried to solve the problems using planning capabilities and according to planning issues and practices in order to establish a continuum between priority actions, taking into account the strengths and weaknesses, opportunities and threats. In general, the results of planning analyses can be stated as follows: while there are many potential opportunities for development planning for Faruj city, the city currently suffers from numerous shortcomings and although the city has strengths, but it is also faced with many threats for its development. Although the severity of the threats is less than the opportunities that the city could have potentially, but it still requires serious remedy. In general, potential opportunities of Faruj are more than the threats facing the city and in contrast, the city's weaknesses are also more severe than its strengths, i.e. on the one hand, we observe great and serious weaknesses in the city that have generally caused undesirable situation and on the other hand, there are good external opportunities for this city that can be used optimally and tried to actualize them with proper planning so that while minimizing weaknesses, an acceptable situation can be achieved for optimal development of Faruj city.

With regard to the issues raised in this paper on strategic planning and demonstrating the capabilities of this model in the identification of internal and external factors affecting the development of Faruj city and identification of the main methods of development of city and determination of variables and their mean, it can be said that strategic planning model can be used as a suitable conceptual framework and efficient tool in urban planning.

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