Application of SWOT Analysis in Strategic Environmental Planning: A Case Study of Isfahan/ Iran

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Abstract

SWOT analysis, which mainly analyzes the strengths, weaknesses, opportunities and threats of target object or place, is a useful method in strategic planning. Strategic planning is an extended tool for regional development and can be defined as a systematic form of preparing for change and for the future of a city. Urban planning is influenced by changes within internal and external operational environments. SWOT is a useful tool for analyzing internal and external factors. In this paper a SWOT analysis is done regarding the urban management approach for Isfahan City in Iran. Based on our findings the Location of city in country, Rich cultural history and civilization, Various historical attractions, The presence of Zayanderood river in Isfahan are the most strengths factors which can make great opportunities for tourist attractions, however the high rate of urban expansion and industrial development, increasing water demands and degrading Zyandehroud water quality, air pollution and heavy traffic, High rates of immigration to the city, Landuse/cover change and natural habitats fragmentation should be considered as weaknesses and threats for strategic environmental planning.

Keywords: Environmental Planning, Strengths, Weaknesses, Opportunities, Threats, Isfahan

1. Introduction

Strategic planning is an extended tool for regional development and can be defined as a systematic form of preparing for change and for the future of a city. Strategic planning takes into account the socio-economic and environmental context. Nowadays, Environmental analysis is a critical part of the strategic management planning process. Environmental Planning is the process of facilitating decision making to carry out development with consideration on the natural environmental, social, political, economic and governance factors and provides a holistic frame work to achieve sustainable outcomes [1]. Environmental planning with strategic approach is necessary as decision support tool and is a way to achieve sustainable development. Urban planning is influenced by changes within internal and external operational environments. SWOT the acronym standing for Strengths, Weaknesses, Opportunities and Threats analysis is a useful tool for analyzing internal and external factors in order to attain a systematic approach and support for a decision situa-

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tion. SWOT analysis has been widely applied in the fields of land-resource planning, urban strategy planning, tourism planning, etc.

Due to dramatic population growth in addition to industrial and agricultural development in Isfahan Province, the question to be answered is whether, in the future development could be sustainable. To answer this question, our planning schemes should be environmentally responsible toward the major elements of the environment. Assessment of the strengths, weaknesses, opportunities and threats to a city forms a basis for the preparation of a city strategic development plan. In this study, to highlight the Isfahan city constraints, future potentials and challenges a SWOT (strength, weakness, opportunity and threat) analysis has been used.

2. SWOT analysis

A SWOT analysis is a technique commonly used to assist in identifying strategic direction for an organization or practice. SWOT model is a classic strategic analysis tool for strategic management, first proposed by Ken Andrews (Andrews, 1971). The benefits of such an analysis tool is that it can better balance all internal and external aspects of enterprises, ensuring that analysis is more comprehensive.The strengths and weaknesses of a system are determined by internal elements, whereas external forces dictate opportunities and threats. Strengths can be defined as any available resource that can be used to improve its performance. Weaknesses are flaws/shortcomings of any system that may cause to lose a competitive advantage, efficiency or financial resources [3,4].

3. Methods

3.1. Study area

Isfahan city is the capital of Isfahan Province in center of Iran (Figure1). The city of Isfahan, accounted in 1996, for about 32.2 percent of the total population of the province and 43.4 percent of its urban population. Isfahan is also the third most populated city in the country.The total land area is 157,706 square kilometers. The city is located in the lush plain of the Zayandehrood River, at the foothills of the Zagros mountain range. Zayandehrood River, which is the most important river in central of Iran, divides Isfahan city into north and south parts. The Isfahan metropolitan area had a population of 1,791,069 in the 2010, the second most populous metropolitan area in Iran after Tehran [2]. Dramatic population growth in addition to industrial and agricultural development over the past decades, have resulted in the rapidly increasing pollutions and degrading environmental quality in Isfahan. More than 50 percent of major national industries, such as petrochemical and steel factories are located in Isfahan province, out of which about half of those industries are located near Isfahan city.

Fig 1. Location of Isfahan Province in Iran

3.2. Data Preparation and analysis

This research is descriptive – analytical study. For obtaining necessary information, required data have been collected through library-based studies and interviews with experts and prepared a questionnaire.This study is based on internal and external urban conservation factors. Internal factors can be classified as strengths (S) or weaknesses (W), and external factors can be classified as opportunities (O) or threats (T).

Internal and External factors were based on three dimensions of sustainable development (Ecological, socio-economic and cultural factors).

4. Results

The most important Internal and External factors based on three dimensions of sustainable development, which were found for Isfahan City are listed in Table 1.

5 strength factors and 6 opportunity factors as advantages and 6 weakness factors and 7 threat factors as constraints are facing Isfahan city.

	Strength	Weakness
Internal factors	(S_1) Special Location of city in country (S_2) Rich cultural history and civilization (S_3)Various historical attractions, natural and man-made (S_4) The presence of permanent rivers (Zayanderood river) (S_5)Tourist attractions)	(W_1) Concentration of population (W_2) Air pollution from vehicles and industry (W_3)Shortage of water resources and increasing water demands W_4)Successive droughts in recent years (W_5) Inversion temperature (W_6)Heavy traffic of transport system

	Opportunity	Threat
External factors	(O_1)Trend to change the energy consuming Structure replacement of clean energy (solar and wind) (O_2) Potential ability of preventing pollution (O_3)Considered to Decentralization of city (O_4) Increasing importance of tourism in the country (O_5)Improving public transportation system) O6)Expansion of green space)	(T_1) High rates of immigration to the city) (T_2) Concentration of economic activities) (T_3) Inter basin Water transferring projects) (T_4) Air Stability in most days of the year) (T_5) Loss of rare species of animal and plants (T_6) Decreasing precipitation in recent years (T_7) Land use/cover change and natural habitats fragmentation

Table 1. internal and external factors

5. Conclusion

In this paper a SWOT analysis was done regarding the urban management approach using the case of Isfahan City. As described, this research is being done with purpose of environmental management analysis in Isfahan based on internal and external factors and strategic planning tool (SWOT). Based on our findings the high rate of urban expansion and industrial development in Isfahan had a negative impact on most of the heritage and natural environment of the city. Controlling Urban and Population growth and industrial area expansion is a critical issue in Isfahan. Decreasing water demands and Improving Zyandehroud water quality as well as reducing environmental pollutions, improving linkages to city core with subway networks, and increasing public environmental awareness should be considered for strategic environmental planning.

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