

## Assessing the Environmental Tolerance Capacity of the City of Shandiz

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### Extended Abstract

#### 1. Introduction

Today, there are rather deep concerns in every city regarding the reduction of nonrenewable resources, the negative external impacts of pollution, and the serious threat of worldwide ecosystem irreversibility (Hall & Pfeiffer, 2000, p. 115). The incorrect utilization of unique, environmental and cultural resources for tourism purposes in less-developed countries have caused irrecoverable damages. Tolerance capacity takes into account the ability of both the natural and manmade systems to support various uses and demands (Godschalk & Parker, 1975, p. 163). In the past decade, Shandiz city has witnessed a considerable growth in population and physical development. The principles on which the management and planning strategies of Shandiz city has been drawn on are majorly centered around providing for the needs and requirements of humanitarian beneficiary groups; what is neglected here meanwhile, is the environmental thresholds and the tolerance capacity of ecosystem facing with a large entry of matter, energy, land use alterations and wastes produced by tourist and civilian activities. Given the changes in the effective conditions and factors of urban expansion and development in the recent era, manmade residential districts have played a significant role in forming cities. In this study, the determining factors of ecosystem tolerance capacity are considered in five factors including green environments, water and wastewater supplies and storage, disposal and recycling of wastes, energy consumption and efficiency (gas network), electricity supplies and resources, and the amount of said variables' consumption with regards to population per capita as well as the impacts caused by unnecessary consumption on the standard and influencing the natural ecosystem of Shandiz city. To this end, the purpose of the present study is to evaluate the environmental tolerance capacity of ecosystem in Shandiz city by taking into account the spatial controlling and monitoring of the urban ecosystem's health in the process of sustainable planning and management.

#### 2. Theoretical Framework

Planners usually define tolerance capacity as the ability of a natural or artificial system to attract population growth and physical development without considerable

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damage or development (Schneider et al. 1978). In other words, tolerance capacity is a criterion which demonstrates the maximum range of using places, recreational locations or any particular source without damaging them (Baud Bovy & Lawson, 1998; Parfect & Power, 1997). The estimation of tolerance capacity is an index which provides tolerable limits for accepting additional loads caused by utilization to planners for decision making processes (Tabibian et al., 2006, p. 18).

### **3. Methodology**

The method of the study is descriptive-analytical. The five responsible factors considered for ecosystem tolerance capacity include green environments, water and wastewater supplies and storage, disposal and recycling of wastes, energy consumption and efficiency (gas network), and electricity supplies and resources. Map outputs in the GIS software along with the extent of consumptions relative to said variable standards with regards to population per capita, the impacts caused by unnecessary consumptions, and influencing the natural ecosystem of Shandiz city are taken into account.

### **4. Results and Discussion**

According to the results, it was shown that the amount of water, gas, and electricity consumptions along with waste production and green environment areas are, respectively, 3.08, 2.83, 45.45, 1.5 and 32.12 times more than those of standard values. Service allocation in Shandiz city has not been based on its ecosystem tolerance capacity; furthermore, the obtained statistics regarding each variable demonstrated the fact that the infrastructure and services sections for the residents and tourists of Shandiz city are at undesirable state. The excessive consumptions which are more than standard values have been putting the ecosystem under pressure and are beyond its environmental capacity tolerance, which has led to environmental pollutions.

### **5. Conclusion & Suggestions**

Investigations conducted on the aforementioned five factors shows that in Shandiz, water and gas supplies are consumed more than predetermined standards. The wastewater treatment system of the city is also not standard. Regarding the green environment variable, it was discovered that Shandiz city entails such areas more than the global standard for individuals per capita. Waste production has exceeded the permissible limit and waste recycling is far from indicated standards. Fortunately, electricity consumption is lower than the global standard. In terms of infrastructure and service provisions, the city is facing a set of problems; in this regard, the obtained statistics on each variable demonstrates the fact that the residents and tourists of Shandiz city are witnessing an unfavorable state. In case such patterns of consumption are not controlled, it may lead to an increase in the production of high amounts of wastes as well as a higher level of unsustainability in the city. The duty of administrators and executive authorities include the implementation of infrastructures and services that are in compliance with global standards as well as the needs of tourists and residents. It also entails drawing

proper measures for culturalization in relation to the standards for consumers linked to aforementioned factors.

**Keywords:** Tolerance Capacity, Environmental Pollution, Population Pressure, Standards, Shandiz City

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