Environmental Performance Measurement of Tourism Accommodations in the Pilgrimage Urban Areas: The Case of the Holy City of Mashhad, Iran

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Abstract

One of the main pillars of tourism industry is the accommodation sector with its obvious environmental impact. This is the justification for the present study in quest for a sustainable tourism destination, which is the city of Mashhad. Being a magnet for pilgrimage tourism and non-pilgrimage holidaymaking, the political economy of this urban landscape is intertwined with tourism on one hand, and its future sustainability, on the other. To achieve both sustainability and business success in this sector, hotels are responsible to invest on means and measures of internalizing environmental costs in short-term and to reduce environmental impact in the long-term.

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Key words: Environmental performance; sustainable tourism; hotels and environment; Mashhad, Iran; energy efficiency.

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1. Introduction

1.1. Study Site

Iran has been blessed by varieties of tourism attractions. Iran’s vast land mass of 1,648,000 Km² (636,000 Sq. mi) makes it the sixteenth in size among the countries of the world. This quality along with its natural environment has potentially made Iran a prime tourist destination. With more than 2800 Km of coastline, as well as, high mountain ranges and 3 deserts, the country has a spectacular physiography. The supply of recreational and tourism opportunities is endless. Such geographical/topographical characteristics render Iran a four-season country.

The holy city of Mashhad, which is the focus of this study, is both a traditional pilgrimage destination and a metropolitan area with overwhelming VFR tourism. Mashhad metropolitan area has gained even more significance with the onset of the Islamic Revolution in 1979. The main factor attributed to the city is the shrine of Imam Reza who is a revered religious figure in Islam especially among the Shiites sect. Mashhad is the second biggest city in Iran, and it ranks among the top three destinations for domestic and international tourists. The highest percentage of the accommodation facilities is located in Mashhad with an extensive variation to cater to different income levels (www.chto-khr.ir). The major hoteliers association in Iran belongs to Mashhad, which represents a powerful sector in tourism industry. According to the recent data, the city houses 2.5 million people and accommodates over 20 million tourists annually (www.chto-khr.ir).
There are 113 hotels (Rooms: 8651, Beds: 24591), 488 inns (Rooms: 10978, Beds: 32435), 255 hotel apartments (Rooms: 5068, Beds: 14229), and one motel in Mashhad (www.chto-khr.ir). Most of these accommodations have been established after the Islamic Revolution in 1979. These are only the accommodations authorised by ‘Iran Cultural Heritage, Handicrafts and Tourism Organisation’. There are also some establishments working without any license. The majority of guests are Iranians and most of the foreign tourists are from the Islamic countries around the world.

![Fig. 3. (a) Tomb of Omar Khayyam; (b) Tomb of Ferdowsi.](image)

Due to tourism and population growth, the city has experienced an intensive sprawl, which has not been guided by a formidable urban planning (i.e., lack of a deliberate master plan). Consequently, various environmental problems and uncertain sustainable urban systems are warranted. Some of the alarming environmental problems are the water shortage, air pollution, haphazard physical development and waste problem, to name a few. Environmental performance of accommodation sector has become an important issue in terms of impact, business, cost, marketing, image, employee’s loyalty, and overall sustainability (Graci and Dodds, 2008).

1.2. Environmental Performance (EP)

Environmental performance has attracted governments, private sectors and people since the late 80’s (Lim, 2005). Managers and owners of hotels all over the world should increase their understanding, their investment strategies and their routine operations, because EP in service industries not only concerns about ecology but also economy, in long term. Many accommodations have realized that there are competitive advantages in EP and are practicing proactive management in order to increase their profit and save the environment (Karagozoglu, 2000; Leslie, 2007). Some managers believe that concern to environmental issues will increase the costs of the hotels (Thornton et al, 2003). Environmental exercises adopted in accommodations can measure EP. This measurement focuses on recycling, water efficiency, waste reduction, education, energy efficiency, environmental planning and management, social responsibility, and hotel managers’ sensitivity and behaviour on the way to environmental management (Kattara, 2003; Mayaka, 2007; Ayuso, 2007 and Kasim, 2006). One of the major hypothetical bases of the theoretical framework of the present study is resource-based theory to express accommodations’ attitudes towards EP.

The policy of managers can provide tangible and intangible EP resources, which in turn results in raising customers’ sensitivity to the hotels’ EP. This strategy will increase the sales and bring advantages in competitiveness and decrease the premium prices (Rivera, 2004). To measure the EP, explanations of certain appropriate variables/indicators are necessary. EP indicators may find out how...
Among the most famous hotels that are known as green and are leading in environmental commitment, the Intercontinental Hotels Group and Fairmont Hotels and Resorts have been noted (Bohdanowicz, 2005).

1.3. Sustainable Tourism development

From the mid-80s, ecotourism has been introduced for sustainable developments of country areas. Weaver (2002) defines ecotourism as the environmental protection and social responsibility. Ceballos-Lascura, (1991) also puts that ecotourism is travelling to the nature in the way that decreases the environmental impacts.

The World Commission on Environment and Development (WCED) has defined sustainable development as “a development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. Sustainable tourism is a section of sustainable development (WCED, 1987). Environmental subjects and the nature are the center themes of sustainable development and sustainable tourism (Pearce, 1995). To make the sustainable tourism development practical, the government, tourism industry, and the community should collaborate during the process of defining goals, values, and perspectives (WTO: Madrid, 1993).

1.4. Urban Tourism

In the last decade, tourism has been known as a fundamental industry, which helps the urban economics. Meanwhile, by the growth of tourism, concerns about its environmental, cultural and social impacts have increased (Dodds, 2001). Most of the world’s population is living in urban areas and most of the trips are taken to cities. Large cities are the most popular destinations for tourists (Law, 2002). Cities have many attractions to absorb the tourists. Urban tourism can involve people and places, and can combine different cultures, values, and expectations (Edwards, 2008). The United Nations defines the term ‘urban’ as an area with more than 20000 people (UN, 1968).

Some problems have been identified in the cities, which are similar to the problems found in the environment (Dodds R., 2003). Hotels are affecting the sustainability of the natural and urban environments in different ways, such as air pollution, water pollution, soil pollution, etc. (Scanlon, 2007). The fast growth of cultural, pilgrimage and other kinds of tourism in urban areas has changed the face of these areas and caused new problems like pollution, traffic, etc. in the last few years.

‘Urban green tourism’ is a new concept that expresses the importance of the travel in and around cities, considering natural and cultural aspects of the cities (Dodds, 2001).

2. Research methodology and data analysis

The research methodology is based on a two-tier approach: (1) the first part of the research is focused on interviews with 20 of managers and owners of the hotels, hotel apartments, and inns in order to assist the design of a self-compiled questionnaire. This is also helpful in clarification of terminologies and concepts that are important to the development of the questions; (2) the survey questionnaire was administered to 200 managers and owners of hotels, hotel apartments, and inns in Mashhad. Out of 200 managers/owners of the hotels, 69 people answered the survey questions. The questionnaire contains seven environmental performance categories and 51 questions (indicators).

Table 1. Environmental Performance Categories and Distribution of the Indicators
Following hypothesized components were proposed to achieve an inferential outcome:

- H1: ‘Architecture and Landscape Design’ is positively related to EP.
- H2: ‘Energy Efficiency’ will result in better EP.
- H5: ‘Educational Training for Environmental Awareness’ will positively improve the quality of EP.
- H6: ‘Communication for Environmental Awareness’ is a sign of the on-going improvement of EP.
- H7: ‘Managerial Practice/knowledge on the Environmental Protection’ will positively influence the enhancement of EP.

Hypothesized categories were analysed in relation to the environmental performance (EP) as a dependent variable. The intensity of correlations either positive or negative were determined by the level of factor loading in the hypothesized categories. Pearson’s ‘r’ was applied to investigate the correlation between components and EP, and to reveal the correlation coefficient between 7 quantitative and continuous variables which are lining towards upper level of value 1 as a perfect positive linear correlation. This is an indication of the strength of the association between the variables. The results indicated that the strength of association between the variables is high, and that the correlation coefficient is significantly different from zero (P < 0.001). The questionnaire solicited the respondents’ reflection intensity on an issue via a 5-point Likert Scale ranging from strongly agree to strongly disagree. It should be noted that all the respondents were males. The results were analysed by the recent version of SPSS 17. Table 2 illustrates the demographic features of the participants.

### Table 2. Demographic Features of the Participants

<table>
<thead>
<tr>
<th>Variable</th>
<th>Levels</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Male</td>
<td>69</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Marital Status</td>
<td>Married</td>
<td>69</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Single</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Age</td>
<td>24</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>25-34</td>
<td>6</td>
<td>8.6</td>
</tr>
<tr>
<td></td>
<td>35-44</td>
<td>10</td>
<td>14.5</td>
</tr>
<tr>
<td></td>
<td>45-54</td>
<td>13</td>
<td>18.64</td>
</tr>
</tbody>
</table>
2.1. Reliability

The result of the Cronbach’s alpha shows a high degree of reliability. The reliability of the seven environmental performance categories is also consistent with the reliabilities shown in Table 3.

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Item-to-item correlations</th>
<th>Total item correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>69</td>
<td>100</td>
</tr>
<tr>
<td>Manager</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education</th>
<th>Item-to-item correlations</th>
<th>Total item correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Secondary</td>
<td>24</td>
<td>34.7</td>
</tr>
<tr>
<td>Associate</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Undergraduate</td>
<td>30</td>
<td>43.4</td>
</tr>
<tr>
<td>Graduate</td>
<td>15</td>
<td>21.7</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 3. Reliability Tests

Item-to-item correlations and the total item correlations revealed the reliability scores presented above. In order to increase the reliability scores and conduct further analyses, 1 question from ‘Architecture and landscape design’ and 2 questions from ‘Waste reduction’ have been eliminated. The previous reliability
score of ‘architecture and landscape design’ was .237 that was afterwards increased to .434. In addition, the score of ‘waste reduction’ was increased from .602 to .694. All the reliability scores are deemed acceptable in relation to the benchmark point of .70 reliability score (an acceptable internal consistency in most social science research). Architecture and landscape design construct seems lower than usual benchmark score (0.434). At any rate, the low alpha value for architecture and landscape design in terms of inter-item correlation is an understandable issue. Architectural design has always captured a low priority factor in environmental performance studies. For the waste reduction item, an alpha value of 0.602 is not considered a low value; as some researchers accept this as a reasonable internal consistency value in measurement.

The research has also applied analysis of variance (ANOVA) to compare continuous measurements and to determine if the measurements are samples of the same or different distributions.

3. Findings

3.1. Architecture and landscape design

The means show that most of the hotels in Mashhad are following the local government’s planning regulations of environment. On the other hand, most of the owners announced that they used local materials in the construction of their establishments. Meanwhile, managers believed that the locations their hotels were not the cause of the traffic congestion (Mean 3.13, SD 1.327). Most of the hotels in Mashhad have no open/green spaces; and this is the result of the high price of the land near the holy shrine and the lack of restricting laws in municipalities and ICTHO’s constructional regulations (Mean:3.07).

More than 36.2% managers believed that their hotels’ location has caused traffic congestion. Parking lot is a critical problem for hotels, because Mashhad municipality allowed owners to build their accommodations without considering enough parking area in the first decades after the Islamic revolution.

3.2. Energy efficiency

More than 90% of hotels in Mashhad are using energy-saving light bulbs in their rooms. They also mentioned that they use/purchase low energy consuming materials (88%). 78.5% of owners also said that they use fossil fuel in their accommodations. More than 60% of hotels apply energy-saver control system in their guest rooms. Using solar, wind, biomass, and nuclear sources of energy is not common in Mashhad. Answers show that half of hotels are using phosphorus lighting in lighting outside areas. Despite the fact that the price of electricity is relatively low in Iran, the results show that owners are aware of the issue of energy efficiency. However, they don’t have any plans to decrease the usage of fossil energy.

3.3. Waste reduction

More than 70% of managers mentioned that they apply solid waste separation and they are cooperating with recycling firms and are collaborating with recycling programs of the local government. 87% of the hotels are purchasing environmental friendly materials and 72.5% of them are buying materials with recyclable features. Using recycled materials is not common among Mashhad hotels and only 25% of owners said that they are composting the organic and food waste. More than 90% of managers believed that pollution in general and air pollution in particular has increased in Mashhad. The
municipality of Mashhad has established some stations around the city in order to get dry waste materials, and in return, give hygienic materials.

![Image of Waste Exchange Stations-Mashhad](image)

The municipality’s ‘Recycling Organisation’ has built an ‘Electricity Manufacturing’ company beside the ‘Compost Company’. The main function of this company is changing the methane gas into electricity.

### 3.4. Water efficiency

Hotels in Mashhad are not involved in water efficiency programs. Only 24% of hotels use photocell taps. However, it seems that the majority of managers and owners are aware of water-saving system measures on linen and towels and inform guests to cooperate with them. 40% of managers mentioned that they apply wastewater treatment system.

### 3.5. Educational training for environmental awareness

80% of hotels in Mashhad provide their personnel with education sensitive training, but it seems that they do not provide any education for their guests (only 43%). The majority of Managers and owners mentioned that they participate in environmental meetings and workshops (73.5%).

### 3.6. Communication for environmental awareness

75% of accommodations in Mashhad provide information on environmental protection. Managers are interested in obtaining guests’ opinions on environmental activities of their hotels and reflecting these ideas. By the mean of 2.27, it appears that the majority of hotels in Mashhad are using mass transportation for their guests and personnel. This helps to decrease the air pollution on one hand, and reduce the traffic on the other hand. Guest’s opinions are elicited in order to be used in hotels’ environmental activities (Means: 2.73, 2.50). Results show that owners and managers are communicating with their guests and personnel for environmental awareness.

### 3.7. Managerial knowledge on environmental protection

Study results show that managers’ awareness of Pine Awards, Blue Flag Project, and ISO 14001 is low. Half of them are aware of sustainability concept and only 37% of owners believe in investment strategies conforming to the goals of sustainability. 82% of managers believe that hotels’ environmental quality positively affects the competitiveness.

### 4. Conclusion and Discussion
This study measured seven EP categories in order to assess the environmental performance of accommodations in the city of Mashhad. We defined 7 hypotheses which are supported by the results of the research. The results show that managers and owners of Mashhad hotels are not aware of the EP and sustainability. Lack of information and meetings, conferences, and academic education are the main important reasons of this ignorance. Lack of master plan is a critical problem among hotels. Lack of using solar, wind, biomass, and nuclear sources of energy and an increase in the usage of fossil fuels are the other critical points. Mashhad has limited resources of water and in summer the local government uses water sanction in order to manage the water consumption. However, the local government has no training programs even to teach and to inform people on how to cooperate.

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