

The Environmental Effects of Tourism Development in Noushahr

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Abstract

Tourism is considered as a potentially sustainable industry and plays a significant role in the development of the society at different levels and is seen as an important step to achieve sustainable development. The development of tourism in Noushahr has resulted in instability in terms of environmental aspects. Therefore, given that the process of tourism development in these regions would result in the destruction of the environment and cause many environmental problems as well as the undesirable and instable conditions, the present study aims to explore the environmental effects of the tourism development in Noushahr. To this end, a descriptive-analytic methodology is used to delve into aspects and indicators affecting the sustainable development in terms of environmental factors. In addition, the data are collected through documents and library and field methods. The population under study includes people living in Noushahr and tourists visiting it. The research sample includes 380 families and 384 tourists who were selected through the Cochran formula. The collected data are analyzed using descriptive and inferential statistics including t-test. Results of the study show that there is a significant relationship between environmental effects and tourism. Besides, the level of negative effects caused by tourists in all cases under investigation is beyond the acceptable level in the view of the local community. As such, tourism should be developed in a way that while responding to tourists' leisure needs and improving their quality of experience it contributes to improving the quality of the environment.

Keywords

Environmental Analysis, Tourism, Tourism Development, Noushahr

1. Introduction

Tourism is seen as one of the greatest and most diverse industries in the world and its rapid growth has been followed with numerous social, economic, and environmental changes and thereby it has been turned into an

important field of study among scholars. The tourism development is heavily dependent upon natural, cultural, and social environments. Therefore, maintaining or improving the quality of the environment is crucial for tourism purposes. Urban tourism, host-tourist interactions, and the production of tourist spaces for visiting urban areas with conflicting intentions, visiting attractions, and the use of facilities and services have various impacts on urban spaces and economy [1]. Noushahr as a port city with beautiful shores, good climatic conditions, and other natural attractions is one of the destinations for domestic and foreign tourists. Tourists vesting the shores of the city have caused some damages to shores, the environment, and tourist areas with their environmental consequences that have seriously threatened the sustainable development in the city. On the other hand, today tourism has turned out to be an important economic domain for many urban managers and authorities, which requires assessing the competition arena, defining and setting goals, making judgment among different alternatives in terms of investment, logistics, and the creation of appropriate structures, and trading urban tourist products. When making decision in urban tourism planning, one must consider all effective factors and choose the best one from among them [2]. Now the most important point in planning based on attractions is how to prioritize these attractions in the development process and how to develop them. To measure and prioritize attractions, various criteria such as economic, sociocultural, infrastructural, environmental, institutional, legal, and geographical factors are often considered so that it is made possible to make decisions concerning various attractions [3]. Therefore, the analysis of environmental consequences resulting from the development of tourist activities in northern seashores especially in Noushahr seems essential. Among irreparable damages made by tourism to this city are pollutions from wastes, polluted waters of seashores and rivers, and changes in rural and urban landscapes and sceneries. The main objective of this study is to explore the environmental effects of tourism development in Noushahr and the impact of tourism on the environment of this city. Urban tourism, host-tourist interactions, and the production of tourist spaces for visiting urban areas with conflicting intentions, visiting attractions, and the use of facilities and services are related to the tourism industry and they have various impacts on urban spaces and economy [4]. In many tourism development projects, a part of the project activities is assigned to constructing hotels, inns, and accommodations, preparing infrastructural facilities such as the development of road networks, water and energy supply pipelines, constructing recreational establishments, and performing different human activities. Such activities in preparation and implementation stages require excavation and embankment, digging, ground leveling, drilling, cleanly shaving trees and plants, machinery and equipment shuttling, hedging, dredging, etc. Each of these activities results in soil erosion, reduced fertility, decreased water storage, changes in soil texture and structure, and increased density and mass weight. In addition to the above activities that are performed in the preparation and implementation stages, activities done in the operation stages as well as tourist activities in natural environments where there is less need for creating man-made environment may affect the soil conditions and properties. In order to depict the relationship between urban tourism, sustainability, and urban sustainable development based on a conceptual model, aspects and indicators of urban sustainable development are analyzed. The conceptual model combines three main components of development that are society (happy society), economy (prosperous society), and ecology (environment). Since combining these components aims to reach sustainable development, first the sustainability of each component must be established [5]. Environmental aspects of tourism are among areas that capture the attention of geographers. The reason behind this lies in the nature of geography with its strong approach to relations between human and the environment [6]. In fact, the impacts of tourism and recreational activities on the environment and the degeneration of resources are among issues shared by human and natural geographers when dealing with problems caused by tourism. The other reason is the mere significance of the natural environment for tourism and recreational activities [7]. Potential problems of environmental impacts of tourism are caused as these impacts often occur in a susceptible and vulnerable environment such as small islands, coastal areas, mountains, special desert areas, and ancient and historical places, because these places are more likely than other places to attract visitors and tourists. Environmental problems caused by tourism include the destruction of the environment as a result of constructing buildings or polluting the natural environment [6]. Evaluation (measurement) is a method or tool used to recognize the existing or possible effects of functions, activities, and projects. This definition is different from material valuation. Evaluation is a measure that seeks a basis to show the level of differences or gaps in certain qualities [5]. Environmental Impact Assessment (EIA) is a technique to measure or predict the impacts and consequences of implementing a project or operation on the environment so that given the conditions and the type of impacts, the project is implemented in a way that it has the minimal impact on the environment. The development of leisure and tourism activities in a given region creates numerous jobs and as a result many people may migrate to the region and its population increases, accordingly. Consequently, the number of small

rented houses, automobile shooting galleries, restaurants, and shops increases. Besides, land price may go up and main and small roads are developed. As the number of these settlements and buildings increases, the extent of natural landscapes decreases and the number of man-made landscapes increases. The extent and type of environmental effects of tourism depends on the types and density of tourism development. Therefore, the effects of tourism must be investigated.

2. Literature Review

Lots of studies have assessed the environmental impacts of tourism. For instance, [8] explored the environmental impacts of tourism in coastal areas of Ramsar and found that the development of this type of tourism has caused many environmental problems, the most important of which include the destruction of vegetation, the pollution of coastal waters, and the destruction of the coastal landscape.

[7] investigated the intensity of the environmental instability of rural habitats using a multi-criteria model in 101 villages of 809 villages in Sistan and Baluchestan Province. Results showed that the environmental instability is low or moderate in 18.8% of the villages under study and serious and very serious in 81.2% of the sample villages. In another study, [6] explored the environmental effect of air pollution on tourism activities in Shiraz. Their results suggested that there are significant correlations between climatic parameters such as temperature, pressure, moisture, and rainfall and gaseous pollutants such as nitrogen dioxide, nitrogen monoxide, sulphure dioxide, and neutronoxide. Accordingly, the development of sound tourism plans requires paying close attention to air quality standards and climatic parameters.

[4] [5] assessed the environmental impact of coastal tourism on urban sustainable development in Tonekabon. They found that that coastal tourism has in fact a slight impact on urban sustainable development and sometimes it is considered as an environmental problem. The frequency of constructions in the coastal areas of Tonekabon beyond the land capacity has led to not only the excessive and improper horizontal development of the city but also the environmental pollutions and especially the pollution of water resources.

[8] examined the impact of tourism development on the marine environment in Chabahar Gulf. The results of his study showed that tourist wharfs in Kish Island are among the causes of the destruction of coral shores. In addition the construction of hotels and new recreational centers can result in increased wastewater and thus increased destruction of marine plants and reduced oxygen and faunal diversity.

[9] analyzed the relationship between coastal tourism development and its environmental impacts in coastal areas of Bandar Abbas. They found that tourism activities and its consequences in the environment requires attention, expertise, planning, and management to make it possible to for us to have a healthy and natural environment while benefiting from economic, cultural, and social advantages if a prosperous and profitable tourism.

In their study, [10] evaluated the environmental effects of the tourism industry in line with sustainable development in Abu Musa Island. Their results indicated that there is a positive significant relationship between the ecotourism in the island and sustainable development.

3. Materials and Methods

The present study is an applied and descriptive research concerning the type of research and a field study in terms of the method of data collection. Besides, this study is considered as a survey research with regard to the generalization of its findings. The population under study includes 43387 people living in Noushahr in 2011 (Statistical Center of Iran) of whom a total number of 380 heads of families were included in the research sample through the Cochran formula and simple random sampling. In addition, based on the figures provided by Cultural Heritage and Tourism Organization of Mazandaran Province showing that approximately 5 million tourists visited the city in 2015, 384 tourists were included in the sample under study using the Cochran formula. To assess the environmental impact of tourism development in Noushahr, a questionnaire with 9 components and 29 items was used to collect the data, as shown in **Table 2**. In addition, responses to the questionnaire items were scored using a likert scale. The collected data were analyzed by SPSS using t-test.

4. Results

4.1. Land Resources

Land resources underlay organizing the regional development. In other words, they are the main tool for making

regional and national planning and decisions that facilitate environmental, economic, and social plans in each region and are used as the main tool for integrating environmental, economic, and social plans with physical and spatial plans. The results of data analysis are provided in **Table 1** at the error level of 0.05. According to tourists' opinions, there is a significant relationship between the environmental impacts and tourism development in Noushahr in terms of items related to the impact of tourism development on increased use of natural resources, increased constructions and the destruction of natural resources, and the development of constructions without management and planning ($P < 0.05$). However, the results of the study concerning the destruction of natural landscapes, increased pressure, and increased tolerance capacity of natural resources indicate that tourism development has no impact on increased number of natural species, land use changes, and increased use of natural resources.

4.2. Protecting Natural Heritage and Attractions

Today as a consequence of the increased population in the world, problems such as excessive reduction of natural resources, increased pollution, and imbalanced distribution of resources have occurred. According to the respondents' views in this study, there is a significant relationship between tourism development and its environmental impact in Noushahr in terms of the lack of basic facilities per each tourist (access, restrooms, caterings, and parking spaces) ($P < 0.05$). Besides, tourism development has increased the amount of waste materials produced by the tourism sector. However, there is no preventive measure by tourists to minimize solid and waste materials and increased recyclable wastes produced in tourist units (**Table 2**).

Table 1. Impact of tourism development on land resources.

Items	Likert scale (1 = very high, 2 = high, 3 = moderate, 4 = low, 5 = very low)					Results of t-test			
	1	2	3	4	5	SD	Equality of variance	N	Result
Destruction of natural landscapes	119	121	368	69	87	0.263	1.258	764	Not significant
Increase in excessive and uncontrolled constructions	129	216	297	61	61	0.174	1.851	764	Not significant
Increased pressure on natural resources	300	153	152	65	94	0.004	8.355	764	Significant
Impact of tourism development on increased pressure of inhabitants in using resources	178	137	243	64	142	0.000	40.96	764	Significant
Impact of tourism development on biodiversity	149	144	293	63	115	0.106	2.618	764	Not significant
Impact of tourism development on land use change	253	184	223	57	47	0.982	0.001	764	Not significant
Impact of tourism development on destruction of natural resources as a result of tourism related constructions	157	109	348	37	96	0.038	4.334	764	Significant
Impact of tourism development on increased pressure of inhabitants in using resources	181	148	318	57	60	0.000	21.195	764	Not significant

Table 2. Impact of tourism development on protecting natural heritage and attractions in Noushahr.

Items	Likert scale (1 = very high, 2 = high, 3 = moderate, 4 = low, 5 = very low)					Results of t-test			
	1	2	3	4	5	SD	Equality of variance	N	Result
Basic facilities per each tourist (access, restrooms, caterings, and parking spaces)	170	154	228	84	128	0.000	19.885	764	Significant
Increased amount of waste materials produced by the tourism sector	227	170	246	58	63	0.107	2.605	764	Not significant
Preventive measure taken by tourists to minimize solid and waste materials	188	170	316	45	45	0.408	0.408	764	Not significant
Increased recyclable wastes produced in tourist units	162	162	302	108	40	0.087	0.087	764	Not significant

4.3. Waste and Wastewater Production and Management

Tourist activities enhance to the effective management of waste and wastewater systems. This indirectly contributes to the environmental sustainable development. Surface and groundwater resources are affected seriously by the excessive use of these resources and the discharge of different types of wastewater in the nature. The development of tourism projects when there is no regular wastewater collection and treatment systems and even when wastewater does not directly enter water resources results in the underground running of wastewater in the direction of slopes and its collision with impenetrable layers and thus the raising of the water table and the pollution of groundwater resources. This in turn poses serious threats to buildings and establishments and endangers inhabitants' and visitors health, especially in coastal areas when these impacts are more serious (Table 3).

As it can be seen, there is a significant relationship between tourism development and its environmental impact in Noushahr in terms of the increased number of tourist accommodation units with environmental labels and preventive measures taken to minimize air pollution. However, no measures have been taken for increasing the number of tourist places equipped with wastewater collection and disposal systems, increasing the public awareness about tourists' protective measures, and increasing the number of wastewater management systems.

4.4. Protecting Biodiversity and Vulnerable Ecosystems

The protection of biodiversity and vulnerable ecosystems is a scale that can be used to measure the health of ecosystems, but it is by itself a function of environmental conditions. Sudden and sharp environmental changes often result in group extinctions. Ecosystem diversity is measured in relation to species and genetic diversity, because the boundary among ecosystems and communities are highly misleading. Ecosystem diversity refers to the diversity of habitats, life communities, ecosystems, and ecologic processes inside them. In each ecosystem, living organisms affect each other and interact with the climatic conditions and surrounding soil. Ecosystems become more complex in the presence of human beings and they become substantially different from the natural ecosystem. Culture is a distinctive factor that makes up the human ecosystem. The human contact with the nature that is formed in a group and social from adds a social aspect to it. The more organized and informative this social aspect, the less will be social harms from changes made by humans in their surrounding environments and natural and environmental harms and the greater will be their achievements. Accordingly, as it can be in Table 4, there is no significant relationship between tourism development and its environmental impact in Noushahr in terms of attitudes towards waste disposal, controlling visitors concerning the observation of environmental regulations, and making legislations to protect rare species.

4.5. Improving Public Awareness

One of the main presumptions in environmental studies is that most environmental problems can be solved by increasing the public awareness about the environment. In other words, it is assumed that the environmental awareness is the key to solving most of environmental problems. The acquisition of the environmental awareness is the first step taken to achieve sustainability and basically the precondition for the human survival in the

Table 3. Impact of tourism development on waste and wastewater production and management in Noushahr.

Items	Likert scale (1 = very high, 2 = high, 3 = moderate, 4 = low, 5 = very low)					Results of t-test				
	1	2	3	4	5	SD	Equality of variance	N	Result	
Increased number of tourist accommodation units with environmental labels	117	153	318	112	64	0.000	26.936	764	Significant	
Preventive measures taken to minimize air pollution	35	104	275	186	164	0.000	20.54	764	Significant	
Increased number of tourist places having wastewater collection and disposal systems	140	187	229	146	62	0.065	3.419	764	Not significant	
Increasing the public awareness about tourists' protective measures	79	154	229	142	160	0.217	1.531	764	Not significant	
Increased wastewater management systems	39	135	353	134	103	0.288	0.020	764	Not significant	

Table 4. Impact of tourism development on protecting environmental and biodiversity and vulnerable ecosystems in Noushahr.

Items	Likert scale (1 = very high, 2 = high, 3 = moderate, 4 = low, 5 = very low)					Results of t-test			
	1	2	3	4	5	SD	Equality of variance	N	Result
Number of management plans to control visitors and assessment and monitoring measures, and environmental regulations	80	131	357	98	98	0.328	0.960	764	Not significant
Increased number of tourist places having wastewater collection and disposal systems	69	219	303	91	82	0.554	0.351	764	Not significant
Considering and making plans for waste disposal	65	132	317	103	147	0.886	0.28	764	Not significant

future, is to have environmental awareness, the ability to understand environment, and live based on such awareness. Consequently, as it can be in **Table 5**, there is no significant relationship between tourism development and its environmental impact in Noushahr in terms of raising the awareness of local people and the awareness of the local communities about protected regions. However, this relationship is significant concerning the tourism manages with environmental training and educations.

4.6. Pollution

In addition to its positive and negative economic and social consequences, tourism prosperity in each geographical region is associated with air, water, sound pollutions, waste accumulation, and environmental pollutions. If these pollutions continue to occur they may result in irreparable damages. In the modern era which is characterized by the fight against pollution, tourism compared to other industries is seen as an industry without severe pollution consequences. This means that the protection of the environment and natural attractions is closely related to tourism. In addition, one of the main issues discussed by experts in the field is the use of an approach to environmental and sustainable development (**Table 6**).

Today the close relationship between tourism and the environment and the significance of the environmental planning approach and sustainable development approach have increased the attention to these approaches. The Manila Declaration as the most comprehensive declaration in line with the goals of modern tourism has underlined the importance of natural and cultural resources in tourism and the necessity of using and protecting these resources in the local community and the tourism industry. Therefore, as it is shown in **Table 5**, there is no significant relationship between tourism development and its environmental impact in Noushahr in terms of soil pollution, water pollution, and air pollution. However, this relationship is significant concerning environmental pollution, waste accumulation, and sound pollution.

5. Conclusions

Noushahr as a tourist city uses tourism as a stable source of income and it is facing major environmental problems and issues in the process of tourism development, whose real manifestations are reflected in the destruction of natural attractions, pollution, resource depletion, tourist attractions, and crowdedness and overpopulation. This has led to unfavorable environmental conditions in a way that people living in the city are experiencing major environmental problems. On the other hand, Noushahr is suffering from many problems such as the lack of proper infrastructural facilities including camping and parking spaces and toilets. Furthermore, pollution, wastewater release in streets and passages, and the destruction of the environment have negatively affected the region. Accordingly, 6 components and 29 items were used in this study to assess the environmental impact of tourism development in Noushahr. Based on the results from field data it is suggested that in order to solve the existing problems and issues, practical plans and policies must be revised and attention must be paid to the approaches and principles used to deal with the environmental effects of tourism development in Noushahr:

- A tourism policy-making council including representative from organizations such as municipality, natural resources, the environment, document registration, deputy of governorship planning, transportation department, governorship, cultural heritage, Islamic culture and guidance should be organized so that it can develop goals, strategies, and programs for the sustainable development of Noushahr in an efficient way.

Table 5. Impact of tourism development on increasing public awareness about the environment in Noushahr.

Items	Likert scale (1 = very high, 2 = high, 3 = moderate, 4 = low, 5 = very low)					SD	Results of t-test		
	1	2	3	4	5		Equality of variance	N	Result
Number of measures taken to inform local people about protective tourist activities	56	134	279	154	141	0.103	2.669	764	Not significant
Tourism managers with environmental training	128	225	192	162	57	0.000	14.566	764	Significant
Awareness of the local community about protected places	147	290	204	85	38	0.169	1.893	764	Not significant

Table 6. Impact of tourism development on pollution in Noushahr.

Items	Likert scale (1 = very high, 2 = high, 3 = moderate, 4 = low, 5 = very low)					SD	Results of t-test		
	1	2	3	4	5		Equality of variance	N	Result
Soil pollution	188	242	160	101	73	0.073	3.23	764	Not significant
Water pollution	255	190	141	122	56	0.054	3.73	764	Not significant
Sound pollution	178	181	155	159	91	0.010	6.64	764	Significant
Waste accumulation	234	169	189	119	53	0.000	0.018	764	Significant
Air pollution	230	224	188	92	130	0.106	0.000	764	Not significant
Environmental pollution	240	147	197	134	46	0.002	0.320	764	Significant

- The efforts and commitment among tourism managers should be increased in order to support and protect the environment and encourage investors in the public and private sectors in making investments to protect the environment and set up urban sustainable tourists units with the aim of monitoring the implantation of tourism projects and surveying their environmental effects in line with policies and regulations in the field of tourism under supervision of Cultural Heritage, Handcrafts, and Tourism Organization.
- Policies for community-based tourism should be adopted by the public sector (Cultural Heritage, Handcrafts, and Tourism Organization) to promote the active participation of the local community in protecting the environment in the process of sustainable tourism development.
- The seasonal camps should be established in Noushahr to accommodate tourists in areas with tourist attractions and prevent sporadic and unsystematic settlement of tourists and visitors in the nature including beach platforms and the reward and punishment policies should be implemented to minimize the negative effects of activities associated with the environment, which requires the ongoing supervision of related authorities.
- Any plan to develop tourism and protect the environment in Noushahr based on its potential must take into account environmental aspects and their consequences because if there is no environmental assessment and the provision of practical solutions for tourism development it is not possible to create an ideal prospect for the coastal areas in the region under study in the future.

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