

# SUSTAINABLE TOURISM AND DESTINATION MANAGEMENT: THE GREEK ISLAND OF POROS

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## ABSTRACT

Traditionally Tourism Destination Management organized and promoted a region in becoming successful tourism destination based on a wide range of knowledge and experience, both in the international and local level. The concept of Tourism Sustainable Development however has added several novel factors in this process, including sustainability performance indicators. In this study, the authors present the island of Poros in Greece where carrying capacity estimation has been applied in order to support tourism promotion in an effective and sustainable manner.

*Keywords: sustainable tourism, destination management, tourist satisfaction survey, tourism carrying capacity.*

## 1 INTRODUCTION

Greece depends heavily on the tourist trade as tourism is the main economic activity in Greece. The issue for a long term viable development in the Greek islands, is to find a creative and hopeful perspective through the carrying capacity assessment indicators as to implement a viable destination policy based on the needs and the characteristics of a tourism destination.

Sustainable development and its quantification procedure with specialized measurement instrument, consist a vital element for the environmental condition of the Greek destinations; as the tourist product is a blend of ecological, social and economic sub-systems [1], [2]. For that reason an adapted amount of sustainable indicators is selected and a comprehensible methodological guide for their use is created, aiming to reliable measurement of selected parameters that are considered to be important for our region. We believe that using this approach, the local societies and the stakeholders involved as well, are able to understand the size of impact on the existing and mainly not renewable resources, in order to proceed with strategic planning and terms of sustainability for their future developmental course.

The World Tourism Organization (WTO) proposes the following definition of carrying capacity: ‘The maximum number of people that may visit a tourist destination at the same time, without causing destruction to the physical, economic, socio-cultural environment and an unacceptable decrease in the quality of visitors’ satisfaction [3].

Carrying capacity assessment has become an indispensable tool for formulating policy and strategies in the tourist industry worldwide [4]. Countries and regions with considerable natural and cultural resources look towards tourism when stimulating their sustainable development activities [5]. The contribution of Tourism sector to development needs to be clearly explained to allow countries to invest into tourism. Tourism is considered as a development factor [6] as is probably the best example among human activities in which the linkages between environmental quality and economic prospects are evident [7]. Tourism is a part of a general strategy towards sustainability there is little



agreement on, or evidence of, how to achieve this. Sustainable development practices were generally not implemented before the 90s [8].

Today, controlling tourist growth has become a central policy issue for the tourist trade [9], and it is noteworthy that carrying capacity assessment has become an important tool for facilitating planning and developing policy issues for the industry [10].

Measuring tourist satisfaction is not a new concept. In fact, Marketing and Retailing researchers have been conceptualizing this idea for decades by developing frameworks that describe the process leading to satisfaction [11].

Benchmarks need to be developed upon which destination performance can be regularly measured. These may include visitor numbers, visitor nights, expenditure, satisfaction levels, traffic counts, room occupancy, and awareness of the region. Performance measures should focus on yield rather than sheer numbers [12].

A destination manager (DMC) is a professional services professional possessing extensive local knowledge, expertise and resources, specializing in the promoting, studying and organize a tourism destination.

Finally, the main target of a destination manager is to identify the competitive advantages of the region and clarify the current status concerning tourism and make proper destination marketing policy.

## 2 THE ISLAND OF POROS

Poros is a small Greek island, in the southern part of the Saronic Gulf, about 58 km (31 nautical miles) south from Piraeus (the port of Greek capital Athens). Porow is separated from the Peloponnese by a 200 m wide sea channel, with the town of Galatas on the mainland across the strait. Its surface area is about 31 square kilometers (12 sq. mi.) and it has 3,780 inhabitants. Like other islands in the Saronic, it is a popular weekend destination from Athens or East Peloponnese. The duration of the boat trip from Piraeus to Poros is about 2 hours and from Galata 30 minutes.

## 3 TOURISM SUPPLY AND DEMAND FOR POROS ISLAND

### 3.1 Tourism supply

The tourist development of Poros based on the intrinsic characteristics and not on a planned growth model. Since the early 60s, the island was developed as a summer tourist destination and as an all-year's holiday resort for the wider metropolitan region of Attica.

From March until the end of May, every weekend, arrived on the island for people to spend their holidays. From June until September increases the number of nights as the visit is combined with the summer holidays. The biggest tourist traffic is recorded in July and August. From May until September daily small cruise ships make daily cruises from Piraeus and are an alternative for tourists with a short stay in Athens who want to visit a Greek island.

The absence of charter flights and the lack of large contracts with foreign tour operators make a different tourism product.

Total bed capacity in Poros is 4000 beds, the most of them are in Rooms to Let (3829 beds) and the sixteen hotels have the rest 1194 beds.

The statistics of employment structure show 80.4% of the workforce is engaged in the tertiary sector, particularly by providing services directly or indirectly related to tourism. It must be mentioned that there is not any tourist agency office on the island to organize and



Table 1: Comparison of overnight stays at Poros (2015).

Area	Overnight stay (Greek Tourists)	Overnight stay (Foreigners tourists)	Overnight stay	Occupancy (%)
Poros	34,184	20,167	54,351	69.6
Hydra	18,337	27,135	45,472	85.4
Salamis and agistri	4,842	2,345	7,187	46.1
Aegina	57,151	34,377	91,528	72.5
Kythira	24,706	15,977	40,683	81.9
Spetses	27,501	15,849	43,350	95.8
Trizina and methana	10,555	870	11,425	100
Saronikos islands	177,276	116,720	293,996	76.3
Attika region	2,312,159	5,512,637	7,824,796	87

perform individual or group tourist programs. Only ticket sales offices. Please note that transfers are made from the accommodations companies.

### 3.2 Tourist demand

Following discussions with hoteliers, those who responded to the cooperation and whoever encounters processes; reach lower than 50% of accommodation, they were informed that there are few contracts with firms from France, Great Britain Sweden and Holland. The Greek Statistical Authority has no foreign tourists' attribution per municipality, only by Region.

Poros presents the particularity to be connected by ferry to the opposite coast of Galata. Due to continuous employee tourist movements and residents cannot be calculated accurately arrivals with transport. The only available data from the Statistical Service that can identify tourism demand is the following accommodation arrivals gnomes. Arrivals of domestic tourists is 13,122 and 5,466 foreigners in accommodation.

The tourist demand of the island goes by ferries or speedboats from Piraeus or drive from Athena to Trizinias Galata and then the small ferry (ferry) or by boat.

The occupancy in Poros Hotels in 2013 is 33.9% (2013) in the 69.6 of the hotel capacity.

The data presented in Table 1 indicates the overnight stays in the Saronic islands and the percentage (%) of total available beds where data refer. The overnight stays are 54,351 of whom 34,377 are nationals and foreigners is 20,167. Note that we refer to 69% of beds (2013).



Table 2: Passengers in Poros Port (2014–2015).

	Arrivals	Departures
July August September	110,258	114,224
April May June	86,461	92,934
January February March	36,861	33,410
October November December	45,099	44,635
July August September	111,289	102,691
April May June	73,320	67,287
January February March	45,105	43,910

## 4 METHODOLOGY

### 4.1 Carrying capacity

Sustainable development and its quantification procedure with specialized measurement instrument, consist a vital element for the environmental condition of the Greek destinations; as the tourist product is a blend of ecological, social and economic sub-systems [13]. For that reason, an adapted number of sustainable indicators is selected and a comprehensible methodological guide for their use is created, aiming to reliable measurement of selected parameters [14] that are considered to be important for our region. We believe that using this approach, the local societies and the stakeholders involved as well, are able to understand the size of impact on the existing and mainly not renewable resources, in order to proceed with strategic planning and terms of sustainability for their future developmental course.

The proposed model is based on sixteen variables which take values from 0 to 100 (Losano-Oyola et al. [15], Hadjibiros et al. [16], Blancas et al. [17]). The sixteen variables can be divided into different groups.

The main objective of the first group of variables is the rating of environmental characteristics and infrastructure of the area. This group includes twelve out of sixteen variables (Table 3) and the score for each one is obtained by using questionnaires and qualitative indicators of each area.

The second group consists of four variables (Table 4). The score is derived using quantitative data and quantitative indicators. It should be noted that for quantitative indicators 13–15 high score corresponds to a large burden on the environment and therefore the variable should have little score in the model. For reversal and mapping the value of the indicator to a 100-grade scale, descriptive analysis was used, extreme values was excluded and finally from environmental literature minimum tolerable limits for environmental burden was defined.

Poros in relation to the country's price 57.07%, showing a general price index is 43.63% lower at 13.44% About soil condition index Poros is 0% units throughout the country 43.37%. On the state of water management Poros is 94.00% while the whole country is 72.05%. The natural environment management index Poros is 48.66% while the whole country is 71.48%.

### 4.2 Customer satisfaction survey

To study the profile of the tourists that visit Poros, a survey was implemented using questionnaire. The sample was 67 tourists who visited the island in the period March – October 2016.



Table 3: Environmental and infrastructure variables.

Variable name	Description	Measurement
X1	Urban waste management	0-100
X2	Legality of buildings	0-100
X3	Protection of noise nuisance	0-100
X4	Garbage management	0-100
X5	Protection of pesticides using	0-100
X6	Over pumping in sea waters	0-100
X7	Sufficient quantity of water resources	0-100
X8	Sufficient quality of drinking	0-100
X9	Forest clearance	0-100
X10	Forest clearance	0-100
X11	Conservation of the landscape	0-100
X12	Adequacy of green areas	0-100

Table 4: Environmental and infrastructure variables.

Variable name	Description	Measurement
X13	Beds per kilometer of beach	0-100
X14	Beds per square kilometer	0-100
X15	Beds per inhabitants	0-100
X16	Blue flags per kilometer of beach	0-100

Table 5: Variable weight.

Variable name	Description	Weight
X1	Urban waste management	5
X2	Legality of buildings	3
X3	Protection of noise nuisance	3
X4	Garbage management	5
X5	Protection of pesticides using	1
X6	Over pumping in sea waters	2
X7	Sufficient quantity of water resources	3
X8	Sufficient quality of drinking	4
X9	Protection of fire incidents	2
X10	Forest clearance	2
X11	Conservation of the landscape	3
X12	Adequacy of green areas	2
X13	Beds per kilometer of beach	5
X14	Beds per square kilometer	5
X15	Beds per inhabitants	5
X16	Blue flags per kilometer of beach	5

Total score: From these sixteen variables the final score is calculated. Each of the sixteen variables has different weigh in the model.

$$Y_{Score} = \frac{\sum_{i=1}^{16} b_i \cdot x_i}{55}, \quad (1)$$

Variables  $x_i$  and correspond weights  $b_i$  are presented at Table 6.



Table 6: Variables for Poros island.

Variables		Variables	
V1	0	V9	50
V2	100	V10	100
V3	100	V11	100
V4	0	V12	100
V5	100	V13	1094
V6	100	V14	173,34
V7	80	V15	0,88063
V8	100	V16	0

Table 7: Compound variables for Poros island.

	Mean	St. Dev.		Mean	St. Dev.
I13	0	*	Ground	0	*
I14	0	*	Water	94	*
I15	11,937	*	Nature	93,333	*
I16	0	*	Score	43,631	*

Table 8: Reasons affecting tourism destination choice.

Features	Income					
	<10000		10000-25000		>25000	
	N	%	N	%	N	%
Sun/Sea	6	40.0%	11	36.7%	7	41.2%
History/Culture	0	0.0%	3	10.0%	4	23.5%
Nightlife	0	0.0%	2	6.7%	3	17.6%
Relaxing	5	33.3%	12	40.0%	4	23.5%
Budget for vacation	3	20.0%	5	16.7%	7	41.2%
Near to Athens	4	26.7%	15	50.0%	3	17.6%
Near to Peloponnese	0	0.0%	4	13.3%	1	5.9%
Totals	18		52		29	

According Table 8, tourists who choose Poros, have as main criteria the natural beauty (sea/sun), seeking economic destinations near Athens, and want a relaxing holiday.

Most of them have previously visited the island, especially those with high income have visited the island 8 times on average. The daily cost of accommodation is 57 euros, for high-income earners is 60, while for food and other expenses spend EUR 49, with higher incomes spend 50 euros (Table 3).



Lower incomes prefer to stay in rented rooms, while middle and upper income groups prefer hotels. The length of stay on lower incomes is 1–2 days while the medium to six days. In contrast to higher incomes length of stay exceeds six days (Table 9).

Lower incomes prefer to buy local products, while higher incomes prefer jewelry (Table 10).

Table 9: Revisits and Expenses by Income.

Revisits and Expenses	Statistics	Income			
		<10000	10000-25000	>25000	Total
How many times to Poros	Mean	4	4	8	5
	Median	1	2	7	2
	SD	5	8	8	8
Price per day for accommodation	Mean	52	57	61	57
	Median	43	50	60	50
	SD	31	18	30	25
Expenses per day (without accommodation)	Mean	44	51	50	49
	Median	44	50	50	50
	SD	17	27	31	25

Table 10: Tourists' behavior.

Consumer behavior		Income						Total	
		<10000		10000-25000		>25000			
		N	%	N	%	N	%	N	%
<b>Accommodation</b>									
Accommodation type	Rooms to let	7	50%	4	14%	1	7%	12	21%
	Hotel	6	43%	25	86%	11	73%	42	72%
	Apartment	1	7%	0	0%	3	20%	4	7%
Nights	1-3 days	9	60%	6	20%	2	13%	17	28%
	3-6 days	5	33%	21	70%	5	33%	31	52%
	More than 7 days	1	7%	3	10%	8	53%	12	20%
<b>Shopping</b>									
Nothing		2	13%	9	30%	3	18%	14	23%
Clothes		0	0%	1	3%	1	6%	2	3%
Jewelry		0	0%	5	17%	8	47%	13	21%
Souvenir		4	27%	7	23%	2	12%	13	21%
Food		8	53%	16	53%	5	29%	29	47%
Other		5	33%	3	10%	3	18%	11	18%



## 5 SWOT ANALYSIS FOR THE TOURISM IN POROS

After collecting data from field surveys, the following conclusions have been drawn up:

### 5.1 Strengths

- Strong geographical location: the destination is located near Athens. One can reach the island by boat in 3 hours from Piraeus and 2 hours by speedboat. Driving the car, you need 2.5 hours to reach the port of Galatas; 170 km and then you spend five more minutes, by ferry or by boat, to reach the port of Poros.
- Famous tourist destination in Saronic gulf the island is a well-known destination for the Athenians and ideal for day trips. Even though the tourism development of the island started in early 60ies it still remains a famous choice.
- The tourist infrastructure is sufficient. The tourist demand is sufficiently covered by the existing bed capacity, in spite of the lack of organized groups. The season starts in May and ends in September and it is basically focused on weekends for the rest of the year. The catering and accommodation services are above average. However, a lot of the hotels and “rooms to let” need renovation. The built environment in the city is beautiful as the traditional architectural character has been preserved. The beaches are in green surroundings as Poros is full of pine trees.

### 5.2 Weaknesses

- Natural resources are limited as the island is small
- The lack of supporting infrastructure. The absence of a near airport makes the charter flights impossible. The only close airport is Athens El Venizelos which is expensive for seasonal charter flights and excludes the existence of organized tourist packages.
- Commitment contracts with international tour operators are limited.
- The absence of conference centers. Only one hotel has one.
- Generally, the professional skills of the tourism staff are unremarkable and most of the hotel employees are not graduates from tourism schools. Moreover, there are not established seminars for these employees.
- The difficulty in collaboration between hoteliers and international tourism markets. The tourism promotion is limited because of low economic resources; as the destination has not large and organized tourist agencies. As a result, it is difficult to manage and promote organized international tourism for Poros.
- The tourism stakeholders are not collaborated with each other and do not have any economic resources for tourism destination promotion, as their annual turnover is limited.
- The reduced tourist demand in winter.

### 5.3 Chances

- The internet e-booking
- Increasing importance of new technologies for online advertising
- The proximity of Epidaurus and Peloponnese
- Proximity to Hydra island
- The high cultural profile of the destination





- The maritime history
- Local products of Poros and Peloponnese
- Ability of thematic tourism development
- Promoting food and gastronomy culture
- Increase in domestic tourism in weekend

#### 5.4 Threats

- Strong competition from hotels in Attica that have better access to the airport.
- Competition from other islands of the Saronic Gulf, Aegina, Hydra and Spetses
- The decrease of visibility due to low financial resources
- Decreased tourist consciousness in a large number of tourism operators in terms of collaboration. As a result, the response of the hoteliers in the questionnaire collection of the customer satisfaction survey was inadequate

### 6 DISCUSSION

Environmental indicators for Poros are presented at Table 10 according to the results for the urban waste management Poros is covered 100% from the Poros Galatas urban waste treatment plant

There is protection to environment against illegal buildings (x2), and protection against the noise (x3). Garbage management (x4) is covered from Athens Sanitary Burial as recycling is also take place.

Protection against pesticides using (x5) is implemented. There are no incidents from over pumping in sea waters (x6). The quantity of water resources is adequate (x7) as also the quality of drinking water (x8). There are no fire incidents. Incidents of forest clearance (x10) happened in tourist areas. The landscape is conserved (x11) as green areas are enough.

According to Table 10, Infrastructure Indicators I13–I15, for the Island of Poros have median score which indicates burden of the environment. The quality certification of the beaches under the name of blue flag (I16) in Poros is not a developed procedure.

### 7 PROPOSALS

The proposals for Poros as a destination are drawing from the SWOT analysis above.

Carrying capacity indicators estimate the pressure of the environment of Poros concluding to the proper environmental policy for the island.

The suggested sustainable tourism model for the island is a combination of classical and alternative tourist model related to the local community needs and its unique environment built and culture. The parameters of development are:

- Ecotourism
- Footpaths
- Diving
- Sea tourism
- Archaeological paths
- Museums
- Traditional villages
- Cultural tourism related with Orthodox Religion traditional events



It is a common understanding that the main difficulty of such a plan is the lack of a common perception from the involved shareholders. In many cases the authorities' policies and the individuals' choices are blocking the appropriate decisions making in the sense of the common benefit.

Tourist development requires a multi discipline approach, since it is a function of various issues, such as natural resources and ecosystems management, that effects human activities on fauna, flora and the coastal zone as well as economic and social aspects.

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