

# Islands and Tourism Development: A Viewpoint of Tourism Stakeholders of Lesvos Island

Kostas Rontos<sup>1</sup>, Eleni Kitrinou<sup>1</sup>, Dimitrios Lagos<sup>2</sup> and Mihail Diakomihalis<sup>2</sup>

<sup>1</sup>*Department of Sociology, University of the Aegean  
Andromedas & Theofrastou, Mytilene*

<sup>2</sup>*Department of Business Administration, University of the Aegean Chios*

<sup>3</sup>*Department of Accounting, Technological Educational Institute of Epirus, Preveza  
Greece*

## 1. Introduction

When discussing about island economies and societies, one is always troubled as to the definition and measurement of an "island". In terms of definition, the word *island* relates to the old French loanword *isle*, which itself comes from the Latin word *insula*<sup>1</sup>. In terms of measurement, the main components of an island seem to be "*smallness*" and "*remoteness*". Because of these components, unique development problems arise in island economies and societies, especially if they are located far from their major markets.

*Smallness* can be defined in terms of the physical size (land area), population and GNP (or GDP), or a combination of these variables as attempted by Kakazu (1994), depending upon the purpose of the analysis. *Remoteness*, due to the discontinuity of the geographical space, seems to be the most distinguishable characteristic of all island societies. Kakazu (2007) suggested that, the measurement of an island has to take into consideration additional factors, like "isolation", "migration", and "external sources of income (especially *tourism*)", in order to better understand, analyse and classify island areas.

It is noted that the Island Regions of the European Union drafted a Manifesto (2005) that pursued an objective, set in motion by Article 158 of the Treaty of Amsterdam (which article assigned particular importance to reduction of the backwardness of less favoured regions as a means to achieve the goals of economic and social cohesion). They suggested that effective consideration of the *handicaps* faced by EU Island Regions (like: isolation from larger markets, seasonality, loss of high quality human resources, and other structural problems), must be transformed into specific political actions and clear legal provisions, fully integrated in the system of European decisions. They emphasised that the competitive integration of the insular regions is appropriate, in compliance with the framework foreseen by the Lisbon Process, based on the advantages of the areas in question.

There is, however, a number of characteristics of island areas, which can be considered as *advantages* over larger areas, such as that: a) they can be model cases for a zero-emission

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<sup>1</sup> Dictionary.com. <http://dictionary.reference.com/browse/Island>. Retrieved 2007-03-05.

society (Kakazu, 2007), b) they could be benefited from the developments on the sector of Information and Communication Technologies (ICTs) which have the potential to increase the accessibility of insular regions (Kitrinou, 2009), and c) the main advantage of the island areas seems to relate to the fact that, they have enormous potential to develop a *tourism industry*, which is a future-oriented industry and it is becoming the most important source of foreign exchange income for insular regions.

Referring to Greece, island space constitutes an economic, social, cultural and strategic resultant of its national substance and heritage. Roughly 15% of the Greek population lives in the islands, which cover the 19% of the country's land. All over Greece, but especially in the Aegean Archipelago, there are numerous small and medium-sized inhabited islands. For most of them, the basic economic activity for the past three decades has been tourism, which has influenced not only the economic life of the islands, but also their population structure and environmental conditions (Coccosis, 2001; Haralambopoulos and Pizam, 1996; Loukissas, 1982; Mantoglou et al., 1998). Tourism has helped to halt economic problems and population losses through the creation of new jobs, which to an extent balanced the loss of jobs in agriculture and manufacturing, and through increases in the domestic product and income (Coccosis, 2001; Lagos & Gkrimpa, 2000). The fact that many people are occupied in the tourism sector led to population growth and to a reduction of the out-migration rate that had been very high in the Aegean Islands over previous decades (Sophoulis & Assonitis, 1998).

In the aforementioned framework, this paper focuses on the advantage of tourism development, suggesting that tourism industry is becoming the most important source of income and employment for the local economy, especially for island regions. It emphasises that tourism constitutes important factor of regional development, especially in Greece, with positive contribution in the country's economic development and social cohesion, while the Greek islands have enormous potential to develop specific tourism policies, based on their characteristics and comparative advantages. The case of Lesvos Island is considered in detail, in order to investigate the extent to which the tourism stakeholders of the island are willing and able to take the initiative in implementing tourism development policies and investing in tourism projects, based on the EU general development policies for island regions. Also, through the survey results we are going to explore: a) potential statistically significant relationships between the characteristics of the enterprises or the characteristics of the entrepreneurs referring to their beliefs about the development of both sustainable and mass tourism models at the island and b) the factors that are a part of the entrepreneurs' *perceived satisfaction from both the basic and the tourist infrastructure in Lesvos Island*.

The remaining of the paper is organised as follows: In section 2 a theoretical framework is proposed, highlighting a number of significant features concerning the role and relationship of the public authorities and tourism entrepreneurs in the determination of tourism policy in insular regions. Section 3 presents the specific tourism characteristics of Lesvos Island. Section 4 presents the empirical survey design for the island in question and analyses the collected data. The final section 5 concludes the paper and proposes developmental policies for the island of Lesvos, concerning both the effective tourism policy framework and the appropriate tourism infrastructure and investments in the island.

## 2. Theoretical frame of tourism development

Tourism, according to the neoclassical theory of comparative cost, is considered to be integrated into the international labour division system among countries that are more or less developed, i.e. countries that produce industrial products of a high added value and countries the economies of which are based on the production of raw materials, where natural resources are more likely to support tourism development. Consequently, in a free trade environment and based on the principle of the comparative advantage which supports that each region specialises in the manufacture of products that utilise to the maximum those factors available in abundance in the particular region, those destination countries that are less advanced are driven, in terms of their roles as tourism flow destinations, to a specialisation of their tourism products (Lagos 1998:55-57, Lagos 2005:105).

According to the production factor theory developed by Heckscher (1949) and Ohlin (1933), in order for a country to commence a productive process, several necessary factors must be available, which are different for each country or region. The production and sale of tourism products and services is, to a particular extent, labour intensive, whereas the production of industrial products is capital intensive. Thus, industrialised countries or regions with a higher concentration of capital tend to specialise in the production of capital goods, whereas developing countries or regions tend to render services, such as tourism.

Contrary to the most orthodox theories of international trade, which presuppose a given offer and focus more on the offer side, the neoclassical theory focuses on the demand side. The theory of demand for a differentiated product between cooperating countries was first proposed by Linder (1961), who pointed out that the international specialisation of a country is to a great degree dependent on internal demand. According to Linder, the development of international tourism is the result of conditions that are created by internal tourism. The comparative advantage of a country stems from the quality of its superstructure and infrastructure, its tourism know-how, its technological level and its natural environment.

The New Economic Geography (Krugman 2001, Rovolis 2002) proposes that in the liberalisation of trade some regions present a particular "threshold" of activity concentration; once they have gone beyond that threshold, however, concentration becomes self-feeding, since businesses in these regions gain important profits, due to the centripetal forces. As a result of this, some regions continue to attract activities and some others keep losing them. Therefore, tourism activity can be easily integrated in this new theoretical approach, due to its "tourism urbanisation" characteristic (Lagos 2001), which favours local or regional development.

As far as sustainable tourism is concerned, there is a theory supporting that it is possible for all forms of tourism to be transformed into sustainable ones, if they follow the principles of sustainable or viable development (WTO 1993). The term "viable" tourism development describes the type of a well-balanced tourism development adjusted to local social, economic, cultural and environmental structures of each tourist destination, whereas at the same time it also shapes the conditions (services, infrastructure, know-how) for its continuous progress (Kokkosis & Tsartas, 2001). However, practice has shown that mass tourism cannot coexist with sustainable tourism development. These are two diametrically opposed forms of tourism, since viable tourism development automatically means rejection of mass tourism.

Over the past few years, the model of mass tourism experienced a declining yield, both on an international level and in Greece, a fact indicating that the mass consumption of tourism products and services has reached its limit. Tourism industry intensification on numerous islands as well as in coastal areas has brought not only various benefits, but also a series of concerns and problems related especially to tourist destinations bearing a special ecological value.

Today, this model of tourism development experiences a recession. The life cycle theory (Butler 1980) can be useful as an interpretational tool of the crisis of the 4S (Sun, Sand, Sea, Sex) and the “sun lust” model. The life cycle of the product often seems to correspond to the development of tourism product and the democratisation of vacations, where tourism demand addresses lower and lower income classes and is depicted by the 4S model. Therefore the beginning of the crisis can be combined with the crisis of the “4S model”. The democratisation of tourism tends to address parts of the population whose income gradually decreases. This process can be made possible due to higher productivity profits attributed to tourism becoming more of a mass activity. Productivity profits have the characteristic of reducing inflexible costs by means of certain artificial factors, such as the use of charter flights and the low-cost accommodation.

Coastal vacation tourism as the traditional development model, no longer satisfies the new demands of tourists. A clear proof of the above is the slow increase in the number of tourists visiting the Mediterranean countries, as well as the low occupancy rates of hotel accommodations.

In the case of a crisis of the structural type, mainly a product of economic concurrence, it is proposed to seek for a long-term model for tourism development, which shall focus on the promotion of quality against quantity and differentiation against homogenisation. So, in juxtaposition to the 4S a new model called 4E is proposed, which stems directly from tourist demands and the tourism product of the region receiving the tourists. This focuses on the following four variables (Varvaresos, 2009):

- Environment and clean nature
- Educational tourism, culture and history
- Events and mega events
- Entertainment and fun.

The proposed tourism development model is now a main strategy for a large number of countries so that they can have access to the “new tourism”. The essential difference when compared to the earlier model lies in the general concept related to tourism in the receiving country. Tourism is characterised as an industry, often even as a heavy industry, and thus it requires a great degree of planning.

### **3. Factors facilitating tourism development of Iesvos island**

Greece attracts more than 16 million tourists each year, thus contributing 15% to the nation's Gross Domestic Product Economy. The number of jobs directly or indirectly related to the tourism industry represents the 16.5% of the country's total employment (copyright: <http://www.statistics.gr>). A detailed analysis about the basic variables that represent the development of tourism in Greece during the period 1999–2002 can be found at: Rontos and

Sfakianakis (2009). They mainly suggest that Greece is still a middle and low-class summer seaside tourist destination, attracting tourists rather from Europe than from Northern America or Asia, while Greek tourists are the ones who have reinforced high-class tourism, due to income increases and their preference for short but qualitative holidays. Furthermore, an analysis about the specific characteristics of the Greek islands and a classification of them with regards to the charter arrivals can be found at Spilanis et al (2006).

Lesvos Island is the third largest island in Greece (in both land and population size) belongs to the Region of Northern Aegean. The capital of the island is Mitylani that pinpoints the economic growth of the island from the 18th century. Its castle was one of the most powerful in the eastern Mediterranean. It is also noted that the central offices of the Ministry of Aegean, the Regional Authority of Northern Aegean and the Rectorate of University of the Aegean are located at Mitylani. Island's coastline forms two bays in the south - Geras and Kallonis - and a plethora of creeks and capes. The main plains are those of Kalloni, Ipeos, Perama and Eressos and the highest mountains are Lepetymnos, Olympos. Generally the flora and fauna of the island are extremely rich. Today, 1,400 taxa (species and sub-species) of plants have been recorded on the island making Lesvos a "botanic paradise": aromatic, pharmaceutical, ornamental and rare plants, bushes and trees. The island has innumerable beaches to satisfy all its visitors, like Vatera, Varia, Agios Isidoro, Skala Eressou, Molyvos, Thermi and Anaxo. The coastal settlements that are notable for their particular colour are Molyvos (Mithymna) and Plomari with their architecture and natural beauty. Equally notable and peaceful is Sigri with its petrified forest. A map of Lesvos is following presented:

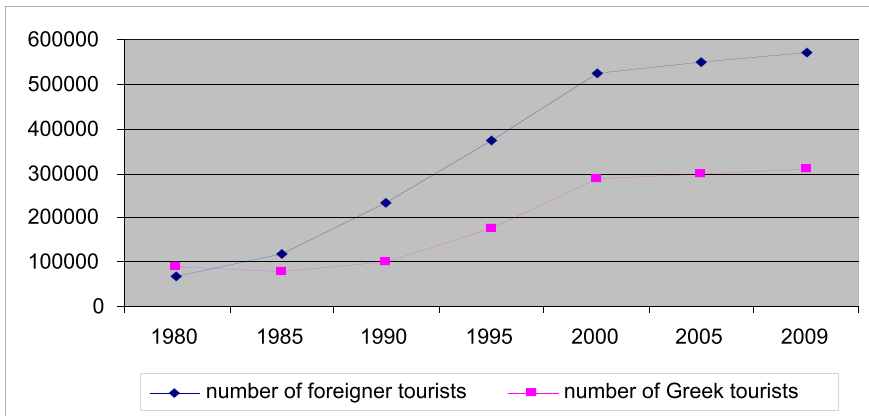


Map 1. Lesvos island (copyright: [http://www.lesvosonline.gr/lesvos\\_gr/Map/maps/map\\_rd.htm](http://www.lesvosonline.gr/lesvos_gr/Map/maps/map_rd.htm))

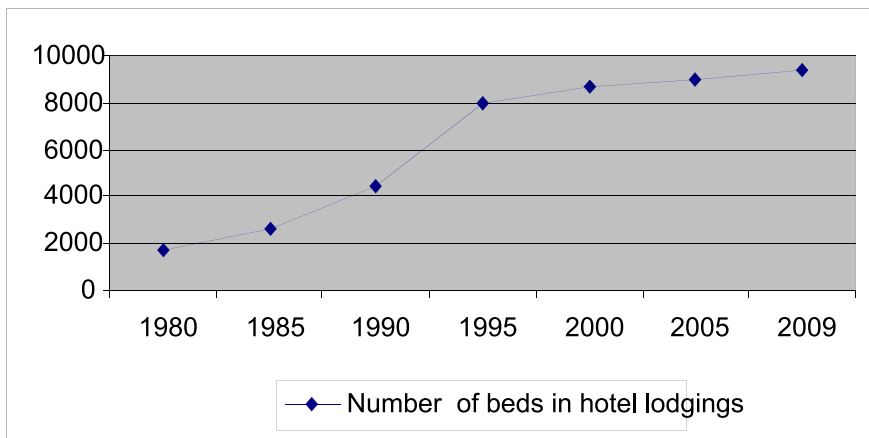
The climate of Lesvos is mild and healthy: the winter is warm and the sun shines throughout the year. Lesvos is one of the forested islands of the Aegean, apart from the olives groves found everywhere; pines, oaks, chestnuts etc cover a great proportion of its land. The local economy is based on the agricultural production with an emphasis on olive oil production (of exceptionally high quality), cattle-raising (mainly dairy products) and fishing. Additionally, distillery is developed and its main product is the world famous uzo. It is also noted that many of the island's inhabitants are professionally engaged in tourism.

The number of hotels and accommodation units has grown significantly in the last three decades. Molyvos is the main tourist place which maintains the market share in quality units, as each hotel is attaining a grade B from the Hellenic National Tourist Organization.

In other areas the quality of accommodation tends to be more diversified, while also more lower class accommodation can be found. The average utilization rate of accommodation is low for the island due to the short effective tourist season (June - September). The Graphs 1 and 2 following present the number of beds in hotel lodgings at Lesvos Island and the number of arrivals of foreigners and Greek tourists at the island respectively, during the period 1980-2009. We can note that the number of beds in hotel lodgings has been continuously increasing within the last three decades. The same increasing trend is noted at the arrivals of both foreigners and Greek tourists, while the number of foreigner tourists at the island is much greater than the number of Greeks, especially from year 1982 and on, which indicates the increasing demand for Lesvos, as a tourism destination, especially from the foreigners.



Graph 1. Number of beds in hotel lodgings at Lesvos Island, during the period 1980-2009



Graph 2. Number of arrivals of foreigners and Greek tourists at Lesvos Island, during the period 1980-2009

It is additionally noted that support services for tourism (such as tourism agencies, tour guides, vehicle rent shops and souvenir shops) are not yet very well developed on the

island. Other tourist facilities, like hospitals, banks, sports and transport (bus) facilities play a complementary role at tourist services.

The island is also rich in religious buildings. There are many monasteries, which exhibit various icons. Of special importance are the old picturesque villages, e.g. Molyvos, and the traditional industries, like olive oil production, ouzo production, leather, and wood carving and pottery industries. Archaeological sites, folk and art museums, Byzantine castles and cathedrals, ancient theatres, and Roman aqueducts can also be visited.

A case study concerning the sustainable tourism development at Lesvos Island has been developed by Nijkamp and Verdonkschot (1995). They focused on various sustainable tourism development options, developing a framework applicable to the island in question. This framework included and analysed the following options: exclusive tourism; agri-tourism; health tourism; adventure/sports-tourism; sea-tourism; cultural-tourism; winter tourism; educational tourism. Then, based on a system's impact analysis, they evaluated the impacts of these options to be: economic, human (or social) and natural (or environmental). A set of feasible impact indicators (economic, social and environmental) in the context of Lesvos Island was derived (an application of such impact indicators can be found in: Bithas and Nijkamp, 1995; Coccossis et al., 1991; Janssen et al., 1993).

In summary, it is noted that the attractions of the island seem to play an important role in its tourism development. The Mediterranean climate, the many beaches and bays, the beautiful landscape, and the size of the island offer the advantage of versified tourism with many options. Perhaps this is the reason that, until today, the tourism development of the islands is based on the 4S (sun; sand; sea; sex) and on the "sun lust" model. Nevertheless, the island has enormous potential to additionally develop its tourism product on the basis of a sustainable, 4E (Environment and clean nature; Educational tourism, culture and history; Event and mega event; Entertainment and fun) model for tourism. In this case, specific tourism developmental policies and plans, together with the appropriate investments will be required.

#### 4. Data and method

The empirical study considers the case of Lesvos Island. The aim was to define the tourism entrepreneurs' perceptions about tourism development in the island and to investigate the extent to which the tourism entrepreneurs of the island are willing and able to take the initiative in implementing tourism development policies and investing in tourism projects. A structured questionnaire developed and addressed to entrepreneurs- owners of small sized businesses that are managed by the owners or by a responsible executive in the case of larger businesses (Hotels, Tourism Offices, Restaurants, Cafes, Bars, Tourist Shops, Tourist Boats, etc.). The questionnaire included four parts: the first part concerned about the characteristics of the sample enterprises; the second one about the demographic characteristics of the responded entrepreneurs; at the third part two perceptual scales were developed, referring to the degree of satisfaction of the respondents with regards to basic (port, airport, hospital, marines etc) and tourism infrastructure at the island in question; and the last part of the questionnaire included questions referring to attitudes and perceptions of the entrepreneurs about the application of the 4S and the 4E tourism models at Lesvos Island, and the appropriate policies for sustainable tourism development at the island.

The regional entrepreneurs register was used as a sampling frame and the systematic sampling method were implemented to collect data from 104 entrepreneurs activated in tourism sector. The survey took place during April and May of 2010. Well trained enumerators were employed for the data collection.

As concern as statistical analysis, a Crosstab-based Statistical Method (based on Chi-sq. tests) was firstly applied to identify statistically significant relationships between the characteristics of the enterprises or the characteristics of the entrepreneurs referring to their beliefs about the two models of tourism considered (4S and 4E tourism models). Following, a multiple step process is conducted (including reliability and factor analysis) to identify the factors that are a part of the *Perceived satisfaction from both the basic and the tourist infrastructure at Lesvos Island*.

The results are presented in the following paragraphs.

## 5. Results

### 5.1 Sample characteristics

#### Characteristics of the sample enterprises

In the survey sample, the 31,7% of the enterprises are located at the municipality of Mytilene, the 34,6% at the municipality of Mithimna (Molyvos, which is the most touristic place of the Island, and the whole North Aegean region), another 10,6% are located at the municipality of Kalloni, the 9,6% at the municipality of Agiasos, the 7,7% at Thermi, while the remaining 5,8% at Plomari. With regards to the type of the sample enterprises, it is noted that 47,1% are restaurants/café/bar, 15,4% are hotels, 4,8% are rooms for renting, 7,7% are travel agencies, 8,7% are enterprises for renting cars or motos and the 16,3% are shops with traditional products. Referring to the legal type of the companies, the majority (67,3%) are personal enterprises. The 73,1% of the sample companies are family enterprises (the employees are members of the same family). It is also noted that the 59,6% of the companies are open continually (all the seasons of the year), and the 40,4% are open seasonally (specifically in summer time), while the average years that the sample companies are operating is 14, 35 years (st. dev. 13,7years).

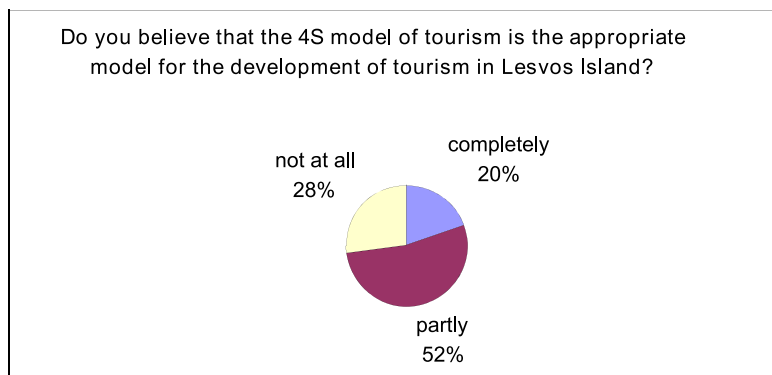
#### Characteristics of the sample entrepreneurs

The socioeconomic characteristics of the sample entrepreneurs are the following: 58,7% of the respondents are male, while the remaining 41,3% are female. The average age of the survey respondents is 44 years (st. dev. 11 years). Referring to the educational level, the majority of the respondents have a secondary education level (35,6%), following by those having a graduate degree (27,9%), (30%) and by those having a basic education level (27%), a professional diploma (8,7%) and postgraduate degree (1%). Additionally, from those having a graduate degree, the 42% their degree is relevant to tourism. Referring to the totality of the sample, a percentage of 48% have been educated in seminars relevant to tourism. The vast majority of the sample entrepreneurs (67%) believe that the role of the state constraints the development of their tourism company, mainly due to the role of the transport system at the specific island area, deficiencies in basic public services, and lack of advertisement/ promotion of the tourist product of the island in question.



## 5.2 Stakeholders' perceptions about the tourism models

The 4S (sun, sea, sand, sex) model of tourism (corresponding to mass tourism) together to the 4E ((Environment, Education, Event, Entertainment). model of tourism were presented to the respondents. It is found that the majority of the sample entrepreneurs (52%) believe that the tourism development of Lesvos Island could partially be based on mass tourism (the 4S model), the 20% believe that the tourism development of the island could completely be based on mass tourism, while a percentage of 28% of the entrepreneurs stated that the development of tourism has not at all to be based on the model of mass tourism. The results are presented in the following graph:



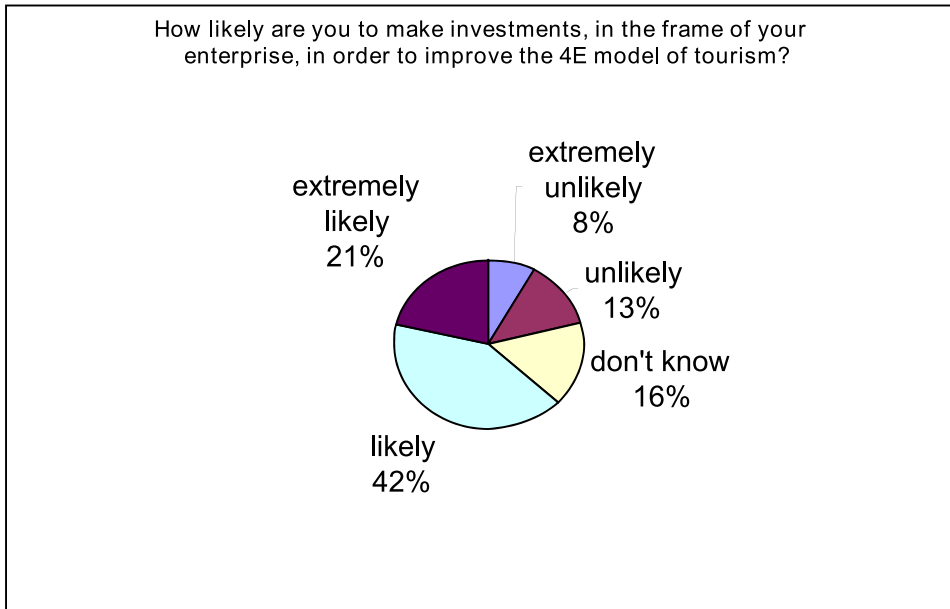
Graph 3. Stakeholders' perceptions about the tourism model of 4S in Lesvos Island

The entrepreneurs who believe that the tourism development of the island could completely be based on mass tourism (20% of the respondents), stated that this could be possible via mainly the improvement of the transport system of the wider Aegean Island area, together to improvements at the tourist services provided by the entrepreneurs, and the public (social) services (mainly health services, administration, telecommunications). They also emphasised the role of the State financing.

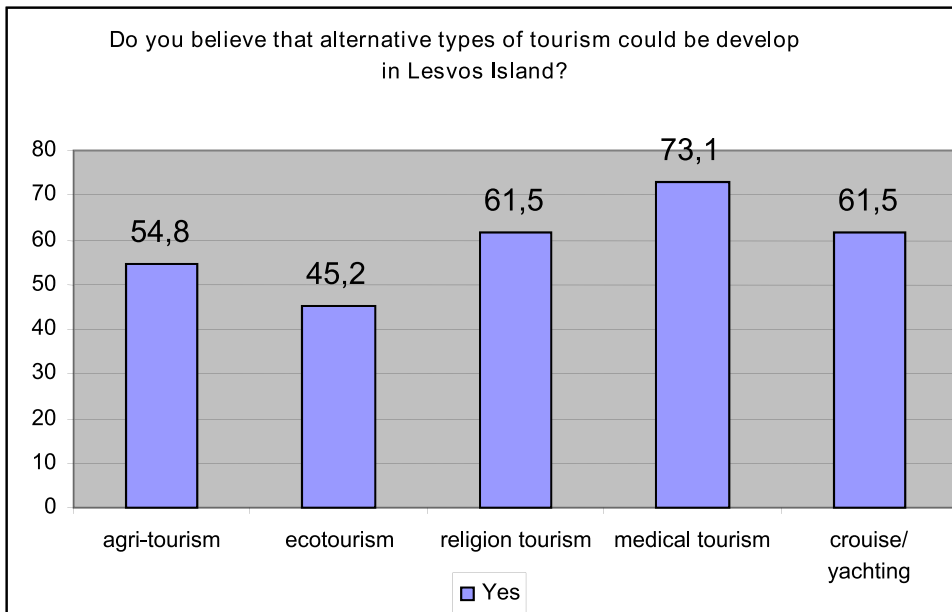
Additionally, the 96.2% of the totality of the sample believe that the 4E model of tourism has to be combined to the development of alternative types of tourism in Lesvos Island. To the question how likely are they (in the frame of their enterprises) to make investments in order to improve the 4E model of tourism at the island, the majority (42%) answered "likely". Graph 4 presents the frequencies of the relevant likelihood.

It is additionally noted that 32% of the entrepreneurs stated that they would extend their company, 27% that they would develop new tourist enterprises, another 29% stated that they would make investments with regards to the human capital of the company (education, additional staff), while the remaining focused at the improvement of the services they currently provide (including the investment in telecommunications infrastructure)

Graph 5 presents the percentages of the respondents who believe that Lesvos Island has enormous potential to develop the following alternative types of tourism (agri-tourism- 54,8%, ecotourism- 45,2%, religion tourism-61,5%, medical tourism- 3,1%, cruise/yachting- 61,5%).



Graph 4. Stakeholders' perceptions about investments in order to improve the 4E model in Lesvos Island



Graph 5. Stakeholders' perceptions on the potential to develop alternative types of tourism in Lesvos Island

Following, a Crosstab-based Statistical Method (based on Chi-sq. tests) is applied in order to identify statistically significant relationships between the characteristics of the enterprises or the characteristics of the entrepreneurs referring to their beliefs about the two models of tourism considered (4S and 4E tourism models). It is noted that no statistically significant relationships found between entrepreneurs with different gender, age group or educational level. This finding suggests that tourism is of significant importance between all the social groups of entrepreneurs in tourism, who are all strongly concerned about the future of the tourism industry at Lesvos Island. Some statistically significant differences found between the family and non-family tourism enterprises referring:

- a. To the perception if tourism development of Lesvos Island could be based on mass tourism -the 4S model (Chi-sq= 6,011, p=0,05), while, as it is noted from the descriptive statistics presented in the following Table 1 the family enterprises in tourism are more likely to reject the 4S model of tourism for Lesvos Island.

| Type of tourism enterprise     | Do you believe that the 4S model of tourism is the appropriate model for the tourism development in Lesvos Island? |           |            |           |
|--------------------------------|--|-----------|------------|-----------|
|                                | Completely   | Partly    | Not at all | Total     |
| Family tourism enterprise      | 17(22,4%)  | 34(44,7%) | 25(32,9%)  | 76(100%)  |
| Non- Family tourism enterprise | 4(14,3)  | 20(71,4%) | 4(14,3%)   | 28(100%)  |
| Total                          | 21(20,2%)  | 54(51,9%) | 29(27,9%)  | 104(100%) |

Table 1. Stakeholders' perceptions on the appropriateness of 4S tourism model for Lesvos Island

- b. To the perception about agri-tourism development in Lesvos Island (Chi-sq= 5,639, p=0,018). It is noted that the family enterprises are more likely than the non- family ones to perceive that agri-tourism is an appropriate alternative type of tourism that has to be developed in Lesvos Island. Cross-tab descriptive statistics are presented in the following Table:

| Type of tourism enterprise     | Agri-tourism has to be developed in Lesvos Island |           |           |
|--------------------------------|---|-----------|-----------|
|                                | Yes   | No        | Total     |
| Family tourism enterprise      | 47(61,8%)   | 29(38,2%) | 76(100%)  |
| Non- Family tourism enterprise | 10(35,7%)   | 18(64,3%) | 28(100%)  |
| Total                          | 57(54,8%)   | 47(45,2%) | 104(100%) |

Table 2. Stakeholders' perceptions on Agri-tourism for Lesvos Island

In addition, it is found that the entrepreneurs who have completed educational seminars in tourism, are more likely to prefer ecotourism (Ch-sq= 4,51, p=0,033), while they additionally are more likely (than the entrepreneurs who have not completed such seminars) to make investments with regards to the improvement of the human capital of their company (e.g. training), in order to improve the alternative tourism (4E model) in Lesvos Island (Chi-sq= 5,039, p=0,025). The relevant descriptive statistics are presented in the Table following:

| Entrepreneurs who have completed educational seminars in tourism | Ecotourism has to be developed in Lesvos Island |           |           | Investments in human capital |           |          |
|--|---|-----------|-----------|------------------------------|-----------|----------|
|  | Yes   | No        | Total     | Yes                          | No        | Total    |
| Yes  | 28(56%)   | 22(44%)   | 50(100%)  | 22(59,5%)                    | 15(40,5%) | 37(100%) |
| No   | 19(35,2%)                                       | 35(64,8%) | 54(100%)  | 8(30,8%)                     | 18(69,2%) | 26(100%) |
| Total  | 47(45,2%)                                       | 57(54,8%) | 104(100%) | 30(47,6%)                    | 33(52,4%) | 63(100%) |

Table 3. Stakeholders' perceptions on Ecotourism development and Investments in human capital for Lesvos Island

### 5.3 Factor analysis models for the perceived satisfaction of tourism entrepreneurs in Lesvos Island regarding both the basic and the tourist infrastructure at the island

Following, a multiple step process was conducted (including reliability and factor analysis) to identify the factors that are a part of the *Perceived satisfaction from both the basic and the tourist infrastructure at Lesvos Island*.

Regarding the basic infrastructure at the island, a 13-item scale of perceptual indicators was developed. A 5-point Likert scale of the level of satisfaction from the respondents regarding the tourist infrastructure in question was used taking the values: (1) extremely dissatisfied; ..., (5) extremely satisfied.

Reliability analysis of the 13-item scale was conducted. The scale had a Cronbach's alpha of 0.792. Following, exploratory Factor Analysis using principle component analysis with *varimax* rotation was performed on the 13-item scale to determine the latent structure of the set of variables. The Kaiser-Meyer-Okline (KMO) statistic was 0.590 indicating the validity of the Factor Analysis method applied. The solution considered 3 factors accounted for 49,8% of total cumulative variance. The resulted factors were labelled: (1) *Transport system, health and administration* (variance explained=23,6%); (2) *Financial and telecommunications infrastructure* (variance explained=13,7%) and (3) *Infrastructure for communication and quality of life* (variance explained=12,5%). Six items loaded on the *first* factor, with factor loadings ranging from .0352 to 0.828. Three items loaded on the *second* factor, with factor loading ranging from .0491 to 0.818. Finally, four items loaded on the *third* factor, with factor loadings ranging from -0,228 to 0,627. The perceptual indicators and their factor loadings are presented in the following Table:

Regarding the tourism infrastructure at the island, a 12-item scale of perceptual indicators was developed. A 5-point Likert scale of the level of satisfaction from the respondents regarding the tourist infrastructure in question was used taking the values: (1) extremely dissatisfied; ..., (5) extremely satisfied.

Reliability analysis of the 13-item scale was conducted. The scale had a Cronbach's alpha of 0.786. Following, exploratory Factor Analysis using principle component analysis with *varimax* rotation was performed on the 13-item scale to determine the latent structure of the set of variables. The Kaiser-Meyer-Olkin (KMO) statistic was 0.653 indicating the validity of the Factor Analysis method applied. The solution considered 3 factors accounted for 61,2% of total cumulative variance. The resulted factors were labelled: (1) *Accommodation* (variance explained=27,2%); (2) *Culture* (variance explained=19,5%) and (3) *Leisure* (variance explained=14,5%). Five items loaded on the *first* factor, with factor loadings ranging from .0581 to 0.783. Three items loaded on the *second* factor, with factor loadings ranging from .0534 to 0.864. Finally, four items loaded on the *third* factor, with factor loadings ranging from 0,444 to 0,790. The perceptual indicators and their factor loadings are presented in the following Table:

| Basic Infrastructure  | Factors  |  |   |
|-----------------------|--|--|---|
|                       | <i>Transport system, health and administration</i> | <i>Financial and telecommunications infrastructure</i> | <i>Infrastructure for communication and quality of life</i> |
| Airport               | ,828   | -,076  | ,031  |
| Port                  | ,760   | -,206  | ,364  |
| Road network          | ,671   | ,126   | -,326   |
| Health infrastructure | ,660   | ,214   | -,139   |
| Transport system      | ,571   | ,342   | ,152  |
| Administration        | ,352   | ,305   | ,314  |
| Banking               | ,104   | ,818   | -,035   |
| Telecommunications    | -,058  | ,684   | ,079  |
| Police                | ,394   | ,491   | ,464  |
| Fire station          | -,163  | ,212   | ,627  |
| Post office           | -,099  | -,078  | ,546  |
| Marines               | ,499   | -,174  | ,533  |
| Parking               | -,070  | -,054  | -,228   |

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

a Rotation converged in 6 iterations.

Table 4. Factor Analysis model of the entrepreneurs' satisfaction of basic infrastructure in Lesvos Island

| Tourism infrastructure                  | Factors              |                |                |
|---|----------------------|----------------|----------------|
|   | <i>Accommodation</i> | <i>Culture</i> | <i>Leisure</i> |
| Restaurants                             | ,783                 | ,098           | ,258           |
| Café/bars                               | ,772                 | ,269           | -,103          |
| Hotels                                  | ,720                 | -,164          | ,104           |
| Rooms for renting                       | ,689                 | -,178          | ,286           |
| Places for events                       | ,581                 | ,149           | ,393           |
| Cultural centers                        | ,018                 | ,864           | ,050           |
| Museums                                 | -,233                | ,794           | ,030           |
| Places for accommodation in monasteries | ,498                 | ,608           | ,028           |
| Travel agencies                         | ,526                 | ,534           | -,259          |
| Beaches                                 | -,037                | ,022           | ,790           |
| Conference centers                      | ,326                 | -,147          | ,721           |
| Sport places                            | ,198                 | ,351           | ,444           |

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

<sup>a</sup> Rotation converged in 6 iterations.

Table 5. Factor Analysis model of the entrepreneurs' satisfaction of tourist infrastructure in Lesvos Island

## 6. Conclusions – Policy proposals

Tourism constitutes important factor of regional development, especially in Greece (where tourism constitutes its heavy industry), with positive contribution in the country's economic development and social cohesion, while the Greek islands have enormous potential to develop specific tourism policies, based on their characteristics and comparative advantages. It is also common place that, on the basis of trade liberalization, there is a critical threshold in which the majority of economic and social activities are concentrated within some specific regions (which take the initiative to implement developmental policies and make investments) and they stay there, due to centripetal forces. Based on this approach, tourism activities could positively affect local or regional development (Lagos, 2001)

When discussing about sustainable tourism development in a region, this relates to the: local, social, economic, cultural and environmental structures of the region- by simultaneously shaping the appropriate services, infrastructure, know- how, for continuing

feedback (Kokkosis and Tsartas, 2001). This approach does not relate to mass tourism development, which is based on a 4S (sun, sand, sea, sex) model, or a “sun lust” model of tourism (it is noted that on such models is also based the tourism development in Greece and specifically in Lesvos Island). Based on this suggestion, sustainable tourism development seems to be related to the application of new tourism models, like the so called 4E model of tourism (Environment and clean nature, Educational tourism, culture and history, Event and mega event, Entertainment and fun). It is noted that, in order to move from a 4S to a 4E model of tourism, strategic planning and developmental policies for tourism, together to the appropriate investments are required, by taking into account the specific characteristics and the attractions of each region.

This paper considers the case of Lesvos Island in Greece. The attractions of the island that play an important role in its tourism development relate to the island’s History and culture; the Mediterranean climate; the many beaches and bays; the beautiful landscape; and offer the advantage of diversified tourism with many options.

A field survey was conducted aiming to define the tourism entrepreneurs’ perceptions about tourism development at the island and to investigate the extent to which the tourism entrepreneurs of the island are willing and able to take the initiative in implementing tourism development policies and investing in tourism projects. Data were collected from 104 tourism entrepreneurs at Lesvos island, during spring 2010. The data were firstly descriptively analysed, providing the sample characteristics of both enterprises and entrepreneurs. The descriptive findings suggest that the strategic plans for tourism in Lesvos Island: have to potentially combine mass and alternative tourism (4S and 4E models of tourism) in order to develop integrated tourism projects, based on the characteristics of the island, taking into account the principles of sustainability. It is also found that the development and application of new forms of tourism at the island has to focus mainly on medical (therapeutic tourism), cuisine/yachting, religion tourism, agri-tourism and ecotourism. Additionally, it was found that the entrepreneurs who have completed educational seminars in tourism are more “open” to sustainable tourism development in Lesvos Island and they are more likely to make investments to improve the 4E model of tourism, finding suggesting the necessity for the development of seminar courses in tourism for the entrepreneurs at the island.

Then, a Crosstab-based Statistical Method (based on Chi-sq. tests) was employed to identify statistically significant relationships between the characteristics of the enterprises or the characteristics of the entrepreneurs referring to their beliefs about the two models of tourism considered (4S and 4E tourism models). The analysis’ results suggested that tourism is of significant importance between all the social groups of entrepreneurs in tourism at Lesvos Island, who are all strongly concerned about the future of the tourism industry at Lesvos Island.

Following, a multiple step process was conducted (including reliability and Factor Analysis methods) to identify the factors that are a part of the Island’s tourism entrepreneurs’ perceived satisfaction from both **the basic and the tourist infrastructure at Lesvos Island**. The analysis suggested that, regarding the **basic infrastructure** at the island in question, tourism developmental policy at the island has to be based in improvement of the following systems:

- the transport system of the wider Aegean Island area (including improvements in infrastructure at ports, airports and marines, increase in travel frequency (by both sea and air), reduce travel cost to/from the island.), together to improvements of the health and the administration systems of the island
- the financial and telecommunications infrastructure system
- the communication system (mainly promotion /advertisement )

Regarding the **tourist infrastructure at Lesvos Island**, Factor Analysis indicated that tourism developmental policy has to be based in the emphasis of the following axes:

- Accommodation infrastructure
- Promotion of the Island's Culture
- Leisure activities

By concluding, it is common stated that tourism industry is the most important source of foreign exchange income for the island economies. Especially for the Greek islands, their main advantage is the tourism product, which includes the culture, the history, the environment and the geographical location of the islands. Especially Lesvos, the third largest in size Greek island, has enormous potential to develop integrated tourism projects, potentially based on the combination of mass and alternative tourism products. The proposed framework of tourism policy for Lesvos Island is able to contribute to the enrichment and differentiation of the characteristics of the offer of the tourism products, resulting in the improvement of the tourism market of the island and the increase of the role of tourism in the Aegean region's economic development. It is also noted that the cooperation between private and public organisations to promote the common drawing and implementing of tourism policies is necessary.

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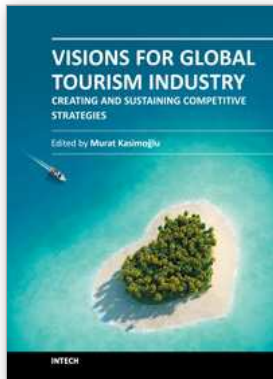
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