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SUSTAINABLE TOURISM DEVELOPMENT

A Case Study of **Lesbos**

Peter Nijkamp

Sabine Verdonkschot

Department of Regional Economics
Free University
De Boelelaan 1105
1081 HV Amsterdam
The Netherlands

Abstract

This paper deals with the notion of sustainable tourism development. It aims to emphasize the applied policy nature of this issue. After an exploratory part the paper exemplifies its arguments by focusing on the tourism development of the Greek island of Lesbos.

Various scenarios and development options are discussed and assessed by means of a qualitative impact analysis. Much attention is paid to the feasibility and effectiveness of various policy instruments for achieving sustainable tourism development.

1 Introduction

Over the past forty years tourism has become a major activity in our society and an increasingly important sector in terms of economic development. It forms a rising share in discretionary income and provides often new opportunities for upgrading local environments. Tourism is increasingly regarded as one of the development vehicles of a region, while it is an important growth sector in a country's economy. However, much empirical evidence has also shown the negative effects of tourism, in particular on the environment. Questions arise as to whether it is possible to keep on developing tourism in a certain area without negative or irreversible influences on the environment. A new concept that has begun to dominate the tourism debate in recent years is that of 'sustainable development'.

The idea of sustainable tourism development is now a popular concept and refers to allowing tourism growth while at the same time preventing degradation of the environment, as this may have important consequences for future quality of life. In this context, Buhalis and Fletcher (1992) quote Goodall who has suggested that sustainable tourism requires that "the demand of increasing numbers of tourists is satisfied in a manner which continues to attract them whilst meeting the needs of the host population with improved standards of living, yet safeguarding the destination environment and cultural heritage" (p.10).

This paper will focus on the concept of sustainable tourism development. Various sustainable tourism development options resulting in a mix of policy instruments which can be used as a tool for achieving sustainable (regional) tourist development will be assessed and evaluated. This framework will be applied to the Greek island of Lesbos. But first some general background observations will be made.

In a short period of time international tourist demand in Europe increased from 113 million arrivals in 1970 to 196 million in 1980 and to 275,5 million in 1990. It is forecasted that the growth of tourism will continue to rise, to about 340 million tourist arrivals in Europe in the year 2000.¹ This rapid increase of demand has created - and will create - several positive and negative impacts on the economy, society and environment of tourist countries and regions.

Tourism may have positive economic impacts on the balance of payment, on employment, on gross income and production. Also, tourism development may be seen as a main instrument for regional development, as it stimulates new economic activities (e.g., construction activities, retail shopping) in a certain area. Nevertheless, because of its complexity and connection with other economic activities, the direct impacts of tourism development on a national or regional economy are difficult to assess. Clearly, a careful assessment of the environmental impacts of tourism is very important, because tourists tend to be attracted to the more fragile environments, for example, small islands, centres of high historical and cultural value, and coastal zones.

¹ Source: World Tourist Organization (1991)

Tourist development thus poses special problems on environmental resources which are 'exploited' by tourism. The use of such environmental resources for tourism has two consequences. The quantity of available resources diminishes and this limits in turn a further increase of tourism. Besides, the quality of resources deteriorates, which has a negative influence on the tourist product.

Tourism and the environment are thus dependent on each other. The environment is one of the most important factors in the tourist product, as the quality of this product depends on the quality of the environment, which is the basis for attracting visitors and hence has to be conserved. Tourist development depends then on a proper handling of this close relationship between tourism and the environment. Therefore, it is necessary to examine the various environmental impacts of tourism. In general, the major environmental impacts of tourism are:

A. Permanent (sometimes irreversible) transformation of the environment. Valuable natural areas have to make space needed for the construction of accommodation, infrastructure and other tourist facilities.

B. Various kinds of pollution. Tourists tend to increase the amount of waste above a level than traditional treatment methods can cope with. Litter left behind in vulnerable places like coastal waters or dunes, and uncontrolled dumping of waste can have dangerous and/or negative effects on the environment, such as fire, smell, pollution of ground water and degradation of landscape. Another widespread problem in tourist places is water pollution, through the discharge of inadequately treated effluents. Especially coastal waters suffer from this kind of pollution, because most of the population and economic activities are concentrated near the coast. Air pollution in the case of tourism is especially caused by transportation and motor traffic. The issue of traffic congestion plays also an important role here. Risk for human health and deterioration of buildings with a high cultural value are some of the consequences. Noise disturbance is another factor, caused by airplanes, motor vehicles, mopeds and the industry. Also nightclubs and disco's in tourist places may be a source of noise annoyance.

C. Direct destruction of flora and fauna. Threats to many rare species, to biological diversity and to the equilibrium of natural reserves arise from different kinds of pollution, the incompatibility of various economic activities, and the lack of integrated policies. Uncontrolled horse-riding, recreational walks, wild camping and other kinds of open air recreation cause a lot of damage to vegetation and wildlife. The effects of these activities include an increase in soil density, erosion and habitat changes.

D. Use of water resources. During the tourist season an extra amount of drinking water is needed, but local supply is often limited. Ground water is used to supply drinking water, which leads to a lowering of the ground water table and hence to indirect ecological effects.

It is thus-obvious that tourism can and does affect valuable natural resources negatively. Large natural areas have already disappeared or have been severely damaged. It is difficult to control this development, because tourism is of major economic importance and is likely to continue to be so. However, it must be realized that a clean environment is essential for the development of the tourist sector. The above observation will now be illustrated for the case of the Greek island of Lesbos.

2 Tourism on Lesbos, Greece

Up to the early seventies Greek policy aimed at a rapid development of the Greater Athens Area. Later on the emphasis of policy makers shifted to the mainland of Greece with the construction of surface transportation networks, electricity and communication lines. At the end of the seventies the policy shifted more to a decentralization policy. By means of five year plans, policy has also aimed at the development of the backward regions of the country. Tourism development played an important role in these plans.

Tourism represents a major economic activity in Greece. In 1988 tourist revenues represent more than 7% of the Gross Domestic Product. Tourism creates also a large number of direct, indirect or induced jobs. In 1990 about 480,000 people were estimated to be employed in the tourist sector of Greece. The number of tourist arrivals in Greece has grown with about 420 % in the period 1971-1992.² This development is clearly reflected on many islands, e.g. on Lesbos.

The island of Lesbos is still one of the economically deprived and sensitive areas of Greece. The primary sector is the most important one of Lesbos' economy, because of the enormous olive oil and ouzo production.

While foreign tourism has existed on Lesbos since the 1960s, it has had over the past 10-15 years a significant impact on the island with the development of built holiday resorts and the expansion of facilities for tourism development. Because most of the tourists arrive on the island by air, the growth of tourist arrivals on the island can be assessed by the number of flights and passengers arriving at the airport over the past 15 years. Of particular importance for assessing the growth of tourist arrivals on Lesbos is the number of charter flights. In 1980, 17 charter flights arrived on Lesbos. This number has increased to 688 charter flights in 1993.³ On Lesbos, tourism is geographically a concentrated activity at a few places, which are main destinations for 'sun, sea and sand' holidays (in general, 'cheap and mass tourism').

² In absolute terms, this means a rise from 1,875,000 tourists in 1971 to 9,756,000 in 1992. Source: World Tourist Organization (1992)

³ Source: Civil Aviation Service, Yearly Statistics

The number of hotels has grown in the period 1975-1992 with 163,3%. Molyvos, the main tourist place, 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. In the past few years the upgrading of existing accommodation is noteworthy. The average utilization rate of accommodation is low for the island due to the short effective tourist season (June - September). Support services such as tourism agencies, tour guides, vehicle rent shops and souvenir shops are not yet very well developed on the island. Tourist facilities, like hospitals, banks, sports and transport (bus) facilities play a role as complementary services. Most of the support services have little experience and organization in order to handle and promote different types of tourism on a professional basis.

The attractions of the island will of course play an important role in future tourist arrivals. Its Mediterranean climate, its many beaches and bays, its beautiful landscape, and the size of the island offer the advantage of diversified tourism with many options. Other natural features of the island are the petrified trees, thermal springs, olive gardens and the variety of the landscape. Archaeological sites, folk and art museums, Byzantine castles and cathedrals, ancient theatres, and Roman aqueducts can be visited. 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, wood carving and pottery industries.

The road network of Lesbos is not yet fully developed and contains many secondary unpaved roads which would be insufficient to accommodate future tourist growth. The road system focuses upon the main places on the island. The physical geography of the mountainous area makes development of new roads expensive and difficult, although upgrading and maintenance of existing roads is of critical importance.

Furthermore, more ports are needed on Lesbos, dependent on the types of tourism. Building of ports at different places may improve the island's socio-economic situation, but requires costly infrastructure.

3 Environmental Problems on Lesbos

The most severe environmental impacts of tourism concern waste disposal and resulting pollution. The pollution of the gulfs of Kalloni and Ghera is widespread: the amount and quality of fish is decreasing and water is not usable anymore for drinking or irrigation. Waste disposal (solid and liquid) is also a problem on the island. No effective garbage treatment exists; rubbish is just dumped into the sea or along the roadside without any control. Also waste of materials caused by the production of energy, and discharge of waste from boats into the sea takes place. And hence the beaches on the island face several problems of pollution. Water shortage is also a problem on the island. Sewage facilities are poor and sewage is often directly dumped

into the sea and the rivers.

Scenery is increasingly affected by the construction of new hotels and apartments. Furthermore, an increase in the number of tourists on the island means that transportation improvements and accommodation facilities are required with negative visual impacts.

Seen from a future perspective, different kinds of development scenarios for the island of Lesbos can be envisaged. In general, three main global development alternatives can be distinguished:

1) A 'growth' strategy, which is stimulating the present growth trend of the economically profitable tourist sector, regardless of negative environmental consequences in the future.

2) A 'planning for decline' strategy, in which any growth of the tourist sector will be opposed and restricted. This alternative is aiming at the protection of the environmental, traditional and cultural resources.

3) A 'sustainable development' alternative, in which policy is supporting the tourist sector, because of its growth potential (as the other Greek islands have shown). However, the growth of tourist activities would have to be controlled, as protection of the environment is a main policy aim.

In our study we will mainly focus on the sustainable development option. Given the rising number of passengers arriving on Lesbos and the overall growth in European tourism (predicted to rise by 44 million tourists by the turn of the century⁴), it is essential that a sustainable tourism development plan for the island be accepted and designed. This plan should identify the areas that are suitable for economic growth without deterioration of the environment. In this context, it should be recognised that tourism on Lesbos consists predominantly of 'beach' (mass) type holidays. The consequence is that large numbers of tourists arrive on the island. In the short term this seems very attractive for the economy, but in the long term this may turn out to be environmentally negative. Furthermore, an economy which is only dependent on activities of the tourist sector, is vulnerable regarding external factors, such as tourist agencies, preferences of tourists, and international events (e.g., wars or political unrest). Replacement of traditional economic activities by tourist activities only may hence be risky. It is therefore important to develop a diversified base of tourist attractions. It seems to be wise policy that tourism development should not mainly aim at an increase of the number of tourists visiting the island, but rather at the increase of the benefits for the island, e.g. measured in tourist expenditures per day. This would mean that the island needs to have high quality tourist facilities to attract high income tourists.

Another risk avoiding strategy may be to extend the relatively short effective tourist season. This can be achieved by the

⁴ Source: World Tourist Organization (1991)

development of new tourism options which are not only associated with beach facilities and not only concentrated in the summer months.

Besides, types of tourism which can take place at a distance from the coastal zone may be developed. The hinterland villages may then benefit, and the pressure on the vulnerable coast will be lower.

Use (and improvement) of existing accommodations and facilities would have to be encouraged. In any case, prevention of exclusively economic dependency on (mass) tourist revenues seems to be an important policy orientation for sustainable development.

In the next section various options for sustainable tourism development on Lesbos will be described in more detail. These options are based on the typical attractions of Lesbos described above.

4 Sustainable Tourism Development Options for Lesbos

The previous section has demonstrated that it makes sense to focus in particular on the sustainable development alternative for the island. Therefore, in this paper various sustainable tourism development options will be identified, which support especially the latter alternative. The background is formed by the aim to diversify tourism with the development of the following options: exclusive tourism; agro-tourism; health tourism; adventure/sportstourism; seaturism; culturaltourism; winter tourism; educational tourism. These options will now concisely be discussed below.

A. Exclusive tourism

Exclusive or top-class tourism is aimed at the arrival of high income tourists. A limited, rather exclusive market, which will not require a further extension of the present built up area, is needed. Exclusive tourism should first be implemented in the main tourist places, which have most 'B' level hotels. These existing hotels may first be upgraded to a higher category, 'A' or 'first class', through the improvement and addition of more (luxury) facilities, better service provision and higher standards of cleanliness. These improved standards of quality should also be applied to restaurants and other supporting facilities.

B. Agro-tourism

Agro-tourism is a kind of tourism, which favours the economic activities in the agricultural sector at the same time. An important aim is stimulate these activities in relation to the agricultural potential, so that the economy of the island will not become solely dependent on tourist activities. Agro-tourism contains, for instance, the construction of tourist accommodations and facilities at farmers' places. Besides, tourists may watch the processing of farm products. Olive oil, ouzo production and leather industry are popular traditional activities to which agro-tourism may also be applied. Agro-tourism can be implemented on the whole island.

C. Bealth tourism

The island may also develop facilities for curative tourism. For example, thermal waters (which are characteristic for the island) are recommended for people with rheumatic problems, bronchitis, back aches, skin diseases etc. Bath facilities, accommodations around the spa's and access roads may then be improved or established.

D. Adventure/sports tourism

Lesbos is ideal for trekking thanks to its nature and culture. The National Tourist Organization has already established four different trekking routes on the whole island. An information guide with the different trails is also published by this organization. Such pathways need to be better cleaned, mapped, marked and developed. Another possibility is the organization of wildlife/discovery tours, so that organized tourist groups can make panoramic trips and see the countryside by walking, climbing and hiking. Other examples are bird watching, camping, horse-riding, cycling, golf or tennis. Proper facilities may be developed and constructed.

E. Sea tourism

Lesbos has a strong comparative advantage in sea tourism, because it has an abundance of surrounding waters. The sea lends itself to wind surfing, water-skiing, snorkling and sailing. Establishment of modern water sports facilities may be established at some tourist resorts. Avoidance of already saturated places would be better. For yachting, the construction of a modern marina would be a prerequisite.

F. Cultural tourism

Lesbos has a great variety of typical cultural, historic and natural attractions. By upgrading the level of and access to these attractions, the island will gain cultural prestige and may offer more interesting places to visit. The level of service and quality of museums might be improved. Organization of art exhibitions or other cultural manifestations may also be an interesting possibility. The typical traditional villages require also protection. The materials used and the design of buildings in such places may be based on local traditions. The exercise of cultural handicrafts might be encouraged.

G. Winter tourism

Winter tourism may be encouraged to realize a year round tourist product. This is also related to targeting winter migration to the island by offering facilities to elderly people. An easily attainable island in the winter months and the presence of qualified tourist services are a prerequisite. An advantage of winter tourism is the creation of jobs in winter time, so that seasonal unemployment is reduced.

H. Educational tourism

Tourism may also be developed on the basis of meetings, conferences, congresses or symposia. The construction of a congress centre would then offer a new opportunity. Extension of the university with more departments may make Lesbos more

important as a scientific centre. Organization of language or cultural courses may also be considered.

These various tourism options seem to be the most feasible ones and do not exclude each other. The development of a mix of different options is thus possible. In the next section we will further evaluate these options.

5 Evaluation of the Sustainable Tourism Development Options

An operational assessment of the socio-economic and environmental impacts of these options is fraught with some difficulties, because of lack of hard quantitative data and uncertainty. A methodology which can be used is a system's impact analysis, derived from the systems theory. One of the interpretations of the systems theory is Passet's environmental approach (see Passet, 1979). This approach distinguishes three subsystems: an economic, human (or social) and natural (or environmental) system. From the elements of these three subsystems feasible impact indicators may be derived. On the basis of these indicators a system's impact analysis on a qualitative basis can then be used to investigate the effects caused by decisions concerning different options for tourism development (see for an application Bithas and Nijkamp, 1995; Coccossis et al., 1991; Janssen et al., 1993). In the context of our paper, the main feasible impact indicators are:

Economic indicators

- * income tourist sector
- * income other sectors (agriculture, construction)
- * employment tourist sector
- * employment other sectors (agriculture, construction)

Social indicators

- * cultural identity

Environmental indicators

- * cultural attractions
- * restructuring of the environment and the landscape
- * different kinds of pollution
- * direct destruction of flora and fauna
- * use of water resources

Clearly, it is very complicated to present all possible effects and relationships of the above mentioned options, due to lack of information, especially quantitative data and models. The most obvious effects of the options can be presented in a so-called qualitative impact matrix.⁵ The above mentioned options A to H are presented in such a matrix, which is shown below as a kind of qualitative survey table (see Table 1).

⁵ A detailed analysis of the different effects of each option can be found in Verdonkschot (1994).

Table 1. Qualitative survey table with impacts

Alternatives	A	B	C	D	E	F	G	H
Economic criteria								
income tourist sector (tertiary sector)	+						+	
income distribution * agriculture (primary sector)	+	++			+			
* construction (secondary sector)	++	++	++	++	+	++		+
employment								
* tourist sector	+						+	
* agriculture		++						
* construction	++	++	++	++	+	++		+
Social criteria								
cultural identity		+			++			
Environmental criteria								
cultural attractions		+	+		++			
restructuring environment/landscape	--			-	++	+	+	
different kinds of pollution					+	-		
direct destruction flora/fauna					+			
use of water resources								

+ positive impact
- negative impact

For several options the precise impacts cannot be indicated, because of lack of quantitative information. If this is the case, the places are left empty. The + or - symbols can only row-wise meaningfully be interpreted. Thus such an impact matrix may in principle be used to rank the different alternatives, by comparing their scores on the criteria. The options may now be compared in terms of their impacts on each separate indicator. Clearly, those alternatives may be chosen, which offer in first instance promising options for future development of the tourist sector on Lesbos.

It is thus possible that more than one option will be feasible for future tourism on Lesbos, as there is not a single option which outranks all other options. Of course, those options should be chosen which have a high score on the indicators concerned.

However, it is conceivable that some key indicators are of more importance than others. The weighting of the three key indicators is dependent on the present policy framework. This implies that one has to consider also the regional policy objectives of the Greek government. In this context multi-criteria analysis may play an important role (see Nijkamp et al., 1991; Giaoutzi and Nijkamp, 1993).

The above table shows that most of the proposed tourism options are feasible for sustainable development of the island of Lesbos. A further comparison also shows that in particular options A, B, C, E and F offer favourable sustainability opportunities. Options D and G may then act as complementary strategies.

6 Environmental Policy Instruments

Is it possible to develop a mix of policy instruments, which can be used for achieving the selected tourism development options favouring sustainability on Lesbos?

In general, three different categories of environmental policy instruments may be distinguished: regulatory instruments, economic instruments and communication instruments.

Regulatory instruments

Regulatory instruments can be described as institutional measures aimed at directly influencing the environmental behaviour of polluters by regulating processes or products used, by abandoning or limiting the discharge of certain pollutants, and/or by restricting activities (see OECD, 1989). These instruments include systems of monitoring and sanctioning in case of non-compliance. The most common form of regulation is setting environmental quality standards. Other forms are licensing and zoning.

Economic instruments

These instruments impact via costs and benefits of alternative actions open to economic agents, with the effect of influencing decision-making and behaviour in such a way that alternatives will be chosen which are favourable to the environment (see OECD, 1989). A basic feature of economic instruments is that the price of goods and services should truly reflect the associated environmental costs.

Economic instruments can be subdivided into charges, subsidies, deposit-refund systems, market creation, and financial enforcement.

Charges have an incentive impact and a redistributive impact in that the government collects tax revenues and can use them for stimulating projects or for paying subsidies. It is important to consider carefully the level of the tax for achieving the desired effect (dependent on substitution and price elasticities). Furthermore, it is important to inform people about the purposes for which the revenues will be used, in order to ensure a minimum acceptance level.

Subsidies act as an incentive for polluters to alter their behaviour or are given to firms facing problems in complying with

environmental rules.

In deposit-refund systems a surcharge is put on the price of potentially polluting products. Pollution will be avoided by returning these products and the surcharge will be refunded.

Market creation takes place if actors can buy 'rights' for actual or potential pollution or can sell their 'pollution rights' on artificially created markets.

Financial enforcement can be used if non-compliance is a significant choice alternative for polluters.

Communication instruments

The third type of instruments in environmental policy-making is made up by instruments which internalize environmental awareness and responsibility into individual decision-making, by information provision. These instruments are often brought about directly or indirectly in negotiations.

In practice, various combinations of economic instruments, direct regulation and communication instruments are designed.

Tourism concerns many important activities in which environmental policy instruments have not played a major role in the past. However, it seems reasonable to develop a framework for the application of environmental policy instruments to the field of sustainable tourism development. Therefore, we will now identify and discuss the most appropriate instruments.

Regulatory instruments

Standards may be used for:

- * control of the number of tourist arrivals;
- * control of the number of beds per hectare;
- * guidelines to construct or rebuild buildings (maximum building heights, suitable architectural design standards);
- * protection of the quality of the environmental resources;
- * restrictions on land use;
- * contracts between tour operators, tourists, hotel owners etc.

Permits may be used for:

- * locational permits to construct or rebuild accommodations;
- * development of tourist resorts.

Regulation at the source may concern:

- * light vehicles and pleasure boats;
- * siting of roads, airport, and marina's.

Economic instruments

Charges can be used to cover some of the costs tourism imposes on the environment, by raising tourist prices. Charges can be imposed:

- * for controlling the number of tourist arrivals (e.g., a tourist tax may be included in the price of flights);
- * as user charges on the prices of several beach facilities (entrance, restaurants, shops, etc.);
- * for protection of the landscape.

Subsidies in the form of grants, soft and long-term loans, and tax facilities may be useful in the following forms:

- * investment subsidies for partial reconstruction and maintenance of existing buildings;
- * investment in proper systems of waste treatment, water provision systems, sewage systems, and the improvement and extension of the existing infrastructure;
- * investment in high density accommodation in vulnerable areas;
- * attractive investment conditions by providing, for example, tax reductions, low interest and amortization rates, for the development of special tourist attractions like a marina, recreation and sport facilities;
- * cleaning up of sites;
- * stimulation of typical local products;
- * research and development projects;
- * cultural events.

Deposit-refund systems may be used to reduce waste and keep the beach clean. This system can take place at different levels (e.g., municipality, hotel owners, tourists). The refunds should be high enough to encourage environmental-friendly behaviour, but not so high as to discourage tourism.

Financial enforcement is possible in the case of imposing a non-compliance fee on the owner, for instance, if the architecture of the new building is not compatible with the traditional style.

Communication instruments

Different policy incentives in terms of information can be used to make people (tourists, tour operators, hotel owners, and other people involved in the tourist industry) aware of environmental problems. Examples are advertisement and exhibitions abroad; information, maps and education of people (higher quality, better service); public awareness campaigns; participation of local population in policy programmes; development of software (information about different kinds of tourist activities at several resorts for tourists, and information about bookings in transport and hotels).

It is evident, that different policy instruments may differentiate between the various tourism options discussed above. For example, exclusive tourism can be introduced by charging the tourist products and facilities. The revenues can be used for investment in the upgrading of the tourist facilities. Also agro-tourism, health, sea and adventure/sports tourism can be encouraged by investments and subsidies. Cultural tourism can be developed by an increase of admission fees, so that special attractions can be upgraded and protected. For winter tourism it is only needed that the tourist facilities can be used for the whole year. All tourism forms need investments in the (re)construction of roads and the upgrading of public transport facilities.

7 Concluding Remarks

Environmental instruments should be designed to facilitate the integration of environmental policy with other policies, such as regional development policies. Removal and correction of administrative and governmental intervention failures are therefore of importance for a proper integration of environmental policy with sectoral policies. This may end up in a better synergy and co-ordination of tourist activities with other socio-economic activities.

A problem in achieving sustainable tourism development is the lack of experience, knowledge and financial resources, and the limited involvement of local authorities (see also Briassoulis and Van der Straaten, 1992). It is important that decisions, which influence life at the local level, will be taken at the lowest possible level of governance. Knowledge of the area involved and its problems increases local support in the development of a suitable action plan for sustainable tourism. The role of the local authorities should therefore be strengthened. This is particularly important, as environmental awareness is not yet highly developed in Greece. Education, information, promotion and training are therefore important measures in this context. Sustainable tourism is by no means a non-viable option. As this paper has argued: tourism development may certainly be compatible with environmental concerns.

References

Bithas, K. and P. Nijkamp, Sustainable Cultural Heritage Planning: A Case Study on Olympia, Research Paper, Free University, Amsterdam, 1995.

Briassoulis, H. and J. van der Straaten, Tourism and the Environment; Regional, Economic and Policy Issues, Kluwer Academic Publishers, Dordrecht, 1992.

Buhalis, D. and J. Fletcher, Environmental Impacts on Tourist Destinations: an Economic Analysis, University of the Aegean, Mytilini, October 1992.

Coccossis, H., H. Janssen, M. Kiers and P. Nijkamp, Tourism and Strategic Development, Research Memorandum, Free University, Amsterdam, 1991.

Giaoutzi, M. and P. Nijkamp, Decision Support Models for Regional Sustainable Development, Avebury, Aldershot, 1993.

Janssen, H., M. Kiers and P. Nijkamp, Private and Public Development Strategies for Sustainable Tourism Development of Island Economies, Research Memorandum 1993-68, Free University Amsterdam, December 1993.

Nijkamp, P., P. Rietveld and H. Voogd, Multicriteria Analysis in Physical Planning, Elsevier, Amsterdam, 1991.

OECD, Economic Instruments for Environmental Protection, Paris, 1989.

Passet, R., L'Economie et le Vivant, Payot, Paris, 1979.

Verdonkschot, S., Sustainable Tourism Development; a Case Study of Lesbos, MA. Thesis, Free University, Amsterdam, August 1994.