

Evaluating the tourism activity in a destination: the case of Samos Island

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ABSTRACT

The current consensus of Sustainable Tourism Development emphasizes the necessity for all tourist planning and policy making decisions to consider the impacts of tourism activity on all three dimensions of sustainability: *economic efficiency* referring to the capacity of an economy to be competitive, *social justice* aiming at the better distribution of produced welfare in the society and *environmental preservation* as the conservation of ecosystem's capacity to provide humans with goods and services essential for their survival.

A successful evaluation of the tourism activity presupposes the extensive examination of certain elements of the tourism product itself (expressed as characteristics of supply, demand and the organization of the tourist market), along a series of parameters related directly to the tourism products (effects), and indirectly to its implications for the destination (impacts). This paper presents a methodological framework for the integrated evaluation and monitoring of the tourism activity, in support of planners and policy makers towards both tourism and regional policy.

A case study on the island of Samos in Greece is employed to demonstrate the scope of the methodology based on real data, its potential value but also its limits. The results of the study indicate that tourism remains the main developmental force in the island for over two decades without unfortunately, succeeding to deviate from the rule of decreasing tendencies, of similar mass tourism destination.

1. INTRODUCTION

Tourism through the years appears to be the base of sustenance and development for the local societies of a great number of coastal and insular areas. To fully benefit from the potentials of this multi-dimensional phenomenon, reception communities and destinations should accrete their tourism development along with the context of Sustainability that encompasses in the most complete way the simultaneous development of economy, society and the environment (Hunter, 1997, Swarbrooke, 1999, Gortazar & Marin, 1999, Coccossis, 2001, Tosun, 2001, Bramwell, 2004, Ko, 2005). Integrated planning and the implementation of sustainability-oriented tourism policies are then required to support the developmental procedure and to mediate sustainable tourism development and the broader sustainable development of the destination.

This process can only be satisfied by the development of a tool assigned specifically to the continuous monitoring and the evaluation of the tourism activity, in terms of the effects and impacts it entails for the destination. As it is noted in many studies (Hunter 1997, Spilanis, 2000, Ko 2001,

Ko 2005, Spilanis *et al.*, 2009), an initial assessment of the state of tourism includes issues of supply, demand and organization of the tourism market. Sustainable tourism planning should emphasize on the impacts of tourism for the destination in terms of: *economic effectiveness* implying the capacity of the economy to be competitive and strong enough to avoid phenomena of mono-cultivation, which result in fragile economic systems; *social justice* aiming at the better distribution of produced welfare in the society and the provision of adequate employment and; *environmental conservation* as the preservation of ecosystem's capacity to provide humans with goods and services essential for their survival and the local quality of life.

The aim of the present study is to incorporate parameters providing information related to the tourism activity in a single framework that will facilitate the analysis of the state and the performance of tourism and will provide adequate insight to support sustainable planning and tourism policies. This framework will serve as a tool of monitoring and continuous assessment which is a prerequisite for any strategic planning and decision making that detects strengths to be exploited and weaknesses to be addressed.

The difficulty of well-functioning of such a tool, lies on the choice of the most appropriate indicators and variables and the collection of all relevant information (Eagles *et al.*, 2002). It has to be based on secondary data but also on primary research to businesses and tourists. The information needs to maintain its scientific integrity but on the same time be simple enough to assess and be utilized by the potential end users; the local stakeholders.

A thorough literature review reveals that the majority of suggested assessment frameworks focus mainly on the economic or lately on the environmental impacts related to the tourism activity (IUCN, 2001, Niemejer & de Groot, 2008, COM, 2009). Social impacts were usually neglected or not adequately included in the analysis along the other two categories (Haralambopoulos & Pizam, 1996, Hahn, 2000). Following the concept of Sustainable Development, that underlines the need to consider equally all economic, environmental and social parameters related to the impact assessment of a destination, the difference of the suggested framework lies in the integration of all three dimensions of the tourism product in a destination (De Ridder *et al.*, 2007).

Many scientists have justifiably argued that tourism is responsible for a great number of impacts for the host community trying to describe them qualitatively and at cases even quantitatively without insisting on causes and impacts (Rebollo & Baidal, 2003, Enright & Newton, 2004, Choia & Sirakayab, 2006). What most fail to describe though is the actual *effects* (direct results) of tourism that lead to the described *impacts* (indirect results) in a destination. This differentiation is considered necessary in order to give a clear 'footprint' of tourism in a destination and its further implications. In order to satisfy this need, the framework suggested in this study is comprised in the description of three distinct stages: the elements of the tourism activity, its effects and its impacts. In this way, it operates as a double – contemplating tool that on the one hand, satisfies the need for documentation of a sectorial (tourism) policy through the assessment of direct effects of tourism, and, on the second hand, supports spatial policy through the consideration of the indirect impacts (Lee & Kirkpatrick, 2001, Ko, 2005).

In order to demonstrate the feasibility and the potential of the framework, a case study is developed for the island of Samos in Greece. The specific island was chosen due to the interesting pattern of its tourism development over the last forty years. The current study is based mainly on a research conducted by the Laboratory for the Local & Insular Development of the University of the Aegean for the Prefecture of Samos during the period 2004-2006 (Spilanis *et al.*, 2007).

The paper first introduces briefly the methodological framework of the study, and the three main parameters that define the tourism activity in a destination: elements of the tourism activity, effects and impacts. The following sections will elaborate specifically each one of them for the island of Samos: starting from issues of supply, demand and market characteristics that define the tourism product in the destination, passing to its actual effects, and, closing with the impacts involved for the

economy, society and environment of the host community. The paper concludes with a series of observations on the tourist reality in Samos and a number of policy suggestions that mediate tourism development in line with the principles of sustainable development, but also with observations on the proposed tool.

2. METHODOLOGICAL FRAMEWORK

The first stage of the framework includes the recording of all elements that lead to the assessment of the tourism activity (Hunter, 1995, Hunter 1997, Sanchez *et al.*, 2006, Castellani & Sala, 2009, Spilanis *et al.*, 2009). This stage deals with the quantification of supply parameters of the tourism services, the thorough knowledge of the tourism infrastructure and superstructure, the tourism resources and the level of their exploitation, but also, the characteristics of demand such as the numbers of arrivals, nights spent, average trip duration, occupancy rate etc (Dritsakis & Athanasiadis, 2000, Haiyan & Li, 2008). Finally, it essays the interconnection of elements of supply and demand in a destination, giving the complete image of linkages between the productive units of the tourism sector and thus, describes the level of organization of the tourism market (Lumsdon, 1997). *Nights spent* consist the major unit of measurement of tourism productivity and therefore, the baseline for the evaluation of the effect and impact of the tourism activity that will follow (Vaughan *et al.*, 2000, WTO, 2000).

The second stage of the assessment framework deals with the actual evaluation of the effects of the tourism activity for the economy, the society and the environment in order to describe the footprint of the tourism activity for the destination at stake. For the purposes of this paper, *effects* refer to all the direct and acute results entailed for the tourism product itself and thus, they are of sectorial character. They are expressed as *tourist expenditure* and *employment, consumption of resources* and *production of wastes and effluents* respectively. The assessment approach of *total effects* and the *per night spent performance* of the tourism activity (e.g. expenditure in total and per night spent, water consumption in total and per night spent) consist the major step prior to the impact assessment of tourism in the development of the study area (Frechtling & Horvath, 1999).

More precisely, the economic effect of the tourists that visit the destination is recorded through their expenditures during their trip. The expenditure includes accommodation costs, alimentation, transportation, activities, etc. The total tourist expenditure fluctuates depending on the number of nights spent, the type of tourist per type of tourism product (based on the trip motivations patterns), the duration of the trip, etc (Page & Connell, 2006). The *expenditure per night spent* consist an important indicator in order to appreciate the economic effectiveness of the total tourism activity by effectuating comparisons in time and space but also the differences between different tourism products (i.e. 3S-sea, sand & sun tourism, cultural or natural tourism) and different types of organisation; *occupancy rate* and the *income per room* have the same importance for the tourist installations (Frechtling, 2006).

The creation of working positions is the major component of social effectiveness in the destination. *Employment* involves quantitative information regarding the number of employees, but also qualitative information such as level of education, gender, duration of employment, etc. The indicator (employment per night spent) depends on the type of the tourism products, the level of its composition-synthesis, the size of the installations/ activity, etc (McCool & Stankey, 2004).

On the last step of this stage, the tool focuses on the pressures that tourism entails for the environment of the destination. Tourism like any anthropogenic activity consumes space by alternating the landscape and the land uses, consumes environmental resources such as water and energy and, produces wastes of different forms (waste water, solid, gas, noise). These pressures of tourism are at the focal point of the effects assessment (Coccosis & Tsartas, 2001).

The final stage of the methodological tool presents an evaluation of the impacts of tourism on the way towards sustainable development of the destination. *Impacts* involve all the implications of tourism effects for the destination at stake, and thus, include all indirect effects of tourism related to its spatial dimension. In other words it evaluates the contribution of tourism in the capacity of the economy to be strong and competitive, in social justice expressed through the provision of employment and fair income distribution for the inhabitants, and also, in the environmental preservation as the conservation of ecosystem's capacity to provide the destination with goods and services essential for its survival and development (Haralambopoulos & Pizam, 1996, Costanza et al., 1997).

3. EVALUATION OF THE TOURISM PRODUCT OF SAMOS

The section that follows applies the tool developed for the evaluation of the tourism product in a real case study in the island of Samos, which is situated in the eastern part of Greece opposite to the Turkish coast. The prefecture consists of the islands of Samos (main tourism destination of the region), Icaria and Fourni. The population of the prefecture according to the last census of 2001 is 43595 habitants, accounting for only 0.4% of the population of Greece (but 1.4% of the hotel beds and 1.3% of the nights spent in the country), while at the same time holds the second highest position of natural movement decrease population in the country. The island of Samos, is the eighth in terms of size in Greece and amounts approximately 77.6% of the population of the prefecture.

3.1. *Elements of tourism in Samos*

3.1.1. *Tourism supply*

The quantity, variety and quality of the elements of tourism supply compose basic parameters that contribute to the success of the tourism product of a destination, and consequently influence its performance but also its impacts at the destination.

Samos is an island rich in natural and cultural resources. In the environment of the island one meets a multiple mosaic of ecosystem types, with endemic and rare species of fauna and flora that led to the creation of three extended zones of protection (Natura 2000 Network). The main cultivations of the island are olive trees and vineyards-producing the well-known Samian wine-which has marked the natural (terrace cultivation) and the built environment of this mountainous island. There are plenty of monuments of geological interests, as attests the museum of Natural History of the Aegean, hosting fossils of animals that lived in the area 8-10 millions of years ago. There is also a series of archaeological monuments of super-national range (Ireon, Tunnel of Eupalinos); it is also the native place of mathematician Pythagoras. Sandy beaches all around Samos complete the tourism supply of the island.

Samos has two ports connecting daily the island with Piraeus and North Greece and a third which is the gate to the Dodecanese. An airport connects the island by scheduled national flights mainly to Athens and to different European towns by charter flights (during the tourist season April-October). The marina in Pythagorion in the middle of the Aegean Sea, with a lacing capacity of 258 leisure boats, composes an important link in the marina network of the East Mediterranean.

The tourist supply of Samos can be summarized in the following points:

- The tourism sector is composed by approximately 9500 hotel beds and 5300 in secondary establishments-rooms to let. In practise this is translated into 31.1 beds/ km² and 0.44 beds/ inhabitant.
- The tourist accommodation establishments are small and of low categories (average 52.3 beds per unit, with only 15.2% of beds in 4 and 5 star hotels in 2007). Hotel establishments are almost double than secondary accommodation in the island.

- The tourism season lasts for 5.5-6 months, usually from Easter till the mid October.
- The only businesses involved in the tourism sector are the 'conventional' ones: bars, restaurants, gift shops, travel agencies, car rentals, etc.
- The tourist infrastructure confines in five museums, one marina and six conference centres (which do not operate properly, throughout the whole year).
- The prevailing tourism product follows the 3S model, which is massively organized for the foreigners and privately-based for the Greeks.
- The tourism products of special interest (trekking, hiking, natural and culture tourism) consist only a small part of the market, despite the rich and unique characteristics of the area.
- The tourism products are rather 'poor', since they are based exclusively on the basic tourism services due to the non-exploitation of the existing resources.
- Samos is not a tourism-saturated destination, besides maybe of few areas (Pythagorio, Kokari), which have a rather high tourism density.

3.1.2. Tourism demand

Samos in the 90's met a bulge in the international arrivals which reached the highest pick in the end of the decade (158602 arrivals in charter flights in 1999). However, the unfortunate decrease of even 30000 arrivals between 2001 and 2005, despite some fluctuations until today, denotes the significant fall of Samos as a destination of 3S tourism. The prevailing tourist nationalities are Germans and British (accounting for 43% of the total arrivals), followed by Dutch, Swedish and Danish. Greek tourists show a constant preference in the island, particularly during the last decade. As expected, air and marine transport (reaching 380000 arrivals in 2006) show extremely strong seasonality, with the tourism season of June-September to reach its highest pick between July and August.

The arrivals of the foreign tourists in the hotels of Samos met a constant and increasing rate till the end of the 90's, after which, they shows strong decreasing patterns. Despite the short recovery from 2005 onwards, the number of arrivals falls short on the ones of the previous decade, leading to the conclusion of a clear negative tension. Same pattern is observed for the arrivals of the Greek tourists, which reached their pick in 2004 and meet constant decreasing rates onwards. An interesting point is observed in reference to the number of nights spent by tourists in the installations which reached 1428000 in 2006. The average duration of the trip for Greek tourists in the summer tourism season ranges between 4.5 and 5.5 nights, when the same value for the foreign tourists is much higher reaching values between 7 and 8.5 nights. The occupancy in Samos hotels decreased especially after 2003, despite the decrease in hotel beds, from 84% in 1999 to 60% in 2006, in a tourism period that lasts practically 5 months (94.8% of nights spend for foreigner tourists and 84% of Greek tourists take place from May to September.

The Greek tourists that prefer Samos as a destination are mainly of medium-low income aging in the age group of 35 to 45; foreign tourists are of older age (46-60 years old) and higher income. The majority of the tourists of all nationalities visit the island for leisure, with the exception of a rather high percentage of Greeks who visit friends and family. The latest explains the high values of approximately 40% in the repetition of visits from the Greek tourists.

3.1.3. Organization of the tourism market

The organization of the tourism market describes the linkages between supply and demand, meaning between the productive services of tourism in Samos and the prospective consumers-tourists. In the tourism sector of Samos the crushing majority of businesses is small, family type with minimum information and adjusting capacities to the latest customer preferences and the updates in the tourism market, or the organization and operation of the units (e.g. quality control systems). Only few big businesses have the ability to play a determinative role, introducing information and innovation that

influences the procedures in all the phases of the productive process, aiming to maintain the competitiveness of the sector.

The main parameter influencing the organization of the tourism market is the level of dependence of the destination on Tour Operators (TOs). According to the research conducted in Samos, the dependence on Tour Operators is extremely high, since almost 80% of the foreign tourists of the sample declared to have booked their vacation through some kind of tourism agent, meaning that Samos is one of the Greek destinations with highest dependence on TOs. On the other side, more than 90% of Greek tourists, as expected, make their booking independently since only limited excursions are organized from interior tourism agencies towards the islands, opposing to what happens for the rest of Greece (sight-seeing tourism). High levels of dependence on TOs signify low sustainability for the tourism businesses and consequently for the local economy.

3.2. Effects of tourism in Samos

The effectiveness of tourism for the local economy is mainly defined by the values of tourist expenditure that describes the amount of money that come to the island as payback for the services supplied to the tourists. Among the tourists, foreign tourists appear to spend more per day than Greeks (94.63 against 80.79€). However, the daily expenditure of tourists travelling in organized groups is not directly comparable, since it includes the transport expenses (charter flight cost) that tourists paid in their country as part of the complete package. According to the bibliography, the ticket and the share of the TO and the agent that sells the package is not less than 30% of the price of the package. Consequently, the deductive average daily expenditure of the organized tourist is 68.42€. Based on data at national level the average daily expenditure of the Greek tourists ranges from 34.9 € in the secondary tourist installations to 62.4 € for the hotels (Pavlopoulos, 2007).

Meanwhile, research conducted among hotels in Samos, showed that higher values appear in the revenues per night spent and per room in the small size hotels (21-50 rooms). The research conducted in the year 2006 revealed that small 3 star hotels are the ones that reach best performances per night spent, because they receive more non-organized tourists. The economic results of tourism for hotels seem to be very low: within the last 10 years the results for Samos show a diminution of number of hotel beds by about 15%, which is something that is not usual for a Greek destination.

Effects of tourism on the development of the society deal with issues of employment. Census data for the permanent inhabitants shows that the HO.RE.CA. (Hotel, Restaurant, Café) branch occupies about 10% of active people and 16% of active women. Most of the employees are younger than 44 years old. Small family hotels are responsible for only 6.9% of the total employment rates of the sample tested, while medium category hotels are responsible for 43.4% of the total. More than half of the employees (54.7%) of the hotels are seasonal employees, the majority of which live permanently in the island (up to 85.3% for big hotels) and are Greek inhabitants (61.3% particularly in big hotels). Women predominate in all the classes and sizes of the installations, with female employment ranging from 60% in big hotels up to 70.4% in family units. Regarding the level of education of the employees, the great majority have a basic knowledge with only 15% to hold a higher diploma or a specialization in the tourism sector.

The environmental pressures resulting from tourists can not be neglected in relevance to those created by the permanent inhabitants of the island, since the number of population of the island increases almost by half during the tourist period, without including 2nd home's visitors. So, apart from the significant increases in water and energy consumption and the production of waste waters and solid wastes, tourism mainly breeds permanent changes in the land uses due to new constructions. The problem is intensified due to insufficient spatial planning legislation in Greece.

Part of the study conducted in Samos included the collection and processing of data insinuating the practices of hotels regarding the environment (water and energy resources and production of

solid and waste waters). Water is mainly supplied by the public water network (91.7%), while irrigation water is supplied also from the network (37.5%), 16.7% from wells and 12.5% from drills, without any control; practically there is not any reuse of the treated waters by the municipality's existing plant or by the hotels' treatment systems. Regarding energy consumption sources, the research pointed out a preference in the usage of the public power plant, while the next option is oil and the last is gas. A 41.7% from all the hotels have incorporated environmental friendly practices towards reduction of energy consumption.

The average value of daily solid wastes per night spent fluctuates depending on the size of the hotel. It turns out that while the difference is very small between big and family hotels with 7.2 and 6.7 lit per capita respectively, in small hotels the price falls to 3.2 lit and in medium size hotels it rises up to 11.9 lit/ capita. At this point, it is worth mentioning that the island of Samos does not host a recycling plant, a fact which was condemned by most hotel owners.

3.3. Tourism impacts in Samos

This section essays an evaluation of the impacts of tourism on the way towards sustainable development of the destination. It evaluates the contribution of tourism on the effectiveness and the structure of the local economy, the composition of the population and the social cohesion, but also, on the environmental preservation of the reception community.

Concerning the economic efficiency it appears that the evolution of Gross Domestic Product (GDP) in the Prefecture of Samos deviates from the national average: from 83.1 in 1999 it decreased to 69.3 in 2006. This trend coincides with the worst tourism tendencies, and thus, it would not be odd to consider a direct relationship between the two (unfortunately, many changes in the GDP evaluation way do not allow the analysis of longer time series).

The sector of hotels –restaurants enjoys the first place amounting for over 30% of all businesses, even though in terms of turnover it reaches third position behind the sectors of retail and wholesale trade, and only the 5th place concerning the number of employed people. Concerning the share of HO.RE.CA. in GDP it is in the second place with 14.5% behind the branch of Real Estate, Renting and Business Activities (19%).

Apart from the direct impacts resulting from tourist expenditure, indirect and derivative expenditures can also play an important role in the development of the destination. Indirect expenditures include investments on the tourist installations (e.g. construction and commerce which are two sectors with strong participation in employment and in GDP -10.5% and 11% in the 4th and the 3rd place, respectively), and any expense related to the provision of the tourism product (e.g. alimentation, beverages, water services, energy, etc). Once these expenditures are made in local businesses then the impact of tourism in the local economy is multiple to the initial tourism expenditure. In the case there is a significant leakage in other national or international businesses then the multiplier effect is respectively decreasing for the local economy and society (Mayer, 2008). The latest seems to be the case in the island of Samos, since according to the composition of the GDP, economy with both agriculture (4.3% of the GDP) and industry (3.7%) having minor importance is not directly productive but rather retailing.

From the total employment data for the years 1991-2001 two conclusions are extracted: an increase of approximately 12% in the total employment and a decrease in the employment of the primary and secondary sector and a shift towards the services. The primary sector (18%), the trade activities (12%), the construction branch (11%) and the public sector (10%) have the higher employment rate in the local economy.

Based on the information on economy and employment, it seems that, Samos depends greatly on tourism industry that is in a declining phase.

Regarding the population data, an increase of the real population by 3.8% it is observed from 1991 to 2001. The natural movement remains negative over the years, indicating a lack of births, when the aging indicator is high (22.9% of the population is over 65 years old against 17.7% which is the average of the country). This evidence implies that tourism sector despite its temporary stability during the last two decades, did not succeed to invert determinately the negative evolution of the demographic data created in Greece after World War II. Evidently, besides its importance tourism did not succeed to reverse the aging and decreasing demographic pattern of the island. The educational level (only 36% of the total population having completed the compulsory stages), ranges almost in the same levels of other insular areas of the country but also of the other Mediterranean countries with strong tourism activity, but remains much lower than the national average (43%). The supply of tourism employment locally seems to be an “obstacle” for further research.

Environmental conservation in the island of Samos is mainly jeopardized by issues of waste management and uncontrolled construction. The operation of the waste water treatment plants only in some of the destinations (Karlovasi, Pythagoreio, St. Konstantinos & Kokkari) leaves a great part of the permanent population and the tourist installations (all connected to the local waste network) unattended. The rest of the wastes are discharged in the sea posing a great burden to the marine and coastal environment of the area. The problem is important in the capital of the island and the surrounding tourism areas but hopefully, the problem will be faced with the completion of the waste water treatment plant and the networks.

Land-filling is also partially available in the East side of Samos. In August 2008, during the first year of its functioning, it counted double quantities than December of the same year, pointing out the pressures resulting from tourism and providing a solution for their treatment. The lack of appropriate land-filling facilities in the West part of the island, added to the bad organization of solid wastes collection and the lack of environmental consciousness of the citizens intensified the aesthetic problem created by garbage despite soil degradation due to the uncontrolled release.

Finally, the construction of installations related directly or indirectly to tourism (particularly uncontrolled construction along road networks, the disrespect for the local architectural elements in the new buildings) without any provision of environmental legislation (land coverage, measures of noise minimization and visual pollution, proximity to natural reserves) result to: the lack of protection of Natura 2000 areas, the degradation of biodiversity, which undermine one of the most substantial elements for the tourism activity, the landscape. Moreover, the reduction of forest area from fires destabilize the functions of the environment and its capacity to provide goods and services essential for the survival of humans (absorption of carbon dioxide, climate control, control of hydro-geological cycles, protection from erosion etc).

4. CONCLUSIONS

In general, it seems that tourism activity in Samos after a first period of development (till 1999) displayed intense symptoms of crisis regarding the number of tourists and its economic results. The major reason for that was the non-renewal of the tourism product which remains stuck in a preterit model of previous decades based on 3S, along with the high dependence of the destination on TOs, who practically decide the type of tourists, they will reach the destination. The degradation of the natural and man-made environment of the island, along with the non-exploitation of other sources of tourism attraction undermines further the quality of the tourism products. Samos needs to restructure its tourism product based on the standards of the new tourism era, to define the type of tourists it will be addressed to and to maintain a management plan that will target effectively while remaining them open to the new challenges that may arise.

The solution for the revival of the tourism activity in Samos lays in the consolidation of a tourism management plant and a Destination Management tool, constantly updated based on the modern

principles and targets of sustainable development in order to detect the weaknesses and to promote measures for their combating.

Successful tourism destination development can only be based on effective policy making and planning option that abide by the principles of Sustainable Development. The necessary prerequisite in support is a scientific tool that allows for the complete and multi-dimensional assessment of all elements of the tourism activity, its effects and its impact in a destination. The developed framework delineated the evaluation of the tourism activity in these three main stages. In this regard, it allows policy interventions in each stage separately.

For instance, the problem of low tourism development could be the insufficiency of tourism activities, specific or general infrastructure as transportation networks; so the policy has to focus on these topics. A problem in available water quantity in the destination maybe due to tourism consumption or other possible uses, such as agriculture and local population needs or just because of limited resources. Planners need also to know if the problem is that the daily water consumption by the tourism sector exceeds the acceptable limits, or if this is not the case the total amount of tourists' arrivals and the consumption in other water uses apart from tourism. Without information about the exact source of the problem, any policy that aims to the reduction of water consumption in the hotel will not be effective. Finally, problems of product quality could be raised by the lack of young qualified people due to the low attractiveness of the area rather than the bad organisation of tourism business.

The tool developed in this study, allows policy makers to detect and target the specific cause of a problem and thus, to respond by appropriate measures. Analysis of the effects of the tourism activity reveal issues of Tourism development and support mainly policies of sectorial character (tourism policy) with an active role of a destination manager. Analysis on the impacts of tourism within the destination can ask for a broader planning action involving more regional actors in favour of the host community well-being. These two applications of the tool, may be independent or better complement each other in the different stages of the policy making process.

This tool -in order to be effective- has to be based on data series and qualitative information concerning tourism businesses, local economy, demography and environment. In the case of Samos a lot of information was not available, so the tool application was not complete.

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