Profile of Sustainability in some Mediterranean tourism destinations

The evaluating framework of the tourism activity

Ioannis Spilanis, Assistant Professor, University of the Aegean

With the assistance of
Helen Vayanni, Environnementalist, Phd in Tourism Planning, Management and Policy
Kyriaki Glyptou, Environmental scientist, Phd candidate in Tourism Planning, Management and Policy

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List of acronyms

DPSIR	Driving force-Pressure-State-Impact-Response
DSR	Driving force-State-Response
EEA	European Environment Agency
EU	European Union
GDP	Gross domestic product
IISD	International Institute for Sustainable Development
OECD	Organisation for Economic Cooperation and Development
PSR	Pressure-State-Response
UNCSD	United Nations Commission for Social Development
UNEP	United Nations Environment Programme
WTO	World Tourism Organisation

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1. Introduction

The evaluation of the impact of tourism, as of any other economic activity, in an area (a country or a region or a destination) is a very important task and a prerequisite procedure for everyone who would like to undertake planning actions in order to achieve a better level of sustainability.

Usually international, national and local institutions and the experts when try to measure the tourism performance, they are referring first of all to the number of tourists in the area of interest in comparison with the previous years and the evolution observed in other, usually competitive, destinations. The economic performance of the activity is generally evaluated, using parameters as the tourism expenditure, and its impact to the different indices as the GDP, the investments, the acquired exchange, the imports, the taxes etc. At the same time, the social performance is considered as very important parameter: the direct employment and its qualitative characteristics (sex, age, qualification level, seasonality etc), as well as the indirect effects on the social structure and behaviour, are held as main issues.

During the recent years, the concept of sustainable tourism has created a major change in the way of estimating the tourism impact; not only the environmental performance of the activity and its impact to the host community has to be co-evaluated with the economic and social performance, but also a long term perspective and its impact to the hosting area have to be incorporated within the approach. In consequence, a lot of literature has been produced during the recent years from the academia, as well as from the different international organizations as WTO, UNEP, EU, etc, in order to examine in depth the applicability of the sustainable principles in tourism and to elaborate policy guidelines.

In this document, the emphasis is given firstly to present an operational approach to the notion of sustainable tourism in the context of sustainable development and secondly to the creation of a framework for the evaluation of tourism activity's performance as well as its impact to the host area, the Tourism Sustainability Assessment and Policy Approach. Thirdly it gives the guidelines about data and other information that has to be collected in order to create the sustainability profile of a destination (Annexes I-III).

2. The operational definition of sustainability for measuring the tourism performance and impact

The tourism development is not an end by itself for the destination. Its success should not only be examined by the number of tourists that visit the area - even if this is an important indicator - but by its impact to the development of the host region (i.e. the economic welfare of local population). The latter is based on the performance of the tourism activity; that means on the tourism expenditure and the employment generated in the area. According to the conventional economics, the tourism direct effects to GDP and total employment of the area, as of any other activity, are the basic indicators for the evaluation of area's development.

The emergence of the term "sustainable development" worldwide, as a framework for the assessment of the human welfare (that it ceases to be exclusively economic, but acquires social and environmental dimension), leads to two critical changes to the existing approach:

- Firstly, the assessment of the impact of any activity (the tourism in this case) cannot not be based only on the estimation of its impact to the area's economic development (economic efficiency), but also on its contribution to its social equity (diffusion of the development results in the different social groups - intergenerational equity) and to its environmental conservation.
- Secondly, the assessment refers not in the short term horizon (e.g. annual increase of the product and the employment), but also in the long-term prospect, since the conditions of development for the future generations needs to be ensured, mainly through the legacy of different quantities of manmade, human, natural and social capital (Turner et al., 1994; GHK, 2002).

But how can someone measure and valuate the tourism performance and link it with the areas' sustainable development? Figure 1 gives the framework that has to be analysed. This framework is based on an extended version of the DPSIR approach in order to include besides the environmental parameters, the economic and the social ones (OECD, 1993; Peirce, 1998).

The DPSIR framework

The OECD PSR (Pressure-State-Response) framework, adopted in the early 1990s, has been one reference point in the development of environmental indicators frameworks. The PSR model highlights the cause-effect relationships, and helps decision makers and the public to see the interconnections between human activities and the environment and to adopt relevant policies. It thus provides a means of selecting indicators and reporting on the state of the environment in a comprehensive way and of ensuring that nothing important has been overlooked. The PSR framework is based on a concept of functional causality and points to the linkages between the human activities and the environmental conditions; however these cannot be considered as a one-to-one, linear, relationship, as changes in the environment often results from a complex chain of interactions of pressures that are difficult to capture in a single system. The OECD PSR framework distinguishes three types of indicators: (i) indicators of environmental pressure describing pressures from human activities exerted on the environment including the quantity and quality of natural resources, (ii) indicators of environmental conditions (state) that relate pressures to the quality of the environmental components, and (iii) indicators of societal responses that are policy measures which show the extent to which society reacts to environmental changes and concerns, to improve the environment, mitigate degradation, preserve and conserve natural resources. The PSR model has the advantage of being one of the easiest frameworks to understand and use, and of being neutral in the sense that it just says which linkages exist, and not whether these have negative or positive impacts. This should however not obscure the view of more complex relationships in ecosystems, and in environment-economy and environment-social interactions.

The initial OECD PSR framework was modified and enriched by different Organisations depending on the purpose for which the PSR model was used. Examples of adjusted versions are the Driving force - State - Response (DSR) model formerly used by the UNCSD in its work on sustainable development indicators, the framework used for OECD sectoral environmental indicators and the Driving force-Pressure-State-Impact-Response (DPSIR) model introduced by the EEA in order to integrate explicitly the diverse Impacts provoked by the degradation of the State of the different components of the environment. Also the distinction between "Driving forces" and "Pressures", is important as it stress on the fact that different driving forces (agriculture, tourism, industry, transport, energy etc) exert a differentiate pressure on the environment.

The OECD PSR and the EEA/Eurostat DPSIR frameworks
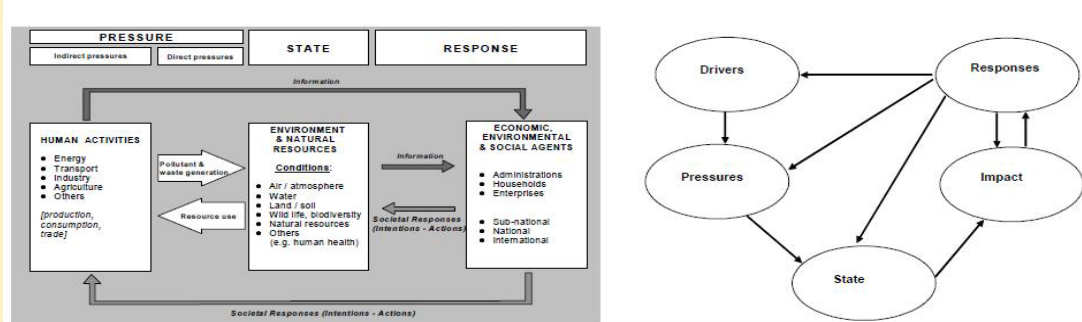
Within the proposed approach, for every activity presumed as a **Driving force** (the tourism in our case) someone has first of all to consider and measure its **Result** and **Performance** within the three pillars of sustainability. Secondly, the estimation should be focused on the **Impact** of tourism results in the Sustainability **State** of the destination. Finally, **Policy** measures can be adopted either to ameliorate tourism performance or its impact at the destination. Policy measures has to be oriented to address specific problems observed in a destination e.g. the low tourism expenditure, the high seasonality of the activity, the pressures on protected areas, the high water consumption etc. that can affect the sustainability state of the particular area[1].

Figure 1. The Tourism Sustainability Assessment and Policy Approach

Tourism as Driving Force	Tourism output	Tourism Result and Performance (Direct Effects)	Tourism Impact to Area's State of sustainability (Total effects)
Tourism Infrastructures General Infrastructures Tourism resources	Nights Spent	**Economy:** Tourism expenditure	GDP evolution Competitive sectors Degree of specialisation
		Society: Employment in tourism activities	Population evolution & structure Life expectancy Income distribution
		Environment: Energy consumption Water consumption Waste production Land use change	Water quantity Drinking water quality Sea water quality Land quality Biodiversity Air quality Landscape quality Urban quality

A more analytical presentation is needed.

At the first level, tourism has to be considered as one of the driving forces for economic, social and environmental changes affecting the state of the destination area[2]. The changes are depending on the intensity of the activity and on its performances. In the case of tourism the intensity can be measured by:

- the number, the type and the size of the tourist infrastructures (hotels, restaurants, spas, marinas, golf fields, conference centers etc) and the general ones (roads, ports, airports, energy production, telecommunications etc), constructed in order to satisfy tourism demand, that influences permanently the land uses of the area and creates temporary economic output and employment in the construction sector,
- the numbers of tourists visiting the area, measured by nights spend in the different type of accommodation.

Tourists in order to satisfy their needs:
- spend money for the purchase of goods and services such as accommodation, transport, recreation activities, commerce, banking and any other service that can be included in the tourism product,

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[1] This is the reason why there is no specific column dealing with Policy measures in Figure 1.

[2] Agriculture, manufacture and population needs are other main driving forces.

- "use" human resources that are supplying these services, so they provoke new jobs. These jobs have different characteristics related with the gender of the employees, the duration of the employment, the qualification needed, the employee's position in the enterprise etc,
- use natural resources (energy, water …) and produce different kind of wastes.

These are the direct effects that each tourist generates in an area. Of course, all tourists do not have the same needs and the same behaviour, so they do not produce the same effect per capita. The sum of these effects constitutes the overall **performance**, the **result** of the tourism activity that depends not only on the number of tourists but also on their daily behaviour. **The latter (per capita and per night spend performance) can be considered as the basic unit of measurement, facilitating spatial and temporal comparisons.**

On a second level, the economic, social and environmental direct effect (the overall result) of the economic activity has an impact to the host area:
- the total tourism expenditure constitutes a factor of changes in the local economy that can be measured by the GDP change, the demand for non tourist goods and services (indirect and induced demand), the emergence of new activities having direct or indirect relation with tourism as well as the extinction of existing ones, the diversification of private and public investment etc. These changes are affecting the economic efficiency of the area.
- the total direct tourism employment is also a factor for changes in the population structure of the area, as it can change the percentage of active and employed population, the percentage of female and young employment, the migration flows, the total income and the income distribution in the area etc affecting the social equity of the area3,
- finally, the pressure on the environment constitute a factor of changes in the environmental state of the area and more precisely its capacity to produce environmental goods and services to the population as provision of drinking water and sea food, absorption of wastes and UV radiation, pollination etc. The quality of sea water, the quantity and the quality of drinking water, the area's biodiversity, the quality of the soil, the atmosphere, the landscape, and the urban environment are the major issues for the evaluation of the environmental preservation of the region.

But how these changes can be evaluated in order to obtain good knowledge of the situation of different areas and to be able to improve their performance or, later on, to evaluate the efficiency of tourism policy measures and plans[4]? The higher level of sustainability in a region that implies simultaneously system's welfare is achieved through the combined improvement of the parameters determining it (economic, social, and environmental) and can be figured with a system of indifference curves (Figure 2), based on the Barometer of Sustainability (IISD, 1997; Sebastian & McArthur, 1998; Pinter et al., 2000).

The Barometer of Sustainability

The Barometer of Sustainability is a tool for combining human and ecosystem wellbeing visually in a chart of results, designed to provoke discussion and further analysis. It presents indices (compound indicators) visually, providing anyone - from villager to head of state - with an immediate picture of human and ecosystem wellbeing. It can display the main dimensions of each index to highlight the aspects of performance that need most attention. It can portray changes in the indices over time and compare the indices of different societies. The Barometer of Sustainability is the only performance scale that measures human and ecosystem wellbeing together without submerging one in the other. The Barometer's key features are:

Two axes, one for human wellbeing, the other for ecosystem wellbeing. This enables each set of indicators to be combined independently, keeping them separate to allow analysis of people-ecosystem interactions.

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[3] In this approach the changes in social structure and behaviour are not measured.

[4] This framework can be also used for assess the impact of a big project, such as a regional development plan

The axis with the lower score overrides the other axis in the analysis. This prevents a high score for human wellbeing from offsetting a low score for ecosystem wellbeing, or vice versa. This approach reflects the view that people and the ecosystem are equally important and that sustainable development must improve and maintain the wellbeing of both.

Each axis is divided into five bands. This allows users to define not just the end points of the scale - what is sustainable for them - but intermediate points as well, for greater clarity when using the scale.

The Barometer shows the scores of human wellbeing relative to ecosystem wellbeing on a graphic that immediately allows one to see the relative performance of different spatial units (such as countries) or how a single spatial unit (e.g. country or region) scores on different dimensions - such as land, water, air, resource use or biodiversity.

Mapping is another visual tool for showing sustainability. For each indicator and index - a map - showing performance can be generated. Maps allow user to see what parts of the system are doing well or poorly and where actions should be concentrated.

Barometer of Sustainability
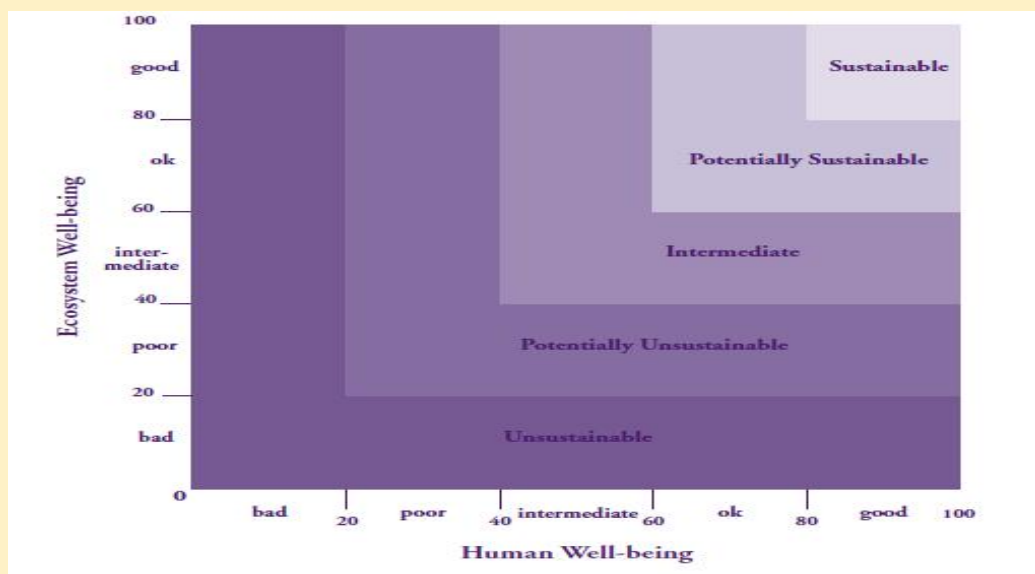
Source: IISD, 1997 as cited in Pinter et al., 2000, p. 3; Sebastian & Mc Arthur, 1998

From: Guijt, I. and Moiseev, A. (2001). Resource Kit for Sustainability Assessment, IUCN, Gland, Switzerland and Cambridge, UK. Part A x + 83 pp., Part B viii + 172 pp., Part C iv + 92 pp

In the beginning of the axes of the diagram Figure 2 (that expresses the three dimensions of sustainable development), the situation is characterized by low level of welfare and is considered as a non sustainable situation (since economic, social and environmental performances are low). Improvement is made as long as the region is removed from this point, by ameliorating its performances. When the improvement is focused exclusively on the economic performances (the movement is parallel to the horizontal axis), the region improves its economic sustainability, while it is also moving to a higher welfare level. Correspondingly, the improvement of the social performances, leads to higher level of social welfare[5]. Finally the amelioration of the environmental situation in a destination that can be the result of the activity's greening is recorded on the diagram as a parallel movement to the vertical axis. If the improvement concerns, in a certain degree, all three dimensions, then the level of welfare is higher and the movement (diagonal to the axes) leads the region to the sustainable development (from curve S1 to the curve Sn); on the diagram this evolution is represented by a shift from the beginning of the axes on the diagonal.

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[5] In order the figure and the various movements to be simpler the economic and social parameters are represented in the same axis.

Of course, the movement from one level to another is not a simple mechanistic process, but demands essential changes in the structure of the economic system and the development model, in general. The improvement of environmental performances may concern either the greening of economy, with the establishment of limits in the consumption of resources, and with the partial disconnection of production from the consumption of resources (movement from the very weak sustainability -VWS - to the weak sustainability - WS), or by leading the economy to higher levels of environmental performances through more radical interventions, aiming to the disconnection production / use of resources, the absolute reduction of consumption of resources, through the reduction of population and the scale of the economy (strong sustainability - SS - and very strong sustainability -VSS) (Turner et al., 1994). The same is valid for the improvements of the economic and social performances: they do not happen by the simple growth of the economy (increase of GDP), but by qualitative changes in the structures that lead e.g. to the production of goods and services with higher added value, with the exploitation of educated personnel, the use of technology, the incorporation of innovation etc.

In Figure 2, the environmental sustainability spectrum is presented by the horizontal dotted lines. Theoretically, a region (or a destination) can be found in high level of environmental sustainability (low use of resources and good state of the environment), but in low level of welfare and to be far from the sustainable development, having very low level of economic activity and/or high social inequalities. Furthermore, it can also be found in a low level of environmental sustainability and in high socio-economic level.

Figure 2 .Sustainable development and welfare.
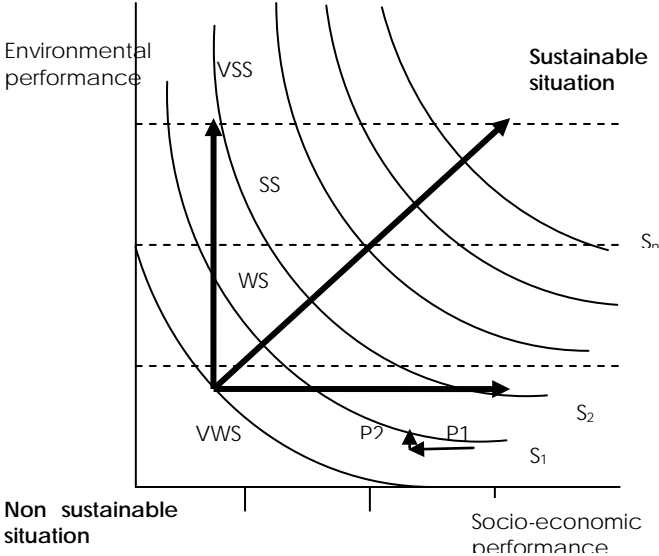
Legend
VSS: very strong sustainability
SS: strong sustainability
WS: weak sustainability
VWS: very weak sustainability

P1, P2: point 1, point 2
S1, S2…Sn: sustainability curve 1, sustainability curve 2… sustainability curve n.

The change of the situation, without change (improvement or deterioration) of the level of sustainability / welfare, implies the movement on the same curve. In this case, points 1 and 2 have the same sustainability level, since they are found in same curve S1. Point 1, compared to Point 2, represents a better socio-economic situation, but a worst environmental situation. When a region is found in P1 and seeks to move to P2, without changes in its welfare level, it will have to sacrifice a great part of its economic level, so that its environmental condition improves even a little bit. On the contrary, if a region is found in P2 and seeks to move to P1, this movement declares the environmental "units" (quantity) that will be sacrificed in order to improve the economic level of the region. In P2 the environmental condition is not good, whereas the economy is in a good level. For this reason, a further improvement in the economic condition should to be very high in order to sacrifice the already low level of environmental condition, since the environment stands great pressures. In order for a region to improve its sustainability level, it should move to a higher welfare curve, for example from S1 to S2.

Based on the above analysis, when tourism has low economic, social and environmental performances, it is not sustainable. "Sustainable tourism" is the tourism that with high economic, social and environmental performances, contributes in the higher possible welfare and long-term sustainability of a destination (the ultimate level of sustainability does not exist). Based on the international literature, it can be argued that mass, 3S tourism is not sustainable because the economic profits for the host region are low, while the negative social and environmental impacts are high (Briassoulis, 1995; Nijkamp & Verdonkschot, 1995). Any place in the system of axes - as a result of the effort to move away from the beginning of axes, either by the improvement of the 3S performance, or by its replacement by another tourist product that has better performance - is preferable, since it improves the existing situation, while it moves towards a more desirable situation.

The improvement of the mass tourism performances can be achieved through the application of environmental management systems in the hotels, that would lead to the reduction of consumption of water and energy, to the reduction of packing materials and to the recycling of solid wastes remaining (environmental dimension), through the education of local personnel and their exploitation to the tourist enterprises (social dimension), the elongation of the tourist period, the enrichment of the product with new activities, the use of the products from the local enterprises and the reinvestment of profits (economic dimension).

3. The feasibility

The first task is the choice of the destination that is going to be studied. It has to be an administrative area (it can be from a big commune up to a NUTS 3 coastal zone) without a metropolitan area as Barcelona, Casablanca or Alexandria, where (national and / or international) tourism is an already developed and significant activity. Once the study area is specified, then all the data has to refer to this area. A brief description of the area including its geographical features and its transport links is also needed, as well as a map with its boundaries.

The next step is to decide what kind of data and other information are necessary in order to assess the tourism activity and its impact to the destination.

On the first level there is a need to have a good knowledge of the supply and of demand of tourism services that are the **Driving Force** of changes in the area[6]. It concerns:

- tourism infrastructures as accommodation, marinas, conference centers, golf, restaurants etc . The capacity of the infrastructure (number of beds, number of mooring….) and the area occupied, as well as the category of the accommodation are necessary information to assess the type of tourism in an area,
- tourism resources, as the cultural and natural assets of the destination acting as its attractions,
- general infrastructure necessary for tourism activity as transport, energy, waste and sewage treatment network and its development due to tourism,
- tourist arrivals and nights-spent (per nationality -or at least distinguished in nationals and foreigners- and per type of accommodation) are necessary for the estimation of the intensity of the tourism activity, the duration of the season and the occupancy rate.

On the second level the **Result (Performance)** of the tourism activity has to be estimated. It concerns:

- the economic effect as represented by the tourism expenditure in the area (per nationality and type of tourist if available).
- the direct employment generate from tourist demand in the accommodation sector, in restaurants, bars, travel agencies, entertainment, car rentals and other activities.
- the environment pressure provoked by tourism distinguished in permanent (land use changes) and functional (consumption of natural resources as water and energy, production of wastes).

In order to make comparisons in time (creation of a monitoring system) the performance of tourism activity expressed in "per night-spent" level is necessary such as the per night-spent expenditure, consumption of water, creation of job etc.

On the third level the overall **Impact** of the tourism activity to the **Sustainability State** of the area has to be addressed. The question to be answered concerns how tourism activity has influenced the economic efficiency, the social equity and the environmental conservation of the area.

- Regarding the **efficiency of an area's economy**, it is necessary to record how effective and competitive the area's economy is today and to provide information about its perspectives.
- **Social justice/equity** records the diffusion of the benefits arising from economic growth to the overall society; it is depicted in the structure and evolution of the population and in social cohesion.
- **Environmental conservation** concerns the capacity of the natural capital to ensure the supply of environmental goods and services to a specific society and to preserve ecosystem functions, in an effort to increase quality of life. Here, both the built and cultural environments are also added to the natural environment, since they are not renewable resources and contribute to the quality of life as well, but they are also crucial components of the tourism product.

So, we have to answer if and in what extent tourism activity has influenced the evolution of GDP and the structure of the local economy[7], the population evolution and income distribution, as well as the availability of drinking water, the quality of soil, the biodiversity, the landscape and the other components of the environment. This is not always easy as the situation in an area is the result of all the local activities (including activities for the satisfaction of the needs of the local population), but also of national and global economic, technological, demographic and environmental evolutions.

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[6] More information about the parameters is given in the attached Research Protocol (Annex I) and the list of variables (Annex II).

[7] Very often tourism is "accused" that diminishes an area's traditional activities by creating a mono-activity situation that makes the local economy fragile and dependent from imports. Tourism is also considered as an activity with low added value, human capital intensity and low innovative.

In order to collect the three types of data, information on the following resources has to be collected: state's and local authorities' services, the tourist enterprises and finally the number of tourists. The collection of different existing data and other information from national and local authorities is the first task as it is going to give an appreciation of the supplementary work needed through field work and/or queries. Companies' performance has to be detected through a questionnaire in order to get information about the structure of their receipts and expenses, the seasonality, the characteristics of their employees, the resources consumed and the waste production[8]. Finally, the tourists' behaviour has to be researched through another questionnaire in order to get information about their expenditure, their way of travelling, their accommodation, the activities practised at the destination etc. Due to time and finance limitation these questionnaires can be substituted by information deriving from previous studies, national data, bibliography etc.

The analysis of these data has to help in understanding the main characteristics (profile) of each destination, where the sustainability problems are and to propose action options for improving the level of sustainability.

The final step of the study will be a common presentation and analysis of all the case studies in order to show off common characteristics and disparities between Mediterranean destinations. A SWOT Analysis can facilitate shaping guidelines necessary to ameliorate the sustainability of tourism. When finished, all these studies will permit to propose a Mediterranean Tourism Observatory.

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[8] In Annex III there are 2 questionnaires for tourists and tourism enterprises if the collection of primary data is attested to be necessary.

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Annexes

Annex I - Protocol for the Elaboration of the Profile of Sustainability in Mediterranean Tourism Destinations

According to the theoretical framework already analyzed, there are specific data needed for the analysis of the situation of the Mediterranean destinations, in order to describe their profile and their sustainability status. As the statistical data collection system is different in each country, a unique harmonized database is a very difficult task. There are different variables that are collected in each country, in different periods and in different administrative level. The parameters that have to be addressed and the variables considered as more representative are presented within this document and in the attached excel file as Annex II. As the list could be considered ambitious for some case-studies, a short list of variables is proposed, which are considered to be compulsory and marked as such. These compulsory data are considered as the <u>minimum information</u> needed for a sound comparative analysis within the proposed framework. Proxy variables are going to be proposed in order to use substitute information where regional or local information is missing. A RADAR scheme will be used in order to represent core data -constituting the base of a monitoring system- in an attractive way.

All the other quantitative and qualitative information is also useful for a better understanding of the sustainability situation of the different destinations and can help for the promotion of the Mediterranean image. When quantitative information does not exist national experts are encouraged to give qualitative information coming either from their experience or from other experts. In order to increase the comparability of this information, common rules of annotation are given: 0 stands for a very poor performance, 0,25 for a poor performance, 0,5 for a sufficient performance, 0,75 for a good performance, where 1 stands for outstanding performance.

A - Tourism as a Driving Force

Within this topic we need to collect data about the tourism supply and demand within every destination in order to record the characteristics and the "complexity" of tourism situations.

Number of accommodation beds
This is a very important variable which is necessary as analytical as it can be as it influences the results and the impact of tourism in the area. This means that, besides the total number of existing tourism beds (professional accommodation sector) we need the followings:
- Total number of hotel beds in the study area
  - Number of beds in Hotels with Over Standard rating (≥4 Stars).
  - Number of beds in Hotels with Standard rating or less (≤3 Stars).
- Number of beds in any other type of professional tourism accommodation in the study area (all ratings included). In this case we need you to define the type of installation, such as rooms to let, camping sites, villas etc

As an important part of tourism activity is coming from private houses (non professional accommodation), the estimation of the number of beds in residential (private) apartments and houses is necessary.

In order to have an idea of the destination's evolution, basic information about the last 30 years is welcome[9].

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[9] For all compulsory information time series would be very useful for the analysis of a destination. As this is unlikely to happen, efforts have to be concentrate in variables giving information concerning principally tourism demand and supply and the state of the destination (employment, population, GDP, etc), Time series for the last 30 years can be useful in order to have an indication about destination's life cycle. For annual data, information can be given for every 5 years.

Other tourism infrastructure

By tourism infrastructure we mean all the installations constructed in order to enrich the tourism product as Spas, Congress Centers, Marinas, Sport complexes, Golfs, etc. Their localization (on the map) and a brief description (capacity, operation period, facilities, existence of management quality scheme) are principal information for every installation (see Annex II).

Tourism (main) attractions

The main tourism attractions of a destination and the level of exploitation is an important information about the tourism supply and the potential of the destination. Information (localization included) about protected areas, museums, settlements, sport and cultural events, beaches, etc has to be provided in order to have a better understanding of the tourism product offered (see Annex II).

Other tourism activities

Bars, cafes, restaurants, tourism agencies, car rentals and other activities directly related to the tourism activity (based on TSA[10] definition) can be recorded (number of enterprises, employment) as they influence directly results and impacts. Furthermore, the numbers of enterprises organizing activities for trekking, riding, scuba diving, sailing etc. and generally activities that enrich and diversify the tourism product have to be recorded.

Tourism installations' land coverage

Since tourism is considered as responsible for urbanization, the area that the tourism installation covers is needed so as to see the pressure in the land by the tourism activity. It is divided in two different variables; the one that measures the coverage within the residential area as well as the urban sprawl, and the other that refers to the coverage outside the residential area. The former is influencing urban sustainability and the latter environmental components as it changes land uses.

This practically means that we need the area that all tourism installations cover within a city, town or village, compared to their area (in km^2) and the same percentage for the installations that are placed outside the settlements. Thus, finally for the percentage we will have a fraction of the areas covered such as $(km^2/km^2)*100$.

Nights spent

The total number of nights spend by nationality in an area within one year is the main output of the tourism activity.

In order to specify the seasonality of the destination we need the *nights spent per month*. However, this would be an enormous task if we had that variable in all nationalities. For that reason we chose to divide tourists in two big categories: country natives and foreigner tourists. For those two categories we need the variable of nights spent per month. But since the variable "*tourists' nationalities*" is a very important factor for each destination, we propose to examine the five more important nationalities in the destination. This means that once we have the data of all tourists that visit the destination, we choose the five nationalities that have the more nights spent.

Another important variable is the *nights spent per type and class of tourism accommodation*. The proposed variables are in the Annex II.

Arrivals

According to the nights spent there are also the variables for the arrivals. The necessary data needs to be collected by type of tourism accommodation and nationality as mentioned above. The proposed variables are in the Annex II.

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[10] Tourism Satellite Account

Trip duration
The *average duration of the trip* shows how many days each tourist spent at the destination. This is a variable that someone can find by primary data, such as questionnaires to the tourists or by secondary data, by dividing the nights spent to the arrivals and that is what is needed in our case. Two main categories in this variable are needed: the average duration of the natives' trip and of the foreigners. Thus, basically the variables are: nights spent by the country's natives/ arrivals of the country's natives and nights spent by the foreigner tourists/ arrivals of the foreigner tourists.

Tourism period duration
The *duration of the tourism period* is the number of months that the tourism installations operate. This is a kind of data that someone could find in secondary sources or if that is not possible through questionnaires to the tourism installations.

Occupancy rate
The *occupancy rate* shows the percentage of all rental units are occupied or rented at a given period (year). Information on a monthly basis is also useful. If the information exists only for a sub-category of accommodation as hotels, it has to be mentioned.

Tour Operators importance
The dependency of a destination on organized mass tourism is an important characteristic influencing economic, social and environmental results and impacts. However it is not always easy to measure or to estimate the tourist flux that TO are generating in an area (i.e. arrivals by charter flights?) in order to compare them to the total arrivals/ nights spent.

B - Tourism Socio-Economic and Environmental Results and Performance

Economy

Tourist expenditure
Although this information is very crucial, it is not always available on a local level. There is two ways to address this issue: (a) to use national or regional estimations; (b) to estimate local tourist expenditure by field work. Even if expenditure per day is a necessary information for temporal and spatial comparisons, the GDP created by the tourism activity is indispensable in order to weight tourism importance to the local economy.

Extra information about the composition of the tourism expenditure on food, entertainment, local transport, activities, purchases etc is also useful but not compulsory.

Society

Tourism Employment
The tourism employment is a basic result of the tourism activity; it is divided into direct and indirect (tourism business and tourism economy). Qualitative characteristics of tourism employment as employment by gender, by age and by educational level is also important, as well as the permanent residence of employees.

Environment

Water
The total *water consumption* in tourism is a very important information special within the Mediterranean region in order to check the contribution (%) of tourism to the total water consumption of the destination and in comparison with other activities as agriculture. For comparison reasons, this has to be expressed in liter/ capita/ day at least for the hotels. The *consumption of water* varies depending on the type and class of the accommodation installations. Thus,

it is very useful but not compulsory to know the amount of water that is spent in different tourism installations.

Energy

The data needed for the energy consumption are the same as those mentioned above for the water consumption. As it is difficult to have information from every enterprise related with tourism, it is useful to have at least information about energy consumption in hotels (total and per capita) in order to compare with international standards.

Solid wastes

The data needed about the solid wastes production from tourism activity and the difficulty to obtain them seems to be the same as those mentioned above for the water and energy consumption. Information about seasonal additional production of solid waste within the destination (or water and energy consumption) could be a solution.

In order to estimate the final pressure to the environment from the expected waste production, it is necessary to have information about recycling and waste final disposal in the area.

Waste water

The data about the waste water production are the same as those mentioned above for the solid waste production. It is correlateted to the water consumption and it creates environmental pressures if it is not properly treated and disposed.

Information about re-use of treated water for irrigation or for enrichment of aquifers is welcome.

Noise

The *noise* usually is produced by the bars and clubs in the destination, as well as it is a congestion problem. The problem is created when the noise is above the legitimate levels. This cannot be a compulsory variable but qualitative information can be provided by local experts if this problem is raised by local stakeholders or if there are indications about that.

Coast line artificialisation

The change in the coastline is provoked by the big constructions and the installation by the sea. By that way the coastline is converted by natural to artificial. In that case we need the artificial length of the coastline compared to the natural one. This information can be estimated by using GIS / Google Earth and / or Blue Plan information.

Land use changes

As tourism is an important factor of expanding urban areas it is necessary to know what kind of areas are "consumed" by tourism; natural and semi-natural lands are transformed into artificial areas. An equivalent result is coming out of general infrastructure as roads, airports, ports etc as different biotopes are parceled out. The change in the *land use* is not something that happens during a year or two. Many years are needed in order for those changes to be visible and measurable. Thus, we need a big period of time such as 30 years in order that comparisons can give significant results.

An important matter is the land uses in the coastline. Thus, the *coastal structures* are needed. The coastal zone is defined as the zone of 1km width.

C - Tourism Impact on Sustainability State of the destination area

Economy

This sub-section has to reply to the question how tourism influence economic performance of the area taking also into account the long term component

The *GDP* is a variable which is usually available on a certain administrative level[11]. Data about the GDP evolution of the last 30 years are useful for the analysis. The GDP should be expressed in millions of Euros. The indicator that will be used is the GDP per capita. For this indicator the total population of the study area is also needed.

As mentioned above the contribution of the tourism to the economy of the destination is an important factor. This is why the variable of *tourism GDP* is necessary. Here, we need the indicator of the tourism GDP/ the total GDP in the study area.

As at the sub-NUTS 3 level information on GDP does not exist, employment evolution is considered as a good proxy variable.

Weight of competitive economic branches

As competitive economic branches are defined as the ones which export, as well as, the ones that cover local needs which could be replaced by imports. For both categories stands that, when these economic activities are no longer competitive, they get reduced or they stop producing locally. This category includes the primary sector, mining and manufacture, as well as tourism and services to enterprises; the sectors of construction, energy and other services (commerce, banking, transport, administration, education, health care, personal services…) are placed among the non competitive economic activities. The importance of tourism within competitive economic branches is an indication of the "dynamism", the "dependence" and the economic "fragility" of the area.

Economic Leakages

It is generally accepted that economies which have relative low leakages are considered to be "developed", with the sense that the main part of the product being produced remains in the area. It refers to the part of GDP which leaks from an area as the revenue of "foreign" capital invested locally, as income/wages of persons/employees of non local residency, as imports of goods and services. The quantification of leakage (or the corresponding degree of coverage of needs/demands from the local production) through the estimation of the multiplying factor of imports, is a difficult task which requires the complete outline of each local economy. The use of this parameter, either it will be approached qualitatively, or it will be substituted by the "weight of competitive economic branches". Information on the proprietors of the companies and the localization (residence) of employees can complete the knowledge about primary leakages.

Society

In this sub-section we have to reply to the question about how tourism influence social equity of the area taking always into account the long term component

Employment

The employment is one of the basic variables for the society. Various categories are important; first of all, the employment *by the economic sector (primary, secondary and tertiary) and main economic branches* is considered as a compulsory information in order to estimate how tourism has influenced the local labor market.

Then there is the employment *by gender* and *by the educational level.* Although these are not marked as compulsory they are still important variables as they give information about future perspectives of the area. Correspondently there are the variables for the unemployment; by gender, longtime unemployment (more than one year), unemployment of young people and of course the total unemployment, which is considered as compulsory. The impact of tourism on these variables is useful to be estimated.

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[11] If the GDP is not available in a destination, employment data has to be used as a proxy variable.

The *total population* is a variable that is usually measured every 10 years by census. This is a very important variable for an area as it reflects its attractiveness and that is why it is considered as compulsory. Another compulsory variable is the *active population* which shows the population that is between 15 and 65 years old and its is in the labor market The *dependent population*, which is the people under 15 years old and those who are over 65 years old shows the structure of the age pyramid.

The dynamic of the society is reflected also by some other variables such as: the *natural movement*, which shows the number of births compared to the one of the deaths, the *migration* rate, which shows the number of people who leave the destination permanently per number of people who are newly established in the area and the *aging population*, which is the people over 65 years old, compared to the total population of the destination.

Wealth creation and distribution

A basic and compulsory variable that shows the wealth of local people in the destination is the *income per capita* and the *income distribution*. If this variable is not available then the percentage of people that live under the *poverty level* could replace the income distribution and give almost the same picture of the destination. The poverty level is under 60% of the mean income.

Other variables that are not basic are: (a) *life expectancy*, which shows that is the expected age that usually people live in the study area, (b) *level of education*, which shows the % of the population having a degree higher than "baccalaureate" and (c) early school leavers that estimate % of young people leaving school before they finish the basic education (9 years of school).

Environment

In this sub-section we try to reply to the question if tourism influence the production of environmental goods and services.

Biodiversity

The number of endangered species (both flora and fauna) according to the Red Book of IUCN reflects the *biodiversity* of the study area. Furthermore, there are a number of important habitats that are recorded in the EU Directive 92/43. If any of those habitats is degradated then this is something that needs to be evaluated.

Another indirect way to make approaches to the evolution of biodiversity is by the evolution of land uses as different uses have different biodiversity value.

Landscape

The quality of the *landscape* is something very difficult to determine. It is different in each destination, since it has to do with the traditional landscape of each region. When great changes take place (buildings, infrastructures, abandonment of former construction) then the landscape alters in a more or less irreversible way. Those changes are proposed to be evaluated by local experts as these changes are influencing the quality of tourism product. If landscape in an area is totally unspoiled experts have to give the highest score 1.

Water

The *water* is an important factor that we need to know. The first thing is the available *quantity* of water and it is compulsory. An index "the water exploitation index" is usually used. But if this information is not available we need a qualitative approach. An alternative indicator that shows lack of water is the desalination plans, import of water from other areas, interruption to water provision etc. So the percentage of the water that comes from not local resources can be used as an indicator.

Then the second thing is the *quality* of the drinking water. Thus, we need to know if the water is treated before it enters the network. If the tap water is not drinkable it is a good indicator of local problems even if in several countries this can indicate lack of appropriate infrastructure. The extent

of use of bottled water is an indication. The salinisation of aquifers is another indication of problems.

The *quality of the sea water* is important for the tourism destinations around the Mediterranean, since many tourists visit the area for swimming.

<u>*Soil*</u>
Soil erosion is a very common environmental threat around the Mediterranean Sea. Since the quality of the soil is not easy to evaluate directly, we will use the following weight factors for estimation:

Soil Use	Weight
Cultivations	1
Forests	0,8
Grassland for pasture	0,5
Urban areas	0,2
Rocky areas	0

In order to evaluate the soil quality we multiply the surface that each category from the above covers with the weight factor and divide it with the total surface of the study area.

Another indication for the quality of the soil in the study area is the soil surface under desertification process with if possible an indication of the fertility loss level.

<u>*Atmosphere*</u>
In order to give information of the quality of the air (mainly based on level of particulate matter, ozone and nitrogen oxides) and to evaluate the impact of tourism on that, is rather a difficult task. This goes beyond the purposes of this study. Thus, this parameter cannot be a compulsory variable but qualitative information provided by national experts if this problem is raised by local stakeholders and tourists.

<u>*Urban environment*</u>
Urban environment is an important feature for quality of life for both permanent inhabitants and tourists; but it is difficult to give an overall appreciation of the urban areas of the destination. The population density in combination with the town extent, the quality of atmosphere, the existence of green (or natural or semi-natural areas) and other public spaces[12] (as % of the total urban area), the quality of public transport, the extent of walkable areas, the existence of traffic congestion, the level of noise, the quality urban design and planning are some of the commonly used parameters. Experts have to appreciate the extent that tourism has modified the urban environment of the destination.

D - Policy measures

The "Policy measures" chapter has to be used from the local experts in a "free" way in order to describe existing policies (at national and local level) that have influenced the results and the impact of tourism in the destination; this means that policy is related to local particularities and it is supposed to address local problems of the tourism activity or of the destination as a whole. These policy measures can be economic, social and environmental measures:
- as incentives to attract local and international investments in the area; to encourage tourism enterprises for water and energy savings; to attract more tourists in order to ameliorate the occupancy rate, the dependency from TO etc; to promote the diversification of the tourism

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[12] The possibility to access to the sea front that is not totally artificialized and commercialized is important for coastal urban areas.

product; to ameliorate human skills; to encourage purchase of local products; to implement quality schemes (including environmental quality ones) in tourism enterprises etc.

- as legal measures to protect the environment generally or specifically within the studies area.
- as state and local investment or other sectoral policies in the area related to tourism and addressing already mentioned problems.

Most of this information is qualitative and descriptive, but some of the measures can be quantifiable. In order to have a common presentation of the text, it seems better to use the principal categorization of the proposed framework as it is described in the previous paragraphs:

- Firstly, policies addressing problems of tourism demand and supply
- secondly, policies related to socio-economic and environmental results and performances of tourism activity
- thirdly, policies related to the socio-economic and environmental state of the area.

In this paragraph, we will focus on policies that can be used for the improvement of the environment's state:

- The surface of the protected areas is measured in km2, the number of protected monuments and traditional settlements are also needed.
- The treatment of solid wastes is an important factor. One thing is the recycle and re-use of materials and another is the percentage of treated waste compared to the total quantity of produced wastes.
- The quality of sea water is recognized by the system of Blue Flags. So the number of Blue Flags in a destination reflects the quality of the swimming water. In countries where this system is not applied, we have to look about the existence of other (national?) monitoring systems.
- The eco-labeling system especially that of the tourism sector shows the intention of the tourism businessmen to act in order to improve the environment that is one basic attraction for the tourists that visit the destination.
- In the energy sector the environmental policies are reflected by the production of energy by the renewable sources. This is an indicator that will be used in comparison to the total energy that is produced in the destination.
- Finally, the existence of monitoring system, environmental information centers, nongovernmental organizations and spatial planning and management system is four factors that show the organization level of the study area.

As it is already marked in the excel file the compulsory variables are those that reflect the consumption of resources or production of wastes, the land uses and the change in the coastline, the quality of the sea water, the drinking water and the desertification. Moreover, all policy variables are considered compulsory. The rest of the variables are important but not compulsory.

E - Conclusion

Our priority is to collect all the available data from the secondary sources. The primary data will be used only in cases where there is not secondary data available. In this case questionnaires have to be used. One basic source of information is the tourists that visit the destination, for the data about their daily expenditure and so on. The other main source of information is the tourism enterprises. They can provide us with the data that have to do with the tourism period, the occupancy rate and so on.

In the Annex III tourist and business questionnaires are given, for the collection of these data, as an example.

Annex II – List of variables

See EXCEL file

Annex III - Questionnaires

<u>TOURIST QUESTIONNAIRE</u>

No of questionnaire: ....

| ☐ Airport | Flight | Date: |
| ☐ Port | Itinerary | Interviewer: |

1. Country of origin:

2. Do you travel with:

No of persons:

☐ Alone   ☐ Family

☐ Partner/ Spouse   ☐ Friends

☐ Colleague/ Collaborator   ☐ Other (define)

3. Aim/purpose of trip:

☐ Relax   ☐ Visiting friends/ relatives   ☐ Visiting churches/ monasteries

☐ Getting to know the area   ☐ Scuba diving   ☐ Congress

☐ Business   ☐ Trekking   ☐ Other (define)

4. Have you visited the area in the past?

☐ YES   If YES, how many times?

☐ NO

5. Means of transport by which you came?

☐ Airplane (regular flight)   ☐ Boat   ☐ Other (define)

☐ Airplane (charter flight)   ☐ Car/ coach

6a. In which town of the area did you stay?

6b. What sightseeing did you visit?

7. How many nights did you stay?

8. Accommodation type:

☐ Hotel   ☐ Class   ☐ House of friends/ relatives   ☐ Organised camping site

☐ Independent house (Villas/ houses)   ☐ Rented rooms/ apartments   ☐ Free camping site

☐ Personal country house   ☐ Other (define)

9. Type of reservation:

☐ Room only ☐ Half board ☐ All inclusive

☐ Bed & Breakfast ☐ Full board ☐ Other (define)

10. Means of local transport:

☐ Private car/ motorbike ☐ Rented bike ☐ Coach ☐ Other (define)

☐ Rented car ☐ Bus ☐ Taxi

11a. How much did you spend for the whole trip? (in €)

To how many people this money corresponds?

11b. Did you purchase a tourism package?

☐ If **YES** please ignore the right column	☐ If **NO** please ignore the left column
How much did you pay for the package (in €)?	How much did you pay for the following services
What did the package include:	(in €)?
☐ Tickets	Tickets:
☐ Residence	Residence:
☐ Food	Food:
☐ Transfer	Entertainment:
☐ Car/ motorbike rental	Local transport:
☐ Excursion	Activities:
How many extra money did you spend (in €)?	Other expenses/ purchases:

11c. Was the money you spend worth it (please note a number)?

1. ☐ Not at all 2. ☐ Not so much 3. ☐ Middle 4. ☐ Much 5. ☐ Absolutely

12a. You have learned about the area from:

☐ Friends/ Relatives ☐ Personal opinion ☐ Tourist guide/ book

☐ Article (☐ in a Newspaper ☐ in a Magazine) ☐ Advertisement (☐ TV ☐ Radio ☐ Press)

☐ Travel Agency ☐ Internet

☐ Tourism exhibition ☐ Other (define)

12b. Why did you choose this particular area for your trip?

☐ Never visited before ☐ Friends/ relatives ☐ Business

☐ Natural beauty ☐ Sightseeing ☐ Reasonable

☐ History/ culture ☐ Origin ☐ Other (define)

12c. Did you use the internet in order to: get information about the area? ☐ YES ☐ NO

to make a reservation? ☐ YES ☐ NO

13. Level of satisfaction received from:

(1: Very poor, 2: Poor, 3: Satisfactory, 4: Good, 5: Excellent)

	1	2	3	4	5	Comments
1. Accommodation						
2. Restaurants						
3. Nightlife – entertainment						
4. Taxis						
5. Buses						
6. Prices						
7. Museums/ archeological sites						
8. Cleanliness of public places						
9. Cleanliness of beaches/ sea						
10. Road network						
11. Airport/ Port						
12. Provided information						
13. Signs						
14. Local hospitality						
15. Safety						
16. Did the destination meet your expectations?						

14a. What has made a GOOD impression to you?

14b. What has made a BAD impression to you?

15a. Would you visit the area again?   ☐ YES   ☐ NO

15b. If NO, why?

16a. Would you propose the destination to your friends;   ☐ YES   ☐ NO

16b. If NO, why?

17. Tell us a few things about yourself:

17a. Sex: ☐ Male	☐ Female	17b. Age:

17c. Annual income (in €):

☐ <15.000

☐ 15.000 – 30.000

☐ 30.000 – 45.000

☐ 45.000 – 60.000

☐ >60.000

17d. Educational level:

☐ Basic education

☐ High school

☐ University/ College

☐ Master/ PhD

☐ Other (define)

17e. Marital status:

BUSINESS QUESTIONNAIRE

region:		No of questionnaire:	
interviewer:		date:	

A. BUSINESS CHARACTERISTICS

1. General characteristics:

Brand name:	
Name of interviewee:	
Address:	
Tel., Fax, E-Mail, Website:	

2a. Is the business owner permanent inhabitant of the region?   ☐ YES   ☐ NO

2b. Is the business manager permanent inhabitant of the region?   ☐ YES   ☐ NO

If your business is an accommodation/ lodging answer questions 3a1-3a2.

If you have any business other than an accommodation/ lodging answer question 3b1.

3a1. Kind and size of accommodation:

KIND	SIZE (NUMBER OF BEDS)
☐ HOTEL	
☐ ROOMS TO LET	
☐ RENTED APARTMENTS	
☐ VILLAS	
☐ TRADITIONAL LODGING	
☐ CAMPING SITE	
☐ OTHER (define)	

3a2. The lodging's characteristics:

a. it is	☐ in a town/ city/ village	☐ outside the town/ city/ village
b. the size of the building plot (in m^2):		
c. the land coverage of the building (in m^2):		
d. the total surface of the building (in m^2):		
e. category/ class:		

3b1. Kind and size of business:

KIND	SIZE
☐ TOURISM AGENCY	
☐ CAR RENTAL	(number of cars)
☐ BIKE RENTAL	(number of bikes)
☐ RESTAURANT	(number of tables and m²)
☐ BOAT RENTAL	(number of boats)
☐ BEACH SERVICES (PARASOLS, SEA SPORTS)	
☐ SOUVENIRS SHOP	
☐ CAFÉ-BAR	(number of tables and m²)
☐ GENERAL COMMERCIAL BUSINESS	
☐ OTHER (define)	

4a. Since when (how many years) does your business operate?

4b. What is the annual period of operation (in months, from – to)?

B. EMPLOYEES

1. How many people do you employ and for how many months during a year?

	NUMBER OF EMPLOYEES	WORKING MONTHS
PERMANENT (during the whole period that the business operate)		
SEASONAL		
CASUAL		
OTHER (define)		

2. How many of your employees are:

MEN		PERMANENT RESIDENTS OF THE DESTINATION	
WOMEN		PERMANENT RESIDENTS OF THE COUNTRY	
		MEMBERS OF THE BUSINESSMAN FAMILY	

3. What is the educational/ training level / of your employees?

EDUCATIONAL LEVEL	NUMBER OF EMPLOYEES
BASIC	
HIGH SCHOOL	
UNIVERSITY/ COLLEGE	
MASTER	
TRAINING LEVEL	
TECHNICAL HIGH SCHOOL (IN TOURISM BUSINESS)	
AFTER HIGH SCHOOL (PLUS 1-2-3 YEARS) (IN TOURISM BUSINESS)	
OTHER (define)	

4. How many of your employees had attended training seminars about their job?

C. ECONOMIC DATA

	20..	20..
1. What was your total income during the last two years?		

D. ENVIRONMENTAL DATA

1a. What are the water supplies in your business and for what use?

	Drinking	Garden	Swimming pool
Municipal water supply network			
Drilling			
Well			
Reuse of treated waste water			
Sea water			
Other (define)			

1b. What was your water consumption during the last year (in m³)?

2a. What are the energy resources/ fuels that you use in your business and what are their monetary value?

	YES/ NO	VALUE
Public network		
Oil (for heating)		
Liquid gas		
Other (define)		

2b. How much was the energy consumption in your business during the last year (in KWh)?

3. What are the systems that you use in your business for the energy saving?

	YES	NO
Solar system		
Low consumption lamps		
Energy cards in the hotel rooms		
Air condition sensors in the windows		
Natural shading		
Other (define)		

4a. What is the daily quantity of solid wastes that your business produces in the high season?

4b. Which of the following solid wastes do you recycle?

Glass   ☐ YES   ☐ NO

Paper   ☐ YES   ☐ NO

Aluminium   ☐ YES   ☐ NO

Packing paper   ☐ YES   ☐ NO

Batteries   ☐ YES   ☐ NO

Other (define)   ☐ YES   ☐ NO

5. Would you be interested in taking part in a volunteering certification system for the quality businesses?
     ☐ YES   ☐ NO

6. Notes: