Evaluation of tourism and islands' sustainability: methodology and tools. Lessons from ESPON and Blue Plan Programs[1]

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Tourism appears to be the base of sustenance and development for local societies of a great number of coastal and insular areas in the last decades. Yet, many researchers argue (e.g. Bramwell & Lane, 1993; Hunter, 1997; Swarbrooke, 1999; Gortazar & Marin, 1999; Tosun, 2001; Rebollo & Baidal, 2003; Mowforth & Munt, 2003; Bramwell, 2004; Farrell & Twining-Ward, 2004; Ko, 2005; Farrell & Twining-Ward, 2005) that in order to fully benefit from the potential of this multi-dimensional phenomenon, reception communities and destinations should accrete their tourism development along with the context of Sustainability that integrates economy, society and the environment. Integrated planning and the implementation of sustainability-oriented tourism policies are therefore required to support development processes (Xiao & Smith, 2007), to ensure sustainability of tourism activities, as well as the broader sustainable development of the host-destination (Miller & Twining-Ward, 2005; Farrell & Twining-Ward, 2005).

A number of studies (e.g. Hunter 1997; Ko 2001; Schianetz, Kavanagh & Lockington, 2007; Spilanis, Vayanni & Glyptou, 2009; Castellani & Sala, 2009) note that an initial assessment of the state of tourism includes issues of supply, demand and organization of the tourism market, that influence and relate directly to the footprint of tourism. Sustainable planning should then emphasize on the results of the activity per se, as well as those entailed for the host 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 fairer distribution in the society of the produced wealth and the provision of adequate employment and; environmental conservation, as the preservation of ecosystems' capacity to provide humans with goods and services is essential for their survival and for local quality of life (Costanza et al.1997; Ko 2005; Niemejer & de Groot, 2008).

The aim of the present article is to incorporate tourism-related parameters in a single framework in order to monitor the profile and assess the state and performance of tourism in a destination, and thus provide adequate insight to support sustainable planning and tourism policies. Its purpose is twofold: on one hand it provides a monitoring and continuous assessment tool of tourism activity, the prerequisite of effective tourism strategic planning and decision making; on the other hand, it serves as a guidance system of tourism destination management, since it allows the detection of existing strengths to be exploited and weaknesses to be addressed.

The majority of assessment frameworks used in the literature appear to focus mainly on the economic or lately on the environmental impacts related to the tourism activity (IUCN, 2001; Niemejer & de Groot, 2008; COM, 2009). The social dimension is usually not adequately recognized or included in the analysis along with the other two dimensions (Haralambopoulos & Pizam, 1996; Hahn, 2000; Mayer, 2008). Moreover, several studies

[1] The Blue Plan program was on "Profile of Sustainability in some Mediterranean Tourist Destinations" and the ESPON Program on "The Development of the Islands – European Islands and Cohesion Policy". The two programs were carried out by the Laboratory of Local and Island Development of the University of the Aegean (www.aegean.gr/lid) during 2009-2011.

justifiably argue that tourism is accountable for substantial consequences (e.g. impacts) on the host community. Researchers (Clarke, 1997; Rebollo & Baidal, 2003; Enright & Newton, 2004; Choia & Sirakayab, 2006) attempted to describe them mostly qualitatively and in only in some cases quantitatively, but however, without identifying and explaining how they are linked with tourism and what processes have brought them forward. These studies do not differentiate between the actual direct effects of tourism product that lead to overall impacts for the hosting destination. This differentiation is necessary to assess the footprint of tourism activity itself, which is different from that of the host destination. Yet, similar effects may provoke impacts of totally different size in host destinations of different characteristics (e.g. size, location, structure).

Following the concept of sustainability that underlines the need to consider equally economic, environmental and social dimensions, we introduce a new methodological integrative framework. This framework addresses the differentiation between cause and effects and their impacts, in a three-stage structure: (a) the tourism profile of the host destination (i.e., supply, demand and organization of the tourism market), (b) the direct effects (footprint) of tourism product, and, (c) the overall impacts of tourism in the host destination. Its main advantage is that it makes possible the tracing of the exact sequence of the cause-effect-impact drivers, while adjusting to the specificities of the local decision context (structural, political, cultural). Moreover, the framework can serve as a tool that can for each of the three stages monitor and evaluate policies: direct for the "physical" presence of the activity in the area, such as investment flows in the first stage; tourism-related sectoral planning policies at the second stage; and destination management and spatial regional policies through the consideration of the overall impacts for the destination at the third stage.

The proposed tool builds on the DPSIR (Driving Forces-Pressure-State-Impact-Response) approach (OECD, 1993; Peirce 1998), to determine the cause-effect-impact relations quantitatively between the different attributes[2] of tourism. The DPSIR framework is based on the operationalization of the concept of functional causality, which points to the linkages between human activities and their environmental implications and helps decision makers to understand their interconnections in order to adopt appropriate measures (EEA, 1999; Niemejer & de Groot, 2008). DPSIR is used in our context to incorporate economic and social dimensions and account for the specificities of the tourism sector. The structure of this new tool may allow the reporting on the state of sustainability in a comprehensive way (determination of cause-effect-impact inter-linkages), while ensuring that none important tourism-related parameter (attribute indicators) has been overlooked.

The greatest difficulty of such a tool, lies on the choice of the most appropriate variables and indicators and the successful integration of all related information (WCPA, 2002; Miller & Twining-Ward, 2005; Farrell & Twining-Ward, 2005; EUROSTAT, 2006). The assessment process can be based mainly on secondary data, but also on complementary primary research on businesses and tourists. Overall, the framework needs to maintain its scientific integrity, while being effective in terms of its capacity to assess tourism activity and, simple enough as to be easily applicable when utilized by potential end users: the local stakeholders.

Are there any additional parameters to take into account when the destination is an island? Insularity suggests that the particular characteristics of islands (small size, remoteness and isolation, rich but fragile environment) require specific attention, as the footprint of tourism on islands can provoke important and irrevocable changes in their economic, social and

[2] Henceforth, with the term attributes we imply all the elements of the tourism destination profile (i.e., supply, demand and organization), the direct effects of the tourism product and the overall impacts entailed for the host destination.

environmental equilibrium if their carrying capacity is not respected. The adaptation of the framework to islands is given special attention in the following sections.

I. The assessment framework for tourism

Assessing the impact of tourism in an area (country, region or destination) is a very important task and a prerequisite for taking measures in order to achieve a better level of sustainability of the area.

Usually, when international, national and local institutions and experts try to measure the performance of tourism, they refer first of all to the number of (international) tourists in the area in comparison with the previous years and in comparison with the equivalent changes in other, usually competing, destinations. The economic performance of the activity is generally assessed using parameters such as tourism expenditure, and its impacts on various indices, such as GDP, investments, foreign currency inflow, imports, tax revenue, etc. Social performance is also considered to be a very important parameter: direct employment created and its qualitative characteristics (sex, age, qualification level, seasonality), and the indirect effects on social structure and behaviour.

In recent years, the concept of "sustainable tourism" has significantly changed the way the impact of tourism is assessed: not only does the environmental performance of the activity and its impact on the host community have to be assessed alongside the economic and social performance, but there is also a need to incorporate a long-term perspective, particularly of the impact on the host area, within the approach. Consequently, a lot of literature has been produced in recent years by academics and by different international organizations such as UNWTO, UNEP, EU, etc, in order to provide in-depth analysis of the applicability of principles of sustainability in tourism and to elaborate policy guidelines.

In this section, the emphasis is placed on presenting an operational approach to the notion of sustainable tourism at first and then on drawing up a framework for assessing the performance of the tourism industry and its impact on the host area, for assessing the sustainability of tourism and developing policy approaches. Finally, guidelines on data and other information that has to be collected are provided in order to create the sustainability profile of a destination.

1. Operational definition of sustainability for measuring the performance and impact of tourism

The development of tourism is not an end in itself for any destination. Its success should not just be examined in terms of the number of (international) tourists that visit the area - even if this is an important indicator - but also in terms of its impact on the development of the host region (i.e. the economic welfare -prosperity of the local community). The latter is based on the performance of the tourism activity, i.e. tourist expenditure and the employment generated in the area. According to conventional economics, the direct and indirect effects of tourism on GDP and on total employment in an area are the basic indicators for assessing the development of this area (as with any other business activity).

The worldwide emergence of the term "sustainable development" as a framework for the assessment of human prosperity implies that an activity ceases to be exclusively economic, but acquires a social and environmental dimension and has led to two critical changes to conventional approaches:

- First, the assessment of the impact of any activity (tourism in our case) cannot be based only on estimating its impact on the economic development of the area (economic

efficiency), but also on its contribution to social equity (dissemination of the gains from development to different social groups, intra-generational equity) and to environmental conservation (maintenance of the functions of its ecosystem that are necessary for its ability to provide environmental goods and services – Costanza et al. 1997; TEEB, 2009).

- Second, the assessment refers not only to the short term (e.g. annual increase in income and employment), but also to the long term. The conditions of development for the needs of future generations need to be ensured (inter-generational equity), mainly through the legacy of different quantities of man-made, human, natural and social capital (Turner et al., 1994; GHK, 2002).

But how can the performance of tourism be measured and valuated and linked to the sustainable development of the area? Within the experimental methodological framework - based on an extended version of the DPSIR approach in order to include economic, social and environmental parameters (OECD, 1993; Peirce, 1998) -, for every activity taken to be a **driving force** (tourism in our case) the experts must first consider and measure the **results and performance** in terms of the three pillars of sustainability. Second, the assessment should focus on the **impacts** of tourism results in the studied area. Finally, **policy measures** can be adopted either to improve the performance of tourism or its impact on the destination. Policy measures have to target specific problems observed in a destination (e.g. lack or the inadequacy of tourism infrastructure, low levels of expenditure by tourists, high levels of seasonality, pressures on protected areas, high water consumption) that can affect the sustainability of an area (Figure 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

Source: Spilanis I, Vagianni L. Glyptou K, 2010)

(1) On an initial level, tourism has to be considered as one of the driving forces for economic, social and environmental changes that affect the state (and the sustainability) of the destination area[3]. The changes are dependent on the development pattern, the intensity of the activity and its performance. In the case of tourism, intensity can be measured by:

[3] Agriculture, manufacture, energy, transport and population needs are some of the other main driving forces.

- the number, type and size of the tourist infrastructure projects (hotels, restaurants, spas, marinas, golf courses, conference centres, etc.), projects for the development of the tourist attractions (i.e cultural and environmental assets) and the general infrastructure projects (roads, ports, airports, energy production, telecommunications) constructed in order to meet the demand generated by tourism. These infrastructure projects permanently influence land use in the area and create temporary economic output and employment in the construction sector;
- the number of domestic and international tourists visiting the area, measured by nights spent in the different types of accommodation.

In order to meet their needs, tourists:

- spend money purchasing goods and services such as accommodation, transport, recreational activities, retail, and any other service that can be considered a part of the tourism "product";
- "use" human resources that are required for the supply of these services, and in so doing, create new jobs. These jobs have various characteristics related to the gender of the employees, duration of the employment, level of qualification needed, employee's position in the enterprise, salary level, etc.
- consume natural resources (energy, water, land) and produce waste of various types.

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, and therefore do not produce the same per capita effect. The sum of these effects constitutes the overall performance, the so-called "result" of the tourism activity, which is dependent not only on the number of tourists but also on their daily behaviour. The "performance" (spending per capita and per night) can be considered as the basic unit of measurement that can facilitate comparison over time and between different geographical areas.

(2) On a second level, the direct economic, social and environmental effects of the economic activity also have an impact on the host area:

- The total expenditure by tourists constitutes a factor for change in the local economy that can be measured by the change in GDP, the demand for non-tourist goods and services (indirect and induced demand), the emergence of new activities with a direct or indirect relationship to tourism as well as the discontinuation of existing ones, the diversification of private and public investment, etc. These changes affect the economic efficiency of the area and the structure of the GDP.
- Total direct tourism employment is also a factor for change 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 income distribution in the area, all of which affects the social equity of the area[4].
- Finally, the pressure on the environment is a factor for change in the environmental state of the area, specifically in its capacity to produce environmental goods and services for the population (provision of drinking water, absorption of waste and UV radiation, pollination, etc). The major issues for assessing the environmental preservation of the region are quality of the seawater, quantity and quality of drinking water, biodiversity in the area, soil quality, air quality, landscape and urban environment.

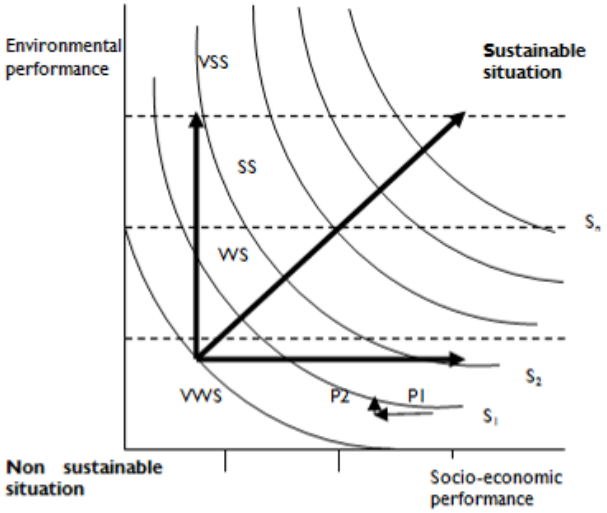
Even if the result of tourism is the same, the impact may be different between different destinations because the economic, social and environmental carrying capacity of the destinations differs. For instance, hotel capacity of 1,000 beds creating employment for 500

[4] Changes in social structures and behaviour are not measured in this approach.

people has bigger socio-economic impact in a small city of 5,000 people than in a town of 1 million. The same is true for a daily water consumption of 25,000 litres; the impact is higher in a small island than in a mainland area where rain is abundant and there are large water reserves.

But how these changes can be assessed in order to provide a good overview of the situation in different areas and improve their performance or, subsequently evaluate the efficiency of tourism policy measures and plans? Higher levels of sustainability and welfare in a region can be achieved through combined improvement of the sustainability parameters, as depicted with a system of indifference curves (figure 2), based on the "Barometer of Sustainability" (IISD, 1997; Sebastian & McArthur, 1998; Pinter et al., 2000).

Figure 1 - 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.

Figure 2 expresses the three dimensions of sustainable development. The lower levels of the axes are characterised by low levels of welfare and are considered as non-sustainable, since the economic, social and environmental performance is low. Improvement requires higher performance for the region. If this improvement focuses exclusively on economic performance (expressed by a parallel movement to the horizontal axis), the economic sustainability of the region is improved along with a movement towards a higher welfare level. Similarly, an improvement of the social performance leads to a higher level of social welfare[5]. Finally, an improvement of environmental conditions in a destination (e.g. as a result of a "greener" approach to the activity) is recorded on the diagram as a parallel movement to the vertical axis. If the improvement addresses all three dimensions to some extent, then the level of welfare is higher and the diagonal movement on both axes leads the region towards sustainable development (from curve S1 to the curve Sn).

Of course, moving from one level to another is not a simple mechanistic process, but demands essential changes in the structure of the socioeconomic system and the development model in general. Improving the environmental performance may involve either moving towards a "greener" economy, with limits established for the consumption of

[5] Economic and social parameters are represented on the same axis in order to simplify the chart and the various movements.

resources, and with a partial disconnection of production from resource consumption (shift from "very weak sustainability" -VWS- to "weak sustainability" -WS-), or more radical interventions to achieve higher levels of environmental performance through aiming to fully disconnect production and the use of resources, reducing resource consumption in absolute terms, and reducing the population and scale of the economy ("strong sustainability" -SS- and "very strong sustainability" -VSS-) (Turner et al., 1994). The same applies to improvements in the economic and social performance, which do not take place simply through economic growth as measured by GDP increase, but through qualitative changes in structures, leading to the production of goods and services with higher added value, using educated personnel and technology, incorporating innovation, etc.

In Figure 1, the environmental sustainability spectrum is depicted by the horizontal dotted lines. Theoretically, a tourist destination can have a high level of environmental sustainability (low use of resources and good environmental conditions) but a low level of welfare, and therefore be placed far from sustainable development, because of very low levels of economic activity and/or high social inequalities. Likewise low levels of environmental sustainability can coexist with high levels of socio-economic development.

A change of the situation, without any improvement or deterioration in the sustainability / welfare level, implies movement along the same curve. In this case, points P1 and P2 have the same sustainability level, since they are located along the same curve S1. Point P1, compared to Point P2, represents a better socio-economic but a worse environmental situation. If a region is at P1 and seeks to move to P2 without changes of its welfare level, it will have to "sacrifice" a significant part of its economic level to improve its environmental condition even marginally. On the contrary, if a region is at P2 and seeks to move to P1, this movement highlights the environmental "units" (quantity) that will be sacrificed in order to improve the economic level of the region. In P2 the environmental condition is poor, whereas the economy is strong. For this reason, any further improvement in economic condition would have to be very high in order to sacrifice the already low levels of environmental condition, since the environment is already under great pressure. 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 the economic, social and environmental performance of tourism is low, it can be deemed as not sustainable. "Sustainable tourism" is tourism with high economic, social and environmental performance that contributes to the highest possible welfare and long-term sustainability of a destination. There is no upper limit on sustainability. Based on international literature, it can be argued that mass-3S[6] tourism is not sustainable because the economic gains for the host region are low, while the negative social and environmental impacts are high (Briassoulis, 1995; Nijkamp & Verdonkschot, 1995). Any positive shift along the axes, either by improving the performance of the 3S model, or by replacing it with another better performing tourist product is preferable, since it improves the existing situation and represents a move towards a more desirable situation.

The performance of tourism can be improved by applying environmental management systems in activities related to tourism, mainly in the Hotels, Restaurants and Cafes (HORECA) sector, that would lead to reduced water and energy consumption, reductions in packaging materials and the recycling of the remaining solid waste (environmental dimension), by educating local personnel and employing them in tourist enterprises (social dimension), by extending the tourist period, expanding the product to include new activities, using locally-sourced products, and reinventing the profits (economic dimension).

[6] "3S tourism" is -tourism based on "Sun, Sea and Sand "; the tourists' motivation is mainly to relax and have fun, in resorts by the sea with a sunny climate.

2. Feasibility of measuring sustainability

The first task is to choose the destinations to be studied where domestic and/or international tourism is an already developed and significant activity. Delimiting the destination along administrative lines (anything from a large commune up to a NUTS 2 island in our case), is preferable, as it facilitates the compilation of data. A brief description of the area including its geographical features and its transport links has to be provided, as well as a map with the boundaries of the tourism zone.

The next step is to decide what kind of data and other information is necessary in order to assess tourism impacts on the destination.

First, good knowledge is required of the supply and demand of tourism services that are the **driving forces** of changes in the area. The driving forces include:

- Tourism infrastructures, such as accommodation, marinas, conference centres, golf courses, restaurants, etc. The capacity of the infrastructure (number of beds, number of moorings, etc.) and the area occupied, as well as the category of the accommodation are required to assess the type of tourism in an area,
- Tourism resources, such as the cultural and natural assets of the destination that constitute its attractions,
- General infrastructure necessary for tourism activity, such as transport, energy, waste and sewage treatment systems and developments these networks due to tourism,
- Number of tourist arrivals and nights spent (by nationality or at least distinguished into domestic and international tourists, and by accommodation type); this data is necessary in order to estimate the intensity of the tourism activity, the duration of the season and the occupancy rate.

Second, the **results (performance)** of the tourism activity have to be estimated. Results (and performance) include:

- The economic effects, as represented by the tourist expenditure in the area (by nationality and type of tourist, if available),
- The amount of direct employment generated by tourist demand in the accommodation sector, resorts, restaurants, bars, travel agencies, entertainment, car rentals, and other activities.
- The environmental pressure caused by tourism, both permanent pressure (e.g. land use changes) and operational pressure (e.g. water and energy consumption, waste production), related to the number of tourists and their behaviour but also to the characteristics of the facilities (e.g. category of hotel).

In order to make comparisons over time (monitoring system), the performance of tourism needs to be expressed "per overnight" (e.g. expenditure or water and energy consumption per overnight stay), but also "per bed" (e.g. job creation per bed).

Third, the overall **impact** of tourism on sustainability in the area has to be addressed. The question to be answered is how tourism activity has influenced economic efficiency, social equity and environmental conservation in the area.

- With regard to the **economic efficiency of an area**, the current effectiveness and competitiveness of the economy under the influence of tourism needs to be ascertained, and information needs to be provided about the future outlook.

- **Social justice/equity** concerns the dissemination of the benefits of economic growth due to tourism to the society in general; it can be derived by the structure and changes of its population and social cohesion.
- **Environmental conservation** is about the capacity of the natural capital to ensure the supply of environmental goods and services to a specific society and to preserve ecosystem functions under pressure from tourism, in an effort to increase quality of life. Here, both the built and cultural environments are included alongside the natural environment, since they are not renewable resources and also contribute to the quality of life, as well as being crucial components of the tourism product.

Thus, the question to be answered is whether and to what extent tourism activity has influenced GDP changes and the structure of the local economy[7], population changes and structure as well as income distribution, the availability of drinking water, soil quality, biodiversity, the landscape and the other components of the environment. This is not always easy, since the situation in any given area is the result of all local activities (including activities that meet the needs of the local community) but also of nationwide and worldwide economic, technological, demographic and environmental changes.

In order to collect the three types of data, information on the following resources has to be collected: services provided by national governments and local authorities, the tourist enterprises and finally the number of tourists. The first task is to collect existing data and other information from national and local authorities. This data then has to be analysed to help in understanding the main characteristics of each destination (profile), to identify the sustainability issues and to propose actions (policy measures) for improving the level of sustainability.

II. Adaptations needed for an island destination

In order to examine witch kind of adaptations are need for an island destination, we need to examine how the specificities of islands influence our approach.

1. The specificities of islands

Islands characteristics, such as small size, remoteness and isolation are not compatible with the attractiveness principles of the dominating development model.

The concept of insularity is the connecting link, the common characteristic of all islands regardless of their size, population and development level. Insularity expresses 'objective' and measurable characteristics, including small areal size, isolation, as well as unique natural and cultural environments. However, it also involves a distinctive 'experiential identity', which is a non-measurable quality expressing the various symbols that islands are connected to. More specifically, islands are spaces which are shaped by but also which shape the experiences of the people who live there, whether these are local inhabitants who have been there all their lives, returning islanders, visiting mainlanders, or retirees from other countries (see Lefevre 1991). Finally, within islands there is also a conceived or representational reality arising from their place in myth, folklore, literature, and history as places of escape, allure, paradise,

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

refuge, but also incarceration. Thus, islands can be thought of as objects '*of the mind*' as well as '*physical*' objects.

Overall, "insularity" is composed of four characteristics:

a. *Small Size*: More often than not, islands are small both in terms of areal size and population compared to mainland. Their small population results in a limited internal market and constrained local demand for commodities and services, as well as limited workforce. This, in its turn, limits scale and concentration economies. Concurrently, small size means that islands tend to have precious few -if any- land resources for extensive agriculture, whilst they also regularly lack key natural resources, including adequate water supplies, fossil fuels but also non-fuel minerals. In cases where raw materials may have been available earlier in history, these have now often been exhausted. The islands' small size has meant their environmental balance is regularly seriously endangered and this trait, in turn, makes environmental management a necessity.

In greater detail, the manner in which these characteristics negatively affect islands' attractiveness is described below:

- *a.1. The limited variety and quantity of natural resources* places constraints on the possibility of developing production activities, especially on a large scale. The scarcity of natural resources refers to a number of issues, including:

  (a) The distribution of land uses, as the lack of space creates land use conflicts (e.g., between agriculture and tourist activities and/or second houses);

  (b) The shortage of water, especially within the Mediterranean Basin, where chronic droughts combined with over-pumping of underground aquifers and wells have often resulted in severe – and in some instances irreversible degradation of resources. On many of the semi-arid islands of the Mediterranean, water shortages are further intensified given the proliferation of various highly unsustainable practices (e.g., golf courses) and also because most tourists arrive during the dry season (summer).

  Phenomena such as these can create adverse conditions for production, particularly within the primary, but also within the secondary sector.

- *a.2. Small market:* the existence of a small local (internal) market, dispersed over many tiny communities and isolated from neighboring markets, has meant the development of large-scale activities is rarely, if ever, viable. Moreover, because of globalization and wide-scale economic restructuring certain islands, which once had fairly dynamic sectors (e.g., shipbuilding – especially the construction of smaller vessels -, food processing, tanning, and textile manufacturing) have experienced severe marginalization as these activities have increasingly moved firstly to the European mainland and later on to low-cost regions and countries.

  In the past, when transportation systems –based mainly on marine transport– were less advanced and organized quite differently, islands actually composed vital nodal points within regional transportation networks. Trade between neighboring islands as well as between islands and nearby mainland territories was quite extensive. Unfortunately, today, markets have shifted towards mass and large-scale production and specialization within an increasingly liberated and competitive context. As a result, productivity on islands (especially smaller ones) is usually far lower compared to continental areas.

- *a.3. Limited natural, economic and social carrying capacity:* Island ecosystems are rarely able to support large-scale activities without experiencing severe adverse impacts on their

societal, ecological, and economic environments. In previous periods when transportation possibilities were limited, local populations often adopted survival and self-sufficiency strategies with a multitude of small-scale activities for the local market keeping equilibrium. Specialization and intensification in order to achieve productivity and competitiveness in the global market combined with a limited carrying capacity significantly enhances the islands' vulnerability, a vulnerability which historically has been an important handicap due to the islands' tendency to depend on a narrow range of exporting activities (e.g., fishing, shipping, extraction and, nowadays, increasingly tourism). Dependency on a monoculture, such as the one that has resulted from tourism on numerous islands, disrupts the economic or environmental balance of an area. Furthermore, such islands are exceedingly vulnerable to external factors, which can instantly lead to collapse of their narrow economy which relies on one dominant activity (e.g., the threat of war and terrorism to tourism).

b. Remoteness and isolation: These characteristics imply high installation and operating costs for companies, households and the state. These costs include:

- *b1. Time costs*: Almost all islands depend on public forms of transportation (e.g., ferry connections and air connections) and, as such, accessibility, to and from the islands, is constrained both by the frequency of connections but also the distance from European mainland areas and other islands. Links to metropolitan regions can often be extremely time-consuming and cumbersome. Additionally, on certain islands internal connections are poor, oftentimes because of their exceptionally rugged terrain. This means that in certain instances the only viable alternative for connections between two or more communities on the same island can be by sea, which again makes travel times long.

- *b2. Money costs*: All transported goods and services depend heavily on limited connections (both by sea and sometimes by air) normally dominated either by a single company or a narrow range of companies. The highly monopolistic or oligopolistic environment that characterizes transportation to and from the islands (and sometimes within islands) means that prices are often very high.

- *b3. Infrastructure and operation costs* of basic public services: Infrastructure and services have to be provided to each island separately, making them very expensive to install and operate. At the same time, the costs of providing administration services, education, health care, energy, internal transportation, communication, water supply, waste treatment, and so on can be exceedingly high on islands, especially when they lack sufficient population to make such services viable.

- *b4. Costs relating to the absence of choices*: On many islands the lack or shortage of adequate infrastructure and services combined with a small and fragmented market mean that inhabitants are burdened with additional expenses both in monetary but also temporal terms.

- *b5. Access to information costs*: Information -before the Internet era- used to have a very hierarchical pattern of diffusion. This meant that receiving all types of information on an island was difficult, not to mention it was subject to great delays and cost far more than in European mainland areas.

c. Special experiential identity: The particularities of insular space affect perceptions, behaviors and actions. As has already been mentioned, islands are 'objects of the mind' in addition to being physical objects and they are viewed in different ways by visitors – tourists and

mainlanders – compared to long-term local inhabitants. While for the visitor, islands can be places to 'escape' from everyday life and live 'utopias', local inhabitants may have highly different views. For instance, they will be more aware of the hardships related to island life and, in some instances, at least some of them (especially younger people) may long for escape themselves if the chance arises. The relationship of islanders with the sea as mean of communication with the "other" world (new ideas, new products, innovations), but also as a danger for the life of their relatives working on sea (sailors, fisherman), but also for their life (pirates), has influence their character. Also, previous violent fluctuations in economic prosperity and migration fluxes have marked islanders' way of decision making. Understanding the state of mind of local inhabitants concerning the islands they live on is of paramount importance given that the context of this study involves a detailed understanding of the factors that determine their degree of attractiveness (see discussion Annex IV).

d. Particular, rich and vulnerable natural and cultural environment: Because of their small size and their isolation many islands have witnessed the evolution of unique endemic species and, as a result, have valuable terrestrial and marine ecosystems. Additionally, numerous islands have a rich historic past, which is presently highlighted through monuments, settlements and landscapes; many of these have been classified as national, European, or even world cultural heritage sites. This unique natural and cultural capital has for the moment being used mostly for the development of tourism - and in the case of the majority of Mediterranean islands mass tourism -. Ironically, in a number of cases, efforts to preserve such cultural and natural amenities have been considered by some local stakeholders to be an obstacle to economic growth. Indeed, there exists an increasing tension on many islands between those who advocate the need to conserve these highly vulnerable resources and those who see these as the *only* realistic hope for generating economic well-being for the local inhabitants.

The aforementioned discussion has served to highlight some of the permanent physical and social features of islands in general and their disadvantaged state during the last decades within the global economic and social system that has, in turn, resulted in their economic, social, political and cultural marginalization. It is exceedingly obvious that the dominant development model, which sees the necessary ingredients of high population concentrations, specialization, large-scale production, and so on does not directly apply to most of the islands, especially the smaller and medium-sized ones. The extra costs, both direct and indirect, are also a permanent factor that burdens all actors of islands (companies, households and the public sector). Therefore, development options and policies, which are based on models of low production costs, cannot apply to most islands. Instead, other alternatives which rely of characteristics such as quality and diversification with the specific aim of targeting niche markets are far more preferable.

Having in mind the characteristics of insularity, we can support that activities on islands cannot:

a) enjoy the privilege of economies of scale as islands have limited variety and quantity of resources;

b) have good accessibility and low transport cost, as islands are isolated and remote areas;

c) profit from agglomeration externalities[8] as islands have limited population and activities.

The decrease of the strategic importance (economic, commercial, political) of islands during the 20th century resulted mainly from: (a) the change of production mode by the prevalence of the mass production and (b) the revolution in transportation system with the "revolution" in land (road and train) and air transportation that combined with the change in the size (and the technology) of ships, marginalised islands.

So, islands territories cannot be competitive "vis a vis" the mainland (and the worldwide economy) if they try to compete over the same products and services, as they have to face a lot of extra costs. Islands cannot be attractive places for economic activities and habitation for the same parameters as the mainland is (and especially urban areas), as they have different characteristics. For instance urban areas are characterised by big populations and good accessibility, islands are characterised by small size, remoteness and proximity to natural areas.

At the same time islands are costly areas for the public sector which has to provide infrastructure (e.g. ports) and services (e.g. transport, health, education, administration etc) even for a very small number of inhabitants.

On top of that, islands are generally characterised by low level of infrastructure and services offered to the enterprises and to the population. As part of the peripheral areas they are lagging behind the core areas concerning the Services of general economic interest as transport, communication, energy, research and development activities and other public services such as health care services, educational and lifelong learning services, water provision, etc. Consequently the attractiveness of the islands for enterprises becomes even lower.

Educated people (with university degrees) prefer large cities where the so-called knowledge economy is more developed; leading to lower employment and career opportunities for them out of the big cities, a fact that aggravates the capacity of the islands' economy for innovation, a necessary step for the establishment of a competitive economy. The inadequate level of Services of General Economic Interest, of cultural infrastructures, activities etc, encountered by islands are making worse the level of attractiveness.

Even if the natural characteristics of islands restrict the establishment of a competitive advantage associated with production costs[9], the situation is different with other factors related with the socio-economic lagging of most of the islands. **Islanders, as all citizens, have to benefit of an equal access to networks and a more efficient and sustainable use of infrastructure and services coupled with the broadest possible dissemination of knowledge and innovation capacity**. Therefore, in order to ameliorate all those parameters conditioning attractiveness, important efforts have to be considered, giving priority to the "softer" ones.

2. How islands' specificities affect the methodological approach

The first effect of insularity on the way we can apply the methodology has to do with the delimitation of the area, which in the case of islands is clear and therefore much easier to estimate the activity as a driving force: all related infrastructures can be accounted, along with the tourism arrivals, night spent and activities carried out by tourists.

[8] These are traditionally considered as the advantages of urban areas and include localisation economies, activity-complex economies and urbanisation economies (ESPON 2010, p. 33)

[9] Even if there is a generous policy to compensate the extra costs for islands, it will be extremely difficult to neutralize them.

The second effect has to do with the way that we can estimate the results of the tourism activity and its sustainability: direct results such as tourism expenditure, employment, resources production and waste consumption are inevitably occur on the island and therefore secondary data from local authorities and/or primary data from tourism enterprises of the island have to be collected.

The third effect has to do with the way we can estimate the impact of tourism activity to the destination's sustainability: there is a need to measure *economic efficiency, social justice and equity*, as well as *environmental conservation.* The approach is similar with that of mainland areas, but the interpretation of the results varies. For instance, economic leakages are often very important for islands as their productive basis is rather narrow; so indirect effects can be extremely low and the importance of tourism activity very high creating a kind of monoculture that can render the local economy fragile. Concerning employment and its impact to demographic trends, very often the level of qualification on islands is low and unemployed people tend to leave. Finally, environmental pressures affect the local natural capital and its possibility to produce ecosystem services as the lack of a "hinterland" does not allow the damping of additional pressure.

Conclusion

The main scope of the article is to provide a common framework of the outcomes of two projects that had as objective the first one (BLUE PLAN project) to measure the sustainability level of tourism activity and its impact to different destinations and the second one (ESPON project) to measure the sustainability situation of islands.

From the presentation of the framework on the evaluation of tourism activity it derives that the results of the activity have to be measured before attempting the evaluation of its impact to the destination. When the destination is an island the analysis framework has not to be changed, but in the evaluation of impacts, the specificities of islands have to be taken into account.