

Methodological work on measuring the sustainable development of tourism

Part 1: Technical report



EUROPEAN
COMMISSION



THEME
Industry,
trade
and services

Europe Direct is a service to help you find answers to your questions about the European Union

Freephone number (*):

00 800 6 7 8 9 10 11

(*) Certain mobile telephone operators do not allow access to 00 800 numbers or these calls may be billed.

A great deal of additional information on the European Union is available on the Internet.
It can be accessed through the Europa server (<http://europa.eu.int>).

Luxembourg: Office for Official Publications of the European Communities, 2006

ISBN 92-79-01680-6
ISSN 1725-0684

© European Communities, 2006

Preface

In May 2004, Eurostat commissioned Statistics Sweden to conduct a methodological study on the sustainable development of tourism.

The result is presented in this report and a manual for 20 core set indicators for sustainable tourism.

The report has been prepared by Ms Maj Eriksson, expert on tourism statistics, Ms Madeleine Nyman, expert on sustainable development indicators and Ms Ingegerd Fångström, senior advisor in the field of environmental tourism statistics and regional statistics.

Administrative support in supplying international contacts has been given by Mr Hans-Werner Schmidt, at Eurostat.

Special thanks to the consulted experts; Mr Peter Bosch, EEA, Mr Gabor Vereczi, WTO, Mr. Eugenio Yunis, WTO and Mrs Myriam Linster, OECD for their valuable input to this project.

We also like to thank the test countries Austria, Hungary, Spain, and the county of Jämtland in Sweden.

Stockholm, May 2005-05-30

Martin Lagerström
Head of the unit Travellers & Tourism
Statistics Sweden

Table of contents

<i>Preface</i>	3
<i>Table of contents</i>	4
<i>Introduction</i>	5
<i>Objectives</i>	5
<i>Sustainable Development and Tourism</i>	5
<i>Sustainable development</i>	5
<i>Sustainable tourism</i>	6
<i>Methods</i>	8
<i>Review of existing information</i>	8
<i>Interviews with experts</i>	8
<i>Questionnaires</i>	8
<i>Frameworks for presentations</i>	8
<i>Indicators: selection criteria</i>	9
<i>Results</i>	10
<i>Task Force</i>	11
<i>Interviews</i>	11
<i>First round</i>	11
<i>Second round</i>	12
<i>Core set presentation</i>	12
<i>Case Studies: Test results</i>	14
<i>Notes to some of the comments from the test countries</i>	15
<i>Recommendations and future work</i>	15
<i>References</i>	16
<i>Annex 1: Definitions</i>	17
<i>Annex 2: Questionnaire</i>	19
<i>Annex 3: Comments and examples of the tests</i>	21
<i>Examples of indicators by Austria</i>	22
<i>Annex 4: Indicators total list</i>	24

Introduction

The Community methodology on tourism statistics has been elaborated with the Member States' help, following Council Decision 90/655/CEE and was published in 1998 in the 11 official languages of the European Union. The decision outlines the basic methodology for the supply and demand sides of tourism, for the tourism market segments (rural and regional tourism, cultural tourism) as well as for the statistics related to the impact of tourism on different fields (tourism expenditure, balance of payments, tourism and employment and others).

The environment is a factor that is increasingly influencing tourist demand. As the demand for tourist products is partly determined by the quality of the related environment, it can have either a positive or a negative influence on the tourism. In the same way, tourism may have a positive or a negative impact on the environment. A positive impact on the environment is for example better economical possibilities to maintain/restore cultural buildings and to protect the nature. Negative impact on the environment is for example air emissions from passenger transport.

Objectives

The objective of this project is, based on the methodological work carried out in the field of tourism and environmental research, to put together a methodological manual for the measurement of the sustainable development of tourism and to test a selected number of indicators described in the manual.

The results of the study provide recommendations on how to compile statistics on tourism sustainability and concentrate specifically on the definition of sustainable development in the terms of tourism statistics. Both the positive and negative impacts of tourism in this field are considered. Quality of life, long term availability and quality of resources (e.g. water, land, air), human activities and natural events that affect the environment, the impact of those activities and other connected aspects are considered in the manual. From the range of possible indicators already existing in this field, a core set of indicators has been chosen as a first action for the EU countries.

The set should also serve as a base for the forthcoming updated legal basis for tourism statistics.

Sustainable Development and Tourism

The selection of a core set of indicators for sustainable development of tourism necessarily depends on the understanding of the two concepts: sustainable development and sustainable tourism. Various ways to tackle the problems of interpretation of these and similar concepts have been described in the literature reviewed within this project. This discussion is especially important as the meaning or definitions of the word sustainability very much depend on the professional background, the general knowledge and also the ethical and ideological orientation of the different authors. As a starting point for the discussion, some examples of the proposals or definitions put forward by different authors will be given in the following.

Sustainable development

The concept "sustainable development" was widely accepted by the international community after the presentation in the Brundtland Report (Our Common Future) in 1987. It was described as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". Although the wording is easy to understand, it has been criticized for being difficult to apply for more practical planning purposes within different sectors.

In the handbook on national accounting (2003) the capital approach of sustainable development is discussed. Within this discussion a interpretation of sustainable development from a capital standpoint is as follows "Sustainable development is development that ensures non-declining per capita national wealth by replacing or conserving the sources of that wealth; that is, stocks of produced, human, social and natural capital". The concepts of weak and strong sustainability are also discussed from the point of view of the natural capital substitutability.

The definition of the concept environment, has been discussed by Holden (2000). The human environment is understood as consisting of the sum of external conditions, including physical, social, cultural, economic, political dimensions. Furthermore, this book includes a discussion about the various ways to interpret “sustainability” and “sustainable tourism”. The latter can be interpreted as the sustaining of tourism at a specific destination. On the other hand tourism may also be looked upon as the means to achieve a “sustainable development” within a much wider region, including e.g. conservation of animals and landscapes due to tourist’s preferences and expenditures.

Bramwell (2004) argues that sustainable development should be looked upon as “a socially constructed and contested concept that reflects the interests of those involved.” This means that the idea of sustainability can take on different meanings, reflecting various economic or ethical positions. Nevertheless, the author regards the term sustainability as a useful concept, more or less as the ideas of liberty, democracy or social justice, which all have a generally understood meaning although there are many differences of opinion on the more precise definitions of the words. Referring to other sources (Turner 1993), Bramwell also seems to accept the possibility to speak of different levels of sustainability: Very strong, strong, weak and very weak sustainability.

The interpretation of the concept sustainable development, has also been discussed by Hunter (2002). The author states that “it is now widely accepted that any quest for a universally applicable definition of sustainable development (SD) is not likely to be successful....”. Referring to Turner (1994), the author describes the four levels of sustainability, or “sustainability positions”. According to Hunter (2002) a very weak sustainability position represents: an anthropocentric and utilitarian point of view, including the opinion that “infinite substitution (is) possible between natural and human-made capital....”. The contrary opinion, represented by the very strong sustainability position, is described as “bioethical and eco-centric”, arguing for a minimized utilization of natural resources, for the existence of intrinsic values in nature and for a “reduced human population.” The weak sustainability position is described as a more moderate but still anthropocentric and utilitarian view, accepting that “an infinite substitution between natural and human-made capital” is not possible. Finally, the strong sustainability position is understood as a resource preservationist perspective, where the maintenance of functional ecosystems is regarded as a primary value “above the secondary value through resource utilization”.

So it seems, that even if no agreement on a common definition of the concept sustainable development can be found, there exists an understanding of the need for changes and of the direction of these changes to arrive at a more sustainable future. For the present project, an interpretation of the concept sustainable development, mainly in agreement with the weak position, has been used. It is probable that a strong sustainability position is more widely held within the environmental sciences today. On the other hand, the weak sustainability position is probably more easily accepted by the various actors within the tourism sector.

Sustainable tourism

After the almost global acceptance of the expression “sustainable development”, although it might have been in the very general way, as mentioned above and described by Bramwell (2004), there has been a development within various sectors or academic fields trying to incorporate the concept of sustainability into the understanding and practice of the different sectors or areas. This is true also for tourism. But as could be expected, the lack of a more precise definition of the concept sustainability, means that there is a similar confusion about what should be meant by “sustainable tourism”.

According to McCool & Moisey (2001), “the meanings attached to the expression “sustainable tourism” have varied significantly, with little apparent consensus among authors and government institutions.” The authors state that sustainable tourism can be regarded as a “guiding fiction”, that is, an expression which functions and is valuable in general discussions, as long as the definition is vague. However, when more precise definitions are needed to assist in practical actions, there will be no consensus between different interest groups.

In the case of sustainable tourism, the authors have identified three different interpretations of the concept, which they have found in the literature. In the first case the main point is “Sustaining tourism: how to maintain tourism industry businesses over a long time frame”. The second case relates to the environment of the receiving

community, expressed as “Sustainable tourism: a kinder, gentler form of tourism that is generally small in scale, sensitive to cultural and environmental impact and respects the involvement of local people in policy decisions”. In the third case “What should tourism sustain? Tourism as a tool for development”, tourism is rather looked upon as a method “to protect the natural and social capital upon which the industry is built.

It could be argued that economically “sustainable tourism” (the first case above) will only be achieved if the second type of “sustainable tourism” can be developed. In a long perspective (a century or perhaps less) the same could be true for the third case, that is, if the strong position of sustainability, as understood by Hunter (2002), is accepted. More often, however, only one type of sustainable tourism is dominating the interest and understanding of the audience. To clarify some of the interrelations between these different types of tourism sustainability, it should be useful to keep in mind some specific aspects of the sector.

Tourism depend on environmental factors, be it natural environments such as beaches, sun, mountains, wild animals etc., built up environments such as historical monuments, ancient cities or interesting modern architecture, or cultural and social environments, food, language, art, music etc. It is now well known that tourism destination areas are very much influenced by tourism itself, even to the extent that a specific destination may lose its attraction for visitors. This phenomenon is sometimes called the Butler sequence (Weaver and Lawton, 2002). As examples can be mentioned overcrowded beaches, noise disturbance, unhealthy water for swimming, fishing villages being changed to new cities of hotels and restaurants etc. Although actions have been taken in some places to counteract this situation, the problem itself continues.

At the same time, the social environment may be totally changed for the residential population. Although the economic effects for the society may be regarded as positive, not everyone can participate in this development and the balance of the overall welfare for the residents may be questioned. So far sustainability of the tourism economy (the first type mentioned above) does not seem to be threatened, but the social sustainability of the area as well as the sustainability of use of natural resources and environment may have been changed in a negative direction.

Other examples of how the concept tourism sustainability has been treated can be mentioned. Johnson (2002) has suggested some guidelines to achieve a sustainable development of tourism. These include two examples mainly related to the physical environment (no. 2 and 4) and four proposals directed more to the social and cultural aspects. The guidelines are:

- integrate activity, long term planning and partnership development
- maintain and develop diversity
- support local economies
- use resources sustainable
- involve local communities, stakeholders and public
- research, share learning and experience.

As in the discussions of the concept of sustainable development, it seems that even if a precise definition of “sustainable tourism” is difficult to agree upon, a common understanding of the general direction of necessary changes may exist.

Finally it should also be stressed that there is always a need of additional information to a specific set of indicators. For deeper or more serious analyses of a situation, other aspects than those covered by the available indicators are required. This insight has been formulated e.g. by Tisdell and Wen (2001) as follows: “...many simple tests for sustainability of tourism are found to be wanting. None seem to be adequate indicators of the sustainability of tourism. They must, at least be supplemented by deeper analysis to decide whether a tourist development is going to show long-term sustainability.”

Methods

In this section the methods of collecting and testing sustainable development indicators for tourism is described.

Review of existing information

In-depth studies were made of background material from international organization such as EEA, OECD and WTO as well as reports from countries with interesting work done in this field such as Spain. Coordination of the material was also done with Statistics Sweden's own reports and studies.

The known background material was also complemented with library searches and Internet searches. The search words used were "tourism environment", "tourism sustainable", "tourism sustainable indicators" and "tourism environment indicators". These searches resulted in approximately 30 interesting reports and books, studied in more detail.

Sustainable tourism indicators presented in the background material was compiled in a preliminary total list of indicators. The contributing organization and countries were: EEA, OECD, WTO (baseline), IF SIP¹, GDCSTI², Spain, Great Britain and Austria. The total list (see Annex 4) served as a base for selecting a core set.

Half-time conclusions from the documents were presented at the OECD Statistical Working Party on Tourism in Vienna on 13 December 2004. The project was appreciated and there were recommendation to concentrate the work on the Manual and the descriptions of the indicators.

Interviews with experts

In order to obtain a clear picture of the present and future needs of users working in international organisations, a selection of experts (from EEA, OECD and WTO) were consulted. At first the experts were asked to answer a number of questions³. The answers were studied and gave valuable input to the direction of the project. The experts were consulted again when a draft core set was selected. The experts from EEA and WTO gave valuable inputs and the core set was revised according to some of their inputs.

The proposed core set was also presented in Luxemburg the 28th of January at the Task Force meeting⁴.

Questionnaires

A short questionnaire to member states and some other European countries was sent out to overview the interest in Europe. The questionnaire resulted in answers from 6 countries with work done in this field, 15 countries answered no and 10 countries did not answer.

A revised core set of 20 indicators was then tested in Sweden, Spain, Austria and Hungary. The result of this second questionnaire is presented in section Result under Case Studies: Test results.

Frameworks for presentations

One tool to select relevant indicators to the core set is the integrated assessment structure for analyses of data on human activities and the environment, the DPSIR⁴ framework, advocated by the Environment Agency (based on the OECD Pressure State Response (PSR) model). Using the DPSIR framework, principal interactions between tourism and the environment can be identified e.g. different types of natural resources (energy resources, biological resources, media/land resources etc).

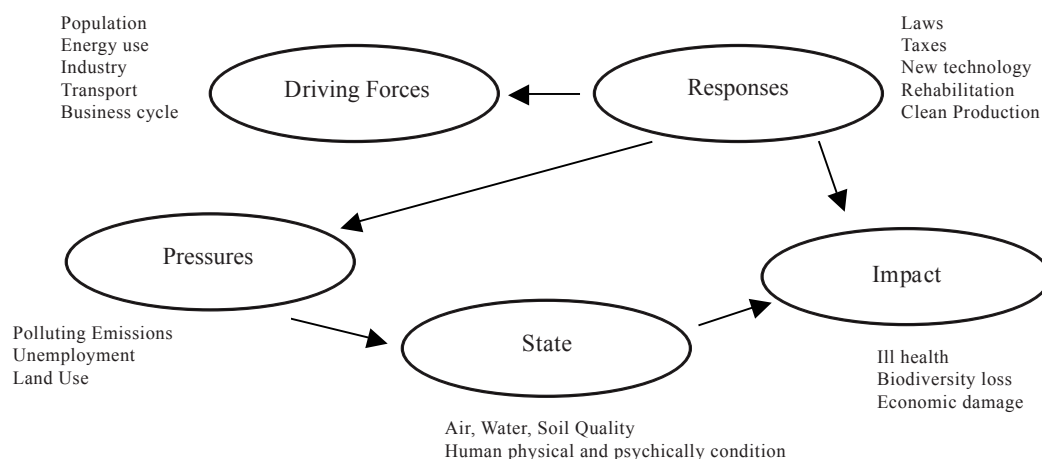
¹ Fångström I (1997) EEA Tourism and Environment, Assessment Report

² Groupe Développement Candidate Sustainable Tourism Indicators

³ See section Interviews under Results for more specific information

⁴ DPSIR is an abbreviation for Driving forces, Pressure, State, Impact and Responses.

The DPSIR Framework



The figure describes the relations between the environmental concepts. E.g. Transport (Driving Forces) causing polluting emissions (Pressures) which influences air quality (State) sometimes causes ill health (Impact) resulting in legislation on use of type of energy sources used for transportation (Responses).

The focus in this project is on the DPSIR Framework, but there are other alternatives. Waldron and Williams (2002) describe five broad categories of frameworks; domain-based, goal-based, sectoral, issue-based and causal. They also describe an integrated framework as a solution, for example a combination of a domain-based framework and a pressure-state-response system. However, for the present purpose the DPSIR Framework seemed to be easiest to handle.

Other selections criteria are described in the following section.

Indicators: selection criteria

The indicators have been selected with regard to seven criteria, where the first criteria is the most important.

1. Relevant with regard to interactions between tourism and the environment.
2. Corresponding to the different areas within DPSIR framework.
3. Frequent in existing sets of tourism sustainable development indicators.
4. The data availability should be taken into account.
5. Suitable for different geographical levels, whereas indicators for special tourism areas need to be supplemented (see also half-time conclusions).
6. Clear to understand and possible to connect to general accepted environmental goals.
7. Limited number of indicators.

The main selection criteria has been the relevance to the interactions between tourism and environment.

The indicators in the core set should correspond to all parts of the DPSIR framework, the second criteria. The DPSIR⁵ framework is an integrated framework, often used when structuring the indicators in the environmental dimension of sustainable development. A similar framework is also used by the OECD, instead of 5 themes OECD uses 3 themes where PSI are together in one theme, when presenting the tourism sustainable development indicators. Although, the OECD also has sectors grouped in their framework.

Some of the chosen indicators are also relevant from an economic and/or social point of view. However, it has not been possible to cover the whole of the DPSIR framework within the economic and social dimensions. Since this was not the main purpose of the present project, no further efforts will at this point be made to place also such indicators in the DPSIR framework. In the matrix below the X'es mark where the core set includes such indicators and within the brackets number refer to the indicator in the core set.

⁵ DPSIR is an abbreviation for Driving forces, Pressures, State, Impact and Responses. See also the description in the section Methods.

	Environment	Economic	Social
Driving Forces	X (1-5)	X (1, 3, 4, 5)	x (3-5)
Pressure	X (6-10)	x (6)	-
State	X (11-13)	-	x (11, 12)
Impact	X (14-15)	-	x (14, 15)
Responses	X (16-20)	X (17, 18, 20)	x (18, 20)

Economic indicators in the tourism field are common and widely used whereas social indicators in the tourism field are more difficult to find and need further development. Some examples of social indicators will also be mentioned in this report.

The third selection criteria have been the frequency of the indicator in existing sets of tourism sustainable development indicator sets. If a special indicator has been chosen in several indicator sets, this has been taken in mind.

Fourth, the data availability should be taken into account. Indicators where no data exist at present should be at least easy to develop in the near future.

The selected indicators should if possible be suitable also for different geographical levels both regional and local. This should not be confused with the indicators for the special tourism areas (i.e. coastal tourism, mountain tourism, nature or rural tourism and urban or cultural tourism.), where some specific indicators need to be supplemented.

The indicators should also be easy to understand and give a clear picture of the situation (e.g. no difficult ecological indices) and possible to connect to general accepted environmental goals.

Finally, the intention has been to keep the number of indicators down. The fewer the number of indicators are, the easier the use of the core set will be.

Results

The concept of sustainable tourism has been much discussed in the literature and there is no general agreement on the definition of sustainable tourism. There are attempts made, i.a. OECDs definition and the Tourism division of the EU-commission, but as the sustainability concept in itself is hard to interpret, there is still a rather unclear concept. The sustainability definitions also vary between different areas (i.e. economical, social and environmental).

Long-term sustainable development is difficult to measure only with indicators. A more consistent analysis is needed, to evaluate the conflicts between the different aspects of sustainability. Long-term is also valued differently in the different dimensions of sustainability, i.e. in economics long-term could mean 5 years, whereas in the environment long-term could mean 50-500 years.

Data on sustainable tourism is seldom available for a whole country and only a few countries and organisations have built up sustainable tourism indicators. So far we have identified existing indicator sets for sustainable tourism in Spain, Austria, Germany, UK, OECD, IF SIP, EEA and WTO. More often, sustainable tourism regions are described, which lead to a lot of local region specific applications.

The OECD framework uses a combined framework between three themes and different sectors. The three themes could be connected to the DPSIR-model. One weakness with this model is that the social indicators are not easy integrated.

There are several frameworks to choose between, but there are only a few frameworks that integrate the different dimensions of sustainable development.

Task Force

The project idea and a short progress report was given in Luxembourg at the Task Force meeting in Luxembourg, the 10th December 2004. The Task Force members were able to give their opinions about the project. Austria was the only country that handed in written opinions.

The main opinions from Austria were:

- Benchmarks or interpretation of the indicators is needed
- Definition of tourist indicators needed (the problems with same day visitor and leisure activities of local residents)
- Short and/or long-term indicators
- Definition of a tourist region
- Specify the geographical breakdown

A draft core set was presented at the following Task Force meeting in Luxemburg the 28th of January 2005. The reactions were rare and involved mainly the extended response burden that would be needed to produce sustainability indicators for tourist regions.

Interviews

The experts from EEA, OECD and OECD were contacted twice. The first rounds with interviews were made before a selected draft core set was done. The second rounds of interviews were made after the draft core set was selected.

First round

In the beginning of the project, EEA, OECD and WTO were contacted by e-mail and telephone to answer four questions:

1. What do you see as the 10 most important indicators to be included in a small set of indicators?
2. Do you prefer the DPSIR model for the Sustainable Development Indicators (SDI) for tourism or do you prefer another framework?
3. Are there any problems or difficulties you would like to point out concerning the future work with SDI for tourism?
4. Finally, do you know of any other experts in this field that would be important for us to contact? If so, please give his or her name, organisation and e-mail address (if available).

The **EEA** were contacted several times but were unable to answer these initial questions.

OECD uses a three blocks framework:

1. Tourism trends and patterns of environmental and social significance (similar to Driving Forces)
2. Interactions with environmental and social conditions (similar to Pressure, State and Impact)
3. Economic linkages and policy aspects (similar to Response)

The DPSIR-model could be difficult for outside uses, as the model derives from the environmental side. Tourist people like and dislike DPSIR framework. Positive effects due to tourism are important to show within the indicator set (e.g. tourism-related employment).

OECD also points out the difficulty with data availability within this area.

Work with methodology and how to collect data would be valuable.

WTO has identified baseline-indicators to measure baseline issues. The issues are selected according to WTO's experience working within this field.

WTO does not prefer any specific framework for the use of sustainable development indicators for tourism. The WTO guidebook analyses a wide range of frameworks and does not support either of them. The focus is on the indicators at the destination level.

The number of test countries within the project were according to WTO, too few. WTO thinks the work with sustainable development indicators for tourism need more long term efforts than the existing resources admit.

Second round

A draft core set of 22 indicators was selected according to seven criteria presented in the section describing Methods. This core set was then sent out to the same organisations (EEA, OECD and WTO), for them to react to the proposal.

EEA reactions to the core set

Indicators are only useful when they show direction: change over time. Else we would call the information thematic maps, or interesting statistics. We should strive to get time series of all the pieces of information.

The indicator balance between economic, environmental and social aspect is a bit skewed for calling the core set a SDI set.

For national sustainability it might be important to show next to the share in GDP (or another national income measure) the share in export value.

The detailed opinions about the indicators mainly respond to the connection and link to tourism. The indicators should relate to tourism more clearly.

OECD was unable to give their opinions this time.

WTO reactions to the core set

The number of indicators could be reduced after the test of the core set.

Evaluation of the management of for example waste material is insufficient.

The indicator on areas used for specific activities (marina, golf, ski areas) is only meaningful if the impacts of the activities are also evaluated.

The sources of noise should be identified if the indicator “Population exposed to noise” is to be related to tourism activities.

Revisions made after the reactions from EEA and WTO

The indicator “Land areas occupied by tourism accommodation establishments” was deleted according to EEA recommendation in the revised set. The indicator “population exposed to noise” was revised to “Tourists exposed to noise in hotels and similar establishments”. “Tourism share of GDP” was included as an indicator in the revised set.

The revised core set, including 20 indicators, is briefly presented in the following section. Detailed descriptions of the chosen indicators and their selections criteria are described in the Manual.

Core set presentation

On the basis of the compiled total list of indicators and recommendations from the Task Force and especially from the interviews a core set of 20 indicators were selected. In the following table the existence of similar indicators are marked with an “X”.

Core set of SDI for tourism

1 April 2005		Similar or identical indicators in the existing sets are marked "X"						
		DPSIR	OECD	EEA 97 ¹	EEA	WTO	Spain	GB
1	No. of beds in hotels and similar establishments	D	X	X	X		X	
2	No. of trips by means of transport	D	X	X	X		X	
3	Tourism-related employment (% of total empl.)	D, S	X				X	X
4	Household consumption expenditure on tourism	D	X		X			
5	Tourism share of GDP	D			X			
6	No. of tourist overnight stays in various types of accommodation	P	X		X			
7	CO2-emissions from energy use in tourism facilities	P	X	X				X
8	Water use by tourists, per person and day in relation to use by residential population	P	X	X	X	X	X	
9	Generation of municipal waste by tourists	P	X	X	X	X	X	
10	Discharge of sewage water due to tourism	P	X	X				
11	Areas used for specific leisure activities, e.g.: marinas, golf courses, ski areas etc., time series	S, I	X	X	X		X	
12	Areas covered by forest and other wooded land (%), time series	S, I		X				
13	Protected land and water areas (% of land area in tourist regions), time series	S, R	X	X				
14	Tourists exposed to noise in hotel and similar establishments	I	X					
15	Bathing Water Quality, time series	I	X	X	X		X	X
16	Sewage water treatment plants - volumes of water treated - time series	R	X	X	X	X	X	
17	Percent of tourist business establishments participating in recognized environmental schemes	R	X		X		X	X
18	Expenditure to maintain/restore cultural and historical heritage	R	X					
19	Eco-labeled tourism facilities (as % of total)	R	X		X			
20	Existence of land use or development planning processes, specifically referring to tourism activities	R			X	X		

1) Fångström I (1997) EEA Tourism and Environment, Assessment Report

Case Studies: Test results

A questionnaire⁶ was sent out to four different countries including a county of Sweden (the county of Jämtland in the northern part of Sweden).

The overall existence of data for the proposed indicators was positive. Half of the indicators could be found in all countries. Six indicators were found in three countries and the last four indicators were found in two countries.

The NUTS⁷ level for the indicators that existed varies between the countries. It was only one indicator that existed in all countries and had data at NUTS 3 level. All other indicators had shortages of regional data in either of the country. For indicator 5 “Tourism share of GDP” none of the countries had regional data.

The county of Jämtland in Sweden noted that local data by municipality were available for indicators 1, 3, 6, 8-12, 15.

Table 1: Summary of the test results

Indicator	Austria		Hungary		Spain		Sweden		No. of countries with data
	Data	Level	Data	Level	Data	Level	Data	Level	
1	Yes	3	Yes	3	Yes	3	Yes	3	4
2	Yes	1	Yes	1	Yes	2	Yes	3	4
3	Yes	2	Yes	2	Yes	3	Yes	3	4
4	Yes	1	Yes	2	Yes	2	No		3
5	Yes	1	Yes	1	Yes	1	Yes	1	4
6	Yes	3	Yes	3	Yes	2	Yes	3	4
7	Yes	1	Yes	1	No		No		2
8	Yes	1	Yes	3	Yes	2	Yes	3	4
9	No		Yes	3	Yes	2	Yes	3	3
10	Yes	2	Yes	3	No		Yes	3	3
11	Yes	2	Yes	3	No		Yes	3	3
12	Yes	2	Yes	3	No		Yes	3	3
13	Yes	1	Yes	3	Yes	2	No		3
14	Yes	2	Yes	3	No		No		2
15	Yes	3	Yes	3	Yes	2	Yes	3	4
16	Yes	1	Yes	3	No		No		2
17	Yes		Yes	1	Yes	2	Yes	3	4
18	Yes	1	Yes	1	Yes	2	Yes	3	4
19	Yes	2	Yes	1	Yes	2	Yes	3	4
20	No		Yes	1	Yes	3	No		2

Overall and specific comments from the test countries are found in Annex 3.

⁶ The questionnaire is available in Annex 2.

⁷ NUTS (Nomenclature des Unités Territoriales Statistiques) is an EU classification system for regions in 5 levels.

Notes to some of the comments from the test countries

Comments from the test countries where valuable and in some cases the comments resulted in better or more specified descriptions of the indicators.

Other methods of collecting data than the methods described in the Manual, do probably exist in some countries. It would be valuable to receive more information of what these methods could look like, i.e. through registers or by remote sensing.

The indicators could also be simplified when data on local levels exist. The formulas now use the number of overnight stays to receive a local measure for the indicator. This will not be necessary when data on tourist regions exists.

The assumption of the number of days taken for holiday by the residential population in the formula has been discussed. On one side the residents travel to other tourist regions or make day visits. On the other side there are increased number of people temporary employed.

A limited number of indicators, easy to handle, has been one of the criteria when constructing the core set. The idea of relating some of the indicators to the local population has therefore not been included, but is something to consider in the national countries when building up their own core sets.

Comparability problems with for example “municipal waste” and different definitions between countries are something Eurostat is working with and is outside this project to handle.

Recommendations and future work

The suggested core set of indicators correspond to international organisations and the test shows that data exist in most cases, however not on local levels. The core set also cover the DPSIR-framework, which is important especially from the environmental point of view. The recommendation from the study is therefore to use the core set as a basis when constructing national set of tourism sustainability indicators.

The geographical level needs to be more detailed. Data on local levels are necessary when building up statistics for tourist regions. However, the local data could be concentrated around the tourist regions and do not involve the rest of the countries communities without tourists. Identifying tourist regions and finding statistics on these specific regions is necessary to connect the indicators to tourism. In the future further development is needed to breakdown the statistics needed for the SDI for Tourism.

The concept of sustainable development involves economical, environmental and social aspects. The objective of this project was to focus on the impact of the environment from tourism. The economical aspects are, however included due to tourism statistics traditionally involving economical indicators. However, there is a lack of social indicators in the core set and to make the core set sustainable with all dimensions social indicators have to be included. There are few social indicators in the existing sets of tourism sustainability indicators so there is a need for developing these kinds of indicators.

Examples of social indicators;

- Crime rate during high season in relation to crime rate during off – season (Baltic Sea)
- Social Assistance Demand (see Calvia Local Agenda 21 indicators in Mr Anthony Ellull (Turkey) s article ”Impact of tourism on the regions and the population; social, economic and environmental indicators
- Frequency of water-borne diseases: number of visitors reporting water-borne illnesses during their stay (WTO)
- The resident’s health in the tourist regions
- The share of poor people living in tourist regions
- Accessibility for disabled people in tourist regions

Finally, the set should lead to forthcoming updated legal basis for the tourism statistics, in order to realise these indicators.

References

- Bramwell, ed. (2004) *Coastal Mass Tourism*, Clevedon, Buffalo, Channel View Publications
- Cammarota, M & Costantino, C & Fångström I (1997) Joint Final Report of the SIP Tourism Project, Istat, *Annali di Statistica*, Anno 128, Serie X – vol. 18, Roma 1999
- Clem, Tisdell (2001) *Tourism Economics, the Environment and Development – Analysis and Policy*, Cheltenham, Edward Elgar Publishing Ltd
- EEA, Core set of indicators Tourism, Website: <http://www.eea.eu.int/indicators>
- Fångström I (1997) EEA Tourism and Environment, Assessment Report, Statistics Sweden
- Günther, Wolfgang (2001) *Indicators of the Development of Sustainable Tourism in the Baltic Sea Region*
- Hunter (2002) Article in Harris, Rob and Griffin, Tony and Williams, Peter (2002), *Sustainable tourism: a global perspective*, Oxford, Boston, Butterworth-Heinemann
- Harris, Rob and Griffin, Tony and Williams, Peter (2002), *Sustainable tourism: a global perspective*, Oxford, Boston, Butterworth-Heinemann
- Holden, Andrew (2000) *Environment and Tourism*, London, New York, Routledge
- Johnson (2002) Article in Harris, Rob and Griffin, Tony and Williams, Peter (2002), *Sustainable tourism: a global perspective*, Oxford, Boston, Butterworth-Heinemann
- McCool, Stephen F & Moisey, R. Neil (2001) *Tourism, Recreation and Sustainability: linking culture and the environment*, New York, CABI Pub
- OECD, Indicators for the integration of environmental and sustainability concerns into tourism policies, a discussion/guidance document (2003)
- Spain, Ministry of the Environment, (2003) *Spanish System of Environmental Tourism Indicators*, Centro de Publicaciones, Ministerio de Medio Ambiente
- UN, European Commissions, IMF, OECD and World Bank (2003), *Handbook of National Accounting, Integrated Environmental and Economic Accounting 2003*
- UN Recommendations on Tourism Statistics (2002)
- Waldron and Williams (2002) Article in Harris, Rob and Griffin, Tony and Williams, Peter (2002), *Sustainable tourism: a global perspective*, Oxford, Boston, Butterworth-Heinemann
- Weaver, David and Lawton, Laura (2002), *Tourist Management*, second edition, Wiley Australia Tourism Series, Milton, Qld., John Wiley & Sons
- World Commission on Environmental and Development (1997) *Our Common Future*, Oxford

Annex 1: Definitions

The Brundtland definition of sustainable development

“Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable Development according to this definition involves three dimensions: ecological, economical and social, the latter includes cultural aspects.” Our Common Future (1987)

Indicator –definitions

WTO 2004

“Indicators are measures of the existence or severity of current issues, signals of upcoming situations or problems, measures of risk and potential need for action, and means to identify and measure the results of our actions. Indicators are information sets which are formally selected to be used on a regular basis to measure changes that are of importance for tourism development and management.”

OECD Environmental Indicator

“A parameter, or a value derived from parameters, that points to, provides information about and/or describes the state of the environment, and has a significance extending beyond that directly associated with any given parametric value. The term may encompass indicators of environmental pressures, conditions and responses (OECD, 1994).”

EEA - Environmental Indicators: Typology and Use in Reporting

“An indicator is an observed value representative of a phenomenon of study. In general, indicators quantify information by aggregating different and multiple data. The resulting information is therefore synthesised. In short, indicators simplify information that can help to reveal complex phenomena.”

Tourism - definition

UN Recommendations on Tourism Statistics

“Tourism comprises “the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited.””

Sustainable Tourism Development - definitions

World Tourism Organisation

“Sustainable Tourism development meets the needs of present tourists and host regions while protecting and enhancing opportunities for the future. It is envisaged as leading to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity and life support system”.

Tourism Division of the European Commission, 1995

“A development will be understood to constitute sustainable tourism development where it takes into account not only aspects in visitor source countries, but the form of the outward journey, on the one hand, along with the interests of visitors and residents in a region to be defined. Activities at the destination need to be based on nature’s capacity to absorb, whereby consumption of resources should be as sparing as possible”

WTO 2004 (Conceptual definition)

“Sustainable tourism development guidelines and management practices are applicable to **all forms of tourism in all types of destinations**, including mass tourism and the various niche tourism segments. Sustainability principles refer to the **environmental, economic and sociocultural** aspects of tourism development, and a **suitable balance must be established** between these three dimensions to guarantee its long-term sustainability. Thus, sustainable tourism should:

- 1) **Make optimal use of environmental resources** that constitute a key element in tourism development, maintaining essential ecological processes and helping to conserve natural heritage and biodiversity.

- 2) **Respect the socio-cultural authenticity of host communities**, conserve their built and living cultural heritage and traditional values, and contribute to inter-cultural understanding and tolerance.
- 3) Ensure viable, long-term economic operations, **providing socio-economic benefits to all stakeholders** that are fairly distributed, including stable employment and income-earning opportunities and social services to host communities, and contributing to poverty alleviation.

Sustainable tourism development requires the **informed participation of all relevant stakeholders, as well as strong political leadership** to ensure wide participation and consensus building. Achieving sustainable tourism is a **continuous process** and it requires **constant monitoring of impacts**, introducing the necessary preventive and/or corrective measures whenever necessary. Sustainable tourism should also maintain a **high level of tourist satisfaction** and ensure a meaningful experience to the tourists, raising their awareness about sustainability issues and promoting sustainable tourism practices amongst them.”

Annex 2: Questionnaire

Questionnaire

Please mark in the below chart which indicator you have data for already and which data are not available. For indicators where data exist, please mark on which level (regional NUTS II, local NUTS III).

If data doesn't exist perhaps you collect data for a similar indicator, please write which one in the last column.

Country:	
Tourist Region:	
Contact person:	Telephone number:
Organization:	E-mail:

No.	Indicator	Data exist	If yes, on what level?	If no, do you collect other data for a similar indicator? If so please name the indicator
1	No. of beds in hotels and similar establishments by 1000 inhabitants	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Nuts I <input type="checkbox"/> Nuts II <input type="checkbox"/> Nuts III	
2	No. of tourist trips by mode of transport	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Nuts I <input type="checkbox"/> Nuts II <input type="checkbox"/> Nuts III	
3	Tourism-related employment (% of total empl.)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Nuts I <input type="checkbox"/> Nuts II <input type="checkbox"/> Nuts III	
4	Household consumption expenditure on tourism	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Nuts I <input type="checkbox"/> Nuts II <input type="checkbox"/> Nuts III	
5	Tourism share of GDP, time series	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Nuts I <input type="checkbox"/> Nuts II <input type="checkbox"/> Nuts III	
6	No. of tourist overnight stays in various types of accommodation	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Nuts I <input type="checkbox"/> Nuts II <input type="checkbox"/> Nuts III	
7	CO ₂ -emissions from energy use in tourism facilities	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Nuts I <input type="checkbox"/> Nuts II <input type="checkbox"/> Nuts III	
8	Water use by tourists, per person and in relation to use by residential population	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Nuts I <input type="checkbox"/> Nuts II <input type="checkbox"/> Nuts III	
9	Generation of municipal waste by tourists	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Nuts I <input type="checkbox"/> Nuts II <input type="checkbox"/> Nuts III	
10	Discharge of sewage water due to tourism	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Nuts I <input type="checkbox"/> Nuts II <input type="checkbox"/> Nuts III	
11	Areas used for specific leisure activities, e.g.: marinas, golf courses, ski areas etc., time series	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Nuts I <input type="checkbox"/> Nuts II <input type="checkbox"/> Nuts III	

No.	Indicator	Data exist	If yes, on what level?	If no, do you collect other data for a similar indicator? If so please name the indicator
12	Areas covered by forest and other wooded land (%), time series	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Nuts I <input type="checkbox"/> Nuts II <input type="checkbox"/> Nuts III	
13	Protected land and water areas (% of land area in tourist regions)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Nuts I <input type="checkbox"/> Nuts II <input type="checkbox"/> Nuts III	
14	Tourists exposed to noise in hotels and similar establishments	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Nuts I <input type="checkbox"/> Nuts II <input type="checkbox"/> Nuts III	
15	Bathing water quality, time series	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Nuts I <input type="checkbox"/> Nuts II <input type="checkbox"/> Nuts III	
16	Sewage water treatment plants - volumes of water treated due to tourism- time series	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Nuts I <input type="checkbox"/> Nuts II <input type="checkbox"/> Nuts III	
17	% tourist business establishments participating in recognized environmental schemes	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Nuts I <input type="checkbox"/> Nuts II <input type="checkbox"/> Nuts III	
18	Expenditure to maintain/restore cultural and historical heritage	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Nuts I <input type="checkbox"/> Nuts II <input type="checkbox"/> Nuts III	
19	Eco-labeled tourism facilities (as % of total)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Nuts I <input type="checkbox"/> Nuts II <input type="checkbox"/> Nuts III	
20	Existence of land use- or development planning processes, specifically referring to tourism activities	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Nuts I <input type="checkbox"/> Nuts II <input type="checkbox"/> Nuts III	

If you don't have data for one or more of the presented indicators, for which indicators do you, think you will have data in the future?

Time Frame Indicator (refer to the number of the indicator)

1-2 years
 3-5 years
 Over 5 years

Do you regard the presentation for each indicator clear and easily understandable? Should anything be changed?

.....

Other comments?

.....

Annex 3: Comments and examples of the tests

Overall comments:

“The detailed indicator sheets should be provided with alternative estimation methods, examples and more detailed definitions.” (Hungary)

“The appropriate unit should always be indicated.” (Hungary)

“Pressure of same day visitors (excursionist) does not appear in the indicators.” (Spain)

Calculation tool (comments from Spain):

- Number of resident x 365. We consider the season population doesn't cover up the days that residents are on holidays. We must take into account that Europeans travel a lot inside and outside of the European Union.
- Number of overnight stays. We think it refers to the whole overnight stays of tourists (foreign and national).
- Total overnight stays. We do not know exactly if it refers to the total overnight stays of residents or all residents and tourists.

Specific comments to some indicators:

Indicator 6: Want the indicator “Number of tourist overnight stays in various types of accommodation” related to the local population. (Austria)

Indicator 8: Does the water use by tourists, respond to “drinking water only?” (Hungary)

Indicator 9: “Comparability problems with ”municipal waste” as the definition vary between country to country.” (Austria)

“Selected waste collection?” (Hungary) and is the unit in “thousand tons?” (Hungary)

Indicator 11: “Does the area cover both land and water?” (Hungary)

Indicator 14: “Does not state very clearly if “tourism exposed to noise” or people (locals and tourists) exposed to noise by tourism facilities” is meant.” (Austria)

“What noise level?” (Hungary)

Indicator 15: “Which parameters? Swimming pools too?” (Hungary)

Indicator 16: “The indicator is very similar to indicator 10.” (Sweden)

Examples of indicators by Austria

Indicator 1: No. of beds in hotels and similar establishments by 1000 inhabitants			
	Per 31/5/2004	Winter season 03/04	Summer season 2004
<u>NUTS 2</u>			
Burgenland	52,2	44,2	52,0
Carinthia	121,9	87,8	120,2
Lower-Austria	26,5	25,8	26,3
Upper-Austria	28,6	26,2	28,4
Salzburg	186,6	182,8	172,4
Styria	45,0	43,6	44,5
Tyrol	265,6	261,2	256,3
Vorarlberg	93,6	92,2	81,9
Vienna	26,2	23,8	26,1
<u>NUTS 1</u>			
Austria	70,3	65,8	67,8

Source: Statistics Austria

Indicator 6: No. of tourist overnight stays in various types of accommodation (in 1000 overnight stays and per 1000 inhabitants)						
<u>NUTS 2</u>	No. of tourist overnight stays in 1000			No. of overnight stays per inhabitant		
	2004	Winter	Summer	2004	Winter	Summer
Burgenland	2 213	542	1 675	8,0	2,0	6,1
Carinthia	12 673	3 230	9 501	22,7	5,8	17,0
Lower-Austria	5 127	1 786	3 319	3,3	1,2	2,1
Upper-Austria	5 662	1 853	3 804	4,1	1,3	2,7
Salzburg	21 562	12 444	9 226	41,4	23,9	17,7
Styria	9 120	4 150	5 015	7,7	3,5	4,2
Tyrol	41 474	24 606	17 305	60,7	36,0	25,3
Vorarlberg	7 915	4 655	3 318	22,2	13,1	9,3
Vienna	8 432	3 458	4 983	5,3	2,2	3,1
<u>NUTS 1</u>						
Austria	114 178	56 723	58 146	14,1	7,0	7,2

Source: Statistics Austria

Indicator 11: Areas used for specific leisure activities: km of ski runs (winter season 2002/2003)	
NUTS 2:	
Burgenland	0
Carinthia	506
Lower-Austria	101
Upper-Austria	182
Salzburg	1 880
Styria	363
Tyrol	2 976
Vorarlberg	850
Vienna	0
NUTS 1:	
Austria	6 858

Sources: www.berfex.at and Austrian chamber of commerce/association of cable cars

Indicator 12: Areas covered by forest and other wooded land		
	1992-1996	2002-2002
NUTS 2:		
Burgenland	33,0%	33,5%
Carinthia	60,2%	60,6%
Lower-Austria	39,4%	39,8%
Upper-Austria	41,1%	41,2%
Salzburg	51,2%	51,9%
Styria	60,7%	61,1%
Tyrol	40,4%	40,7%
Vorarlberg	36,1%	37,3%
Vienna	21,7%	21,7%
NUTS 1:		
Austria	46,8%	47,2%

Source: Austrian Wood Inventory

Annex 4: Indicators total list

Indicator	DPSIR	OECD	IF_Sip	EEA	WTO (baseline)	Spain	GB	GDCSTI
Tourism trends and patterns of environmental and social significance	D		Core					
A Overall tourism trends								
Nights spent in various means of accommodation		X						
Ratio tourist/residents	D		X	X	X	X		X
Ratio tourist overnight stays/residents*(365-k)	D		X	X				X
Passenger-kms travelled by tourists in relation to total passenger-kms/ type of transport	D		X					
Journeys undertaken for tourism purposes	D		X					
International tourist arrivals (and international same-day visitor arrivals)		X		X	(X)			
Domestic tourist arrivals (and domestic same-day visitor arrivals)		X		X	(X)			
Max. population density (persons per km2 during high season)		X						
Coastal zones								
Seasonal variation of accommodation occupancy (in %)	D	X	X	X	X	X	X	
<i>Intensity of beach use (persons/meter of accessible beach)</i>		X						X
Managed wildlife parks & Unique ecological and cultural sites		X						
Number of visitors/day/km2 (peak months vs low season)	D	X	X		X			X
Tourism density (bed places per km2 NUTS 3 level)				X				
Change of characteristics of the tourist purpose and profile (age and sex)	D		X	X				
Change in type of organisation of stays (in % of total)				X				
Extent of visitor satisfaction					X		X	X
% who believes that tourism has helped bring new services or infrastructure.					X			
Perception of value for money (questionnaire-based)					X			
Percentage of return visitors					X			
B Socio-economic trends in tourism								
International tourist receipts		X						
International tourist expenditure		X						
Household consumption expenditure on tourism	D	X		X				
Tourism-related employment (% of total employment)	D	X				X	X	
Economic value of tourism industry	D			X	X	X	X	

Indicator	DPSIR	OECD	IF_Sip	EEA	WTO (baseline)	Spain	GB	GDCSTI
Tourism packages and ecotourism products				X				
Tourist tax revenues and public expenditure				X				
Ratio of average hourly earnings in tourism versus the average national hourly wage							X	
Percent of adults not taking a holiday of 4 nights or more							X	
% of business establishments open all year					X			
Number and % of tourist industry jobs which are permanent or full-year (compared to temporary jobs)					X			X
Number of local people (and ratio of men to women) employed in tourism (also ratio of tourism employment to total employment)					X			
Seasonal, permanent, skilled and women's jobs								X
C	Tourism infrastructure							
Accommodation								
Lodging or bed capacity (number of beds by means of accommodation)	D	X	X			X		
Secondary residences (in % of total)	D/P	X				X		
Collective Accommodation Establishments	D/P					X		
Coastal zones								
Lodging or bed capacity per km of beach or km of natural coast		X						
Mountain regions								
Lodging or bed capacity (Number of beds per ski run)		X						
Transport infrastructure								
Accessibility of tourism zones (train stations, airports, highways)		X						
Mountain regions								
Number of heliports CH (or number of take-offs)		X						
Facilities/equipment								
Accessibility of tourism facilities/equipment for handicapped people		X						
Rescue capacity (coastal zones, mountain areas)		X						
Number and capacity of social services available to the community (% which are attributable to tourism)					X			
Coastal zones								
Number of harbours/marinas including capacity		X						

Indicator	DPSIR	OECD	IF_Sip	EEA	WTO (baseline)	Spain	GB	GDCSTI
Mountain regions								
<i>Capacity of cable cars/lifts in person-vertical meters/hour</i>		X						
Skiing area as a percentage of total	P	X	X					
D Transport and mobility								
Tourist arrivals by transport mode (Modal split)	D	X	X	X		X (D/P)		
Share of tourism in transport sector		X						X
Mean daily transport for leisure purposes	P		X					
Amount of petrol containing lead sold/month during tourist seasons in relation to the same amount outside the tourist season	P		X					
Emission of lead from the transport sector due to tourism	P		X					
Transport used on domestic holiday trips by residents							X	
Average distance travelled per trip (in km)		X						
Seasonal variability of road congestion (in hr*km*nb of lanes/month)		X						
<u>Small islands</u>								
<i>Mode of access (water, air, other)</i>		X						
<i>Transport mode on the island</i>		X						
<i>Number of vehicles</i>		X						
Interactions with environmental and social conditions	P, S, I							
E Air and energy								
Air emissions from energy use in tourism facilities (heating, air-conditioning,...)	P	X	X				X	X
Air emissions from energy use in tourism related transport (by mode)	P	X	X	X				X
Annual use of mineral oil or natural gas as a fuel attributable to tourism	P		X					
Annual use of energy attributable to tourism	P		X		X	X		
Number of days on which precise pollution standards are exceeded								X
F Waste								
Total generation of tourism-related waste (amounts & per capita)	P	X	X	X	X	X		X
Increased production of household waste due to tourism	P		X					
<i>Seasonal variation of waste generation in a tourism zone (amounts & per capita)</i>		X						
<i>Local waste treatment and disposal capacities</i>	P	X	X					
Emissions of CH ₄ , Nox, dioxin due to the % of waste attributable to tourism	P		X					
Separate collection of packaging produces by Tourism	R					X		

Indicator	DPSIR	OECD	IF_Sip	EEA	WTO (baseline)	Spain	GB	GDCSTI
Volume of waste recycled (m3) / Total volume of waste (m3) (specify by different types)					X			
Quantity of waste strewn in public areas (garbage counts)	S				X			
Ratio of waste distribution and disposal								X
G Water								
Water abstractions for tourism supply or seasonal variations in water supply	P, I	X	X	X	X	X		X
Percentage of water used by tourists compared with amount of available fresh water								X
Ratio of utilisation of waste water								X
Waste water discharges (seasonal variations)	P	X	X					
Waste water treatment capacity by level of treatment	P, R	X	X	X	X	X		X
Drinking water quality: fecal coli form, heavy metals		X			(X)			X
Percentage of tourism establishments with water treated to international potable standards					X			
Frequency of water-borne diseases: number/percentage of visitors reporting water-borne illnesses during their stay					X			
% of organic substances (BOD) and nutrients (N & P) discharged through sewage water attributable to tourism	P		X					
No of water based theme parks	P		X					
Areas with dangers of desertification due to overuse of water resources	S, I		X					
Water saving (% reduced recaptured or recycled)					X			
Cost of water supply divided by number of tourists								X
Cost of drinking water supply divided by number of tourists								X
Coastal zones								
<i>Coastal water quality (bathing): fecal coli form, heavy metals</i>	S	X		X		X		
Continental water quality (bathing)	S					X		
<i>Concentration of metals and hydrocarbons in sediments of harbours/marinas</i>		X						
<i>Proliferation of algae in t/year</i>		X						
No. Of boats, yachts rented by tourists	P		X					
Small islands								
<i>Water capacity remaining in reservoirs/aquifers (in m3)</i>		X						

Indicator	DPSIR	OECD	IF_Sip	EEA	WTO (baseline)	Spain	GB	GDCSTI
Mountain regions								
Percentage of river courses blocked		X						
Total water use for snow cannons (in m3)		X						
Inland shore areas								
Percentage of inland shore areas occupied by tourist establishments in relation to total inland shore area	P		X					
H Land use and biodiversity								
Land used by tourism facilities: number or area of large scale facilities	P, S, I	X	X			X		
Existence of a land use or development planning process including tourism					X			
Land covered by urban development in tourist areas (changes)		X						
Tourist density in urban areas	P					X		
Areas covered by natural or semi-natural vegetation	S, I		X					
Land use patterns and conversions in sensitive areas		X						
Protected areas in tourist areas (by IUCN categories)	R	X	X					
No of visitors per year and per km2 in protected areas	P		X					
Area used for tourism transport by type of transport	P		X					
Length of railways and roads within tourism intensive areas	P		X					
Area occupied by tourism establishments, by holiday cottages	P		X					X
Area use for special leisure activities	P, I		X			X		
Percentage of protected areas with controlled accesses and itineraries	R					X		
% of area subject to control (density design etc.)					X			
Physical impact of tourism development, including soil erosion								X
Coastal zones								
<i>Percentage of built-up area within a zone of 1 km away from the shore</i>	P	X	X					
<i>Total beach area at highest and lowest tide each month (changes)</i>		X						
Changes in fish catches: fish counts for key species	P	X	X					
Species diversity in marine areas: species & population counts (changes)	S, R	X	X					
Costal areas effected by erosion	S, I		X					
Number of tourist ports (divided by coastal and lakes)	P		X					
No. Of tourist arriving by sea (incl. Pleasure boats) in relation to total no of arrivals	P		X					
Equipped beaches	P				X			
Moorings in recreational harbours	P				X			

Indicator	DPSIR	OECD	IF_Sip	EEA	WTO (baseline)	Spain	GB	GDCSTI
Small islands								
<i>Presence of endemic species: species & population counts (changes)</i>		X						
Mountain regions								
% of eroded surface		X						
Change in risk of avalanche occurrence		X						
Threatened species: species & population counts (IUCN cat.)	S, R	X	X					
<i>Artificially snow-covered surface (as % of total)</i>		X						
Managed wildlife parks								
Percentage of park area affected by unauthorised human activity		X						
Percentage of park area being used for human purposes		X						
Level of poaching reported		X						
Threatened species (IUCN categories): species & population counts	S, R	X	X					
Unique ecological and cultural sites								
Threatened species (IUCN categories): species & population counts	S, R	X	X					
Percentage of area affected/accessed by visitors		X						X
Area of species occupation: in total of surface		X						X
Number of floral and faunal species identified								
I Noise								
Distance of airports from urban areas		X				X		
Population exposed to noise near tourism facilities		X						X
Road traffic density during the tourism season in relation to road traffic density during other periods of the year within tourist urban areas	P		X					
Air traffic density during the tourism season in relation to air traffic density during other periods of the year within tourist urban areas	P		X					
Rail traffic density during the tourism season in relation to rail traffic density during other periods of the year within tourist urban areas	P		X					
Boat traffic density during the tourism season in relation to boat traffic density during other periods of the year within tourist urban areas	P		X					
No. Of discotheques in open spaces	P		X					
J Cultural heritage and landscapes								
Percent of local authorities with tourism strategies that incorporate cultural and heritage considerations							X	

Indicator	DPSIR	OECD	IF_Sip	EEA	WTO (baseline)	Spain	GB	GDCSTI
Visitors to Cultural and Historical Sites	P					X		
K Risk and safety issues								
? Materials used for tourism constructions								X
Ratio of reported thefts, attacks, offences involving minors and other crimes, all in relation to the local population								X
Evaluation of infringement of the rights of women and children (prostitution)								X
Ratio of reported thefts, attacks, offences involving minors and other crimes, all in relation to the number of tourists								X
L Equity and social cohesion								
Percent of accommodation registered as meeting National Accessible Scheme for disabled people							X	
Ratio between tourists/residents in bars, cafes and discotheques								X
Economic linkages and policy aspects	R							
M Regulatory instruments								
Number of tourist businesses participating in recognized environmental schemes (Environmental Management systems)	R	X		X		X	X	
Number of Environmental Impact assessment procedures for tourism related projects		X						
Number of tourist destinations with local transport plans integrating visitor management		X						
Progress in integration of tourism and environment into national strategies and monitoring systems				X				
Percent of local authorities with Tourism Action Plans							X	
Percent of bio-diversity action plans signed up to tourism businesses							X	
Percent of local authorities with LA21 strategies that include sustainable tourism elements							X	
Incorporation of Environmental criteria to Tourism and territorial planning and legislation	R					X		
Percentage of businesses participating in energy conservation programs or applying energy saving policy and techniques					X			

Indicator	DPSIR	OECD	IF_Sip	EEA	WTO (baseline)	Spain	GB	GDCSTI
Percentage of tourism establishments (or accommodation) on treatment system(s)					X			
Height permitted for tourism constructions								X
Existence of regulations concerning colours, signs and advertising								X
Coastal zones								
% of surface covered by "land use plans"		X						
N	Economic instruments							
Subsidies for sustainable tourism development		X						
Taxes....		X						
Environmental protection expenditure (public & private)		X						
Charges for waste water treatment and solid waste disposal/treatment		X						
Expenditure to maintain/restore cultural and historical heritage		X						
Ratio of land and historic buildings owned by national agencies against money spent on protection of these assets							X	
Interventions concerning tourism and sports activities in natural environments	P					X		
Unique ecological and cultural sites								
Expenditure to maintain/restore the site (per year)		X						
Receipts from entrance fees, sales of derived products		X						
O	Information/social instruments							
Tourist attitudes towards environment		X						
Eco-labeled tourism facilities (as % of total)	D	X		X				
Public expenditure on environmental information and education (in tourist receiving regions)		X						
Destinations implementing the Code of Ethics for tourism		X						
EU support to sustainable tourism projects				X				
Use of renewable and local energy sources within the tourism sector	R		X		X			X
Use of alternative means of transport for leisure purposes	R		X					
Volumes of fossil fuels saved in the tourism sector	R		X					
Audit community perceptions of tourism					X		X	
Coastal zones								
"Blue flag"- Campaigns and others	R		X				X	

Indicator	DPSIR	OECD	IF_Sip	EEA	WTO (baseline)	Spain	GB	GDCSTI
Unique ecological and cultural sites								
Number of guides (tourist/guide ratio)								
P	Trade aspects							
Indicators to be developed								
Q	Technique and research aspects							
Volumes of water saved due to increased use of water saving techniques	R		X					
Energy saved within the tourism sector due to introduction of new techniques	R		X					
Social indicators proposed by Groupe Développement Candidate Sustainable Tourism Indicators								
Social impact indicator								
Proportion of males to females in full-time education								X
Ratio between the average wages of males and females								X
Ratio between the average wages of males to females for skilled jobs								X
Ratio between education and training levels for female and male employees in the tourism compared to the average for the population								X
Percentage of local jobs created compared to jobs for expatriates								X
Indicator of satisfaction levels of local residents								
Use of hotel and restaurant infrastructure by the local population								X
Use of sports and cultural infrastructure linked to the tourist project by the local population								X
Access to natural resources by the local population								X
Proportion of local managers of tourist structures								X
Public health indicator								
Death rate								X
Number of residents per doctor and per nurse								X
Number of cases of sexually transmitted diseases compared with local population								X
Number of cases of food poisoning compared with total population								X
Other types of illness compared with total population								X
Economic indicators proposed by Groupe Développement Candidate Sustainable Tourism Indicators								
Indicator of control over development								

Indicator	DPSIR	OECD	IF_Sip	EEA	WTO (baseline)	Spain	GB	GDCSTI
Impact studies								X
Local tourist planning								X
Proportion of tourist activity as a percentage of all economic activity								X
Indicator of business generation and company profitability								
Ratio between financial turnover of the project and that of other local economic activities								X
Ratio between the value-added of the project and that of other local activities								X
Ratio of company profitability								X
Ratio of impact of local production (evaluation of outflows) (multiplier effect)								X
Ratio between jobs created by tourism and existing jobs								X
Ratio between fish catches and resources in the area								X
Ratio between game catches and resources in the area								X
Ratio between gathering of rare plants and resources in the area								X
Ratio between intensity of use of tourist space and natural space to be protected								X
Indicator of tax revenue								
Ratio between tourist tax revenue and total tax revenue								X
Ratio between tourist tax revenue and public expenditure in favour of tourist								X
Indicator of foreign exchange earnings or losses								
Ratio of net foreign exchange earnings vis-à-vis tourism investment								X
Ratio of net foreign exchange earnings vis-à-vis the functioning of tourism								X
Indicator of the proportion of local ownership								
Ratio of market access (evaluation of barriers and discrimination)								X
Ratio of access to tourist professionals (training, nationality, etc.)								X