WORKING PAPERS AND STUDIES

Methodological work on measuring the sustainable development of tourism

Part 2: Manual on sustainable development indicators of tourism

EUROPEAN COMMISSION

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THEME
Industry, trade and services

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).

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Introduction

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 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.

A few international organizations such as EEA, OECD and WTO have developed indicators to measure sustainable tourism and environmental impacts on tourism. These sets involve a large number of indicators, which is difficult for the national countries to handle. There are also problems with the data availability on the regional and local levels.

For this reason, a demand has come up for a reasonable number of indicators, as well as a need for detailed descriptions of the indicators, including objectives, sources and calculation tools. This manual presents a core set of 20 sustainable development indicators for tourism, including detailed descriptions of each indicator, which makes it easier for the countries to use them.

Objective

The objective of the manual is to provide a core set of indicators in the field of sustainable development of tourism to the EU countries. This core set forms a base of indicators that can be used on national, regional and local levels in the EU countries. The set should also serve as a base for the forthcoming updated legal basis for tourism statistics.

Indicators: selection criteria

The indictors 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 criteria are described in more detail in the Technical report, section Methods.

Core set of Sustainable Development Indicators for Tourism

Driving Forces

1. Number of beds in hotels and similar establishments
2. Number of trips by means of transport
3. Tourism-related employment (% of total empl.)
4. Household consumption expenditure on tourism
5. Tourism share of GDP

Pressure

6. Number of tourist overnight stays in various types of accommodation
7. CO_2-emissions from energy use in tourism facilities
8. Water use by tourists, per person and day in relation to use by residential population
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19. Eco-labeled tourism facilities (as % of total)
20. Existence of land use or development planning processes, specifically referring to tourism activities

Detailed indicator presentation

A descriptive sheet model, based on the Spanish model, has been used to describe each indicator.

INDICATOR:	
TITLE	DPSIR MODEL TYPE

Description: Exact description of the indicator's content (formula description)

Objective: Rationale and general objective of the indicator and its inclusion.

Geographical coverage: Applicability scope: national, Autonomous Communities (regional) and/or Municipalities

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CALCULATION TOOL

Description of the parameters included in the indicator's formula

FORMULA

Interpretation keys: Elements that allow for a better understanding of the results in the indicator's application

Sources: Calculation sources at Autonomous Community and national levels are presented.

Time coverage: If data available the time coverage is added.

Future indicator development: Additional notes that indicate how to reinforce the indicators calculation starting from the foreseen new statistical sources, the partial modification of some of the sources used, or through specific information demands.

Comments: Special comments to the indicator.

General issues

Calculation tool – Pressure from tourists

Environmental data exists mainly annually and nationally. The total figure is known but not the tourist's share.

To calculate the data for tourists, the number of overnights stays made by tourists can be used for estimation. By doing this, an assumption is made that the tourists and the residents have the same consumption and production patterns.

The total value is first calculated as a mean per person and day. This is done using both the total number of the residential population and tourist's overnight stays. The residential population has been thought to stay the whole year within the area, 365 days (the number of days taken for holiday by the residential population assumes covers up the season population who is not included in the overnight stays statistics). To get an estimate of the total value used for tourism, the calculated mean total consumption per person and day is taken times the number of tourism overnight stays.

$$\frac{\text{Total value}}{(\text{No. of residents} \times 365) + \text{No. of overnight stays}} \times \text{Total overnight stays}$$

This formula could also be used when calculating season variations. Then the calculated mean total consumption per person and day is instead taken times the mean overnight stays during the season.

$$\frac{\text{Total value}}{(\text{No. of residents} \times 365) + \text{No. of overnight stays}} \times \text{Mean overnight stays during seasons}$$

Sources

In the description sheets the international source is described when possible. If no international source exists, maybe a regional and/or local source collect the data and should be used.

Tourist Region

Each country should define their own tourist regions.

INDICATOR: 1	
Number of beds in hotels and similar establishments by 1000 inhabitants	Driving Forces

Description: The number of bed places in hotels and similar establishments.

Objective: Evaluate the hotels and similar establishments' capacity and by that how many tourists the region could expect without further exploitation. Existing capacity for accommodation of tourists will attract visitors to the area, which is positive for the economy but may cause potential pressures both on the physical and social environment.

Geographical coverage: National, Regional (NUTS I, II, III) and Local (if data are available)

CALCULATION TOOL

Sum of all existing bed places within the relevant region, by 1000 inhabitants.

$$\frac{\text{Sum of bed places}}{\text{Inhabitants}} \Big/ 1000 = \text{Sum of bed places by 1000 inhabitants in the region}$$

Interpretation keys: An increase in capacity of bed places indicates an increase in demand and may lead to a forthcoming increase in pressure on the environment.

Sources: New Cronos Databas, Eurostat according to Council Directive 95/57/EC on tourism (A.1.1.). Regional and or local sources can be used when available.

Time coverage: Annual data, time series (1993-2003)

Future indicator development: Percentage of bed places within eco labeled accommodation establishments per region is a possible further development.

No. of bed places per sq. km within relevant smaller geographical regions will give additional information on the actual pressure caused by tourists within the region.

Comments:

INDICATOR: 2	
Number of trips by mode of transport	Driving Forces/Pressure

Description: Number of trips made by mode of transport; air, train, boat and road transport to and from the tourist site.

Objective: The no. of trips gives an indirect measure of possible pressures on the environment and can therefore be regarded as a driving force. The actual pressure caused by transport depends on the means of transport. There is a lack of direct information on the type of pressure caused by transport. However, the number of trips by mode of transport will give an indirect measure of the relative effects of tourism transport, railway transport being the most environmental friendly mode.

Geographical coverage: National, regional (if data are available)

CALCULATION TOOL

This indicator is the total number of trips, supplemented by number of trips different modes of transport:

% of trips made by plane
% of trips made by train
% of trips made by boat
% of trips made by road transports

Interpretation keys: Different modes of transport have different environmental effects.
E.g. if the train trips increase more than other modes this can be regarded as a positive impact on the environment

Sources: Number of trips by mode of transport. New Cronos database, Eurostat according to Council Directive 95/57/EC on tourism (C.1.2.3.). Regional and/or local sources can be used when available.

Time coverage: Annual data. Time series (1994-2003)

Future indicator development: No. of trips by mode of transport could be combined with mean distance traveled. This will give a better indication on the pressure on air environment (e.g. emission of climate gases).

Comments:

INDICATOR: 3	
Tourist-related employment (% of total empl.)	Driving Forces/State

Description: Number of people employed in tourist-related activities as a percent of total employment

Objective: Employment of local residents within the tourism industry can be regarded as a positive social aspect of tourism. On the other hand it also indicates a high dependence of the tourism industry witch makes the region vulnerable for structural changes. At the same time a high percentage of people employed within the tourist sector may indicate a certain pressure on the physical environment, especially if the people employed are seasonal workers, not belonging to the residential population. From an economic point of view, a high number of employed people are regarded as a positive factor.

Geographical coverage: National, regional and local (if data are available)

CALCULATION TOOL

$$\frac{\text{No. of employees in NACE } 55.1, 55.2}{\text{Total no. of employees}} \times 100 = \% \text{ of the tourism related employment}$$

Interpretation keys: An high percentage of tourism related employment indicates a region depending on the tourism industry.

Sources: No. of people employed within Nace 55.1 and 55.2 according to the Labour Force Survey data. Regional and/or local sources can be used when available.

Time coverage: Annual data. Time series

Future indicator development: As part time work and seasonal employment are common within the tourism industry, no. of <u>work hours</u> should be a better measure than no. of people employed. However such data will at present probably not be available.

% of <u>local residents of totally employed persons</u> within the sector will also be an interesting future development of the indicator.

Seasonal differences are important and could be included in the future when data are available.

Comments:

INDICATOR: 4	
Household consumption expenditure on tourism	Driving Forces

Description: Household consumption expenditure on tourism (as a % of total private final consumption)

Objective: With rising economic standards, household expenditures on tourism will increase. This means a possible increase of both positive and negative effects on the receiving societies. Thus, the increased possibilities to travel will function as a driving force, causing pressures on the physical environment (e.g. emissions of climate gases) and/or an increased awareness of the need to protect the environment of receiving societies. At the same time an increase of expenditures on tourism and travel will admit the consumption of more environmental friendly alternatives.

Geographical coverage: National, Regional and Local (if data are available)

CALCULATION TOOL

Household consumption expenditure on tourism is preferably collected from the Tourist Satellite Accounts (TSA) calculations of household consumption. Otherwise, data from the Coicop (Household consumption survey) may be used for relevant variables.

$$\frac{\text{Household consumption exp. on tourism}}{\text{Total private final consumption}} \times 100 = \% \text{ household cons. on tourism}$$

Interpretation keys: An increase in household expenditure on tourism indicates a rise in the economic standard but may also lead to higher pressure on the physical and social environment of receiving areas.

Sources: National Tourist Satellite Accounts (TSA) or Household Consumption Survey. The total private final consumption from the National Accounts. Regional and/or local sources can be used when available.

Time coverage: Varies between countries.

Future indicator development:

Comments:

INDICATOR: 5	
Tourism share of GDP, time series	Driving Force

Description:

Tourism share of GDP calculated in the Tourism Satellite Accounts

Objective:

Tourism is an important economic input in many tourist regions and the region may depend on tourism for their survival. The share of tourism activities on the economy will also influence the social situation for part of the population. A shift from a more traditional way of living to a more or less total dependence on tourism may be regarded as an improvement of living conditions for some people but could also be experienced as a negative change for others. From an environmental point of view, the effects of an increased dependence on tourism may also be either positive or negative. The impacts will depend on the physical planning activities and their effects on foreseeable possible negative effects.

Geographical coverage:

National, Regional and Local (if data are available)

CALCULATION TOOL

$$\frac{\text{Tourism contribution to GDP (TSA)}}{\text{GDP}} \times 100 = \text{Tourism share of GDP}$$

Interpretation keys:

If the share of GDP is high, the tourism region may be vulnerable to variations in tourism.

Sources:

National Tourist Satellite Accounts (TSA). Regional and/or local sources can be used when available.

Time coverage:

Varies between countries.

Future indicator development:

Comments:

INDICATOR: 6	
Number of tourist overnight stays in various types of accommodation	Pressure

Description:

Number of tourist overnight stays in various types of accommodation

Objective:

An increased no. of tourist overnight stays means production of more household waste, increased emissions of climate gases and other air pollutants as well as an increased consumption of certain natural resources (e.g. drinking water) etc. This means an increased pressure on the physical environment. At the same time it may have a positive influence on e.g. the construction of wastewater treatment plant and other means of environmental protection. This indicator is used for calculations of some other measures, e.g. water use and the generation of municipal waste.

Geographical coverage:

National, regional (NUTS I, II), local (if data are available)

CALCULATION TOOL

Sum of overnight stays in:
Hotels and similar establishment
+Tourist campsites
+Holiday dwellings
+Other collective accommodation establishments, n.e.s.

Interpretation keys:

An increase in overnight stays may increase the pressure on the physical environment.

Sources:

New Cronos Database, Eurostat according to Council Directive 95/57/EC on tourism (B.1.1. + B.1.2.). Regional and/or local sources can be used when available.

Time coverage:

Annual data. Time series 1990-2003

Future indicator development:

The no. of overnight stays could be related to the no. of overnight stays by the residential population to get a better understanding of the actual pressures caused by tourism in relation to other sectors.

Comments:

INDICATOR: 7	
Emissions of carbon dioxide (CO$_2$) from energy use in tourism facilities	Pressure

Description: Emissions of carbon dioxide from the Hotel and Restaurant industry.

Objective: Air pollutants, mainly caused by transport and other types of energy use, have many different effects, e .g. on human health, on the natural and built physical environment and possibly on climate change. Impacts on the built up environment may be especially serious in the case of cultural buildings and the historical heritage. High emissions of air pollutants may effect the vegetation (e.g. through acidification of rain due to emissions of sulfur and nitrogen oxides). The indicator should measure how tourism affects the quality of air in the surroundings in comparisons to other sources of air pollution. The origin of air pollutions within the tourism sector is transport activities and all other types of energy use depending on consumption of fossil fuels.

Geographical coverage: National, Regional, Local

CALCULATION TOOL

CO$_2$-emissions (NACE 55) from the Hotel and Restaurant industry (for the tourist region)

Interpretation keys: As the hotel and restaurant industry is calculated together in the environmental accounts, the separate industries can't be shown separately. In tourist regions the share of tourist using the restaurant is higher than the residents. The higher the CO$_2$-emissions are the higher the pressure is from the hotels and restaurants caused mainly by tourists.

Sources: The environmental accounts annual data (will be available in New Cronos Database), or regional and local sources.

Time coverage: 1990-2002, for a few countries among the MS.

Future indicator development: The statistics can be represented in relation to the total emissions of greenhouse gases or CO$_2$, caused by the total society, including households, industrial emissions and emissions caused by transport of goods.
Emissions to air due to transport activities are regarded as more important, but the part due to tourism transport may at present be difficult to distinguish from other types of e.g. goods transport.

Comments: This indicator needs development. It's hard to separate emissions from tourist facilities from emissions originally from other sources. An alternative may be to calculate the % of the total emissions from the region instead.

Emissions due to energy use from the transport sector are difficult to calculate, that's why this is not included in the indicator.

INDICATOR: 8	
Water use by tourists, per person and day, in relation to use by residential population	Pressure

Description:
Total use of fresh water by tourists and for tourism activities, as part of the total water use in the society.

Objective:
The demand of water is large during the warm season, not only for the natural environment but also for growing crops and for people. This often coincides with periods of shortage of water. The indicator makes possible calculations of the extra demand on water resource with increased no. of tourists arriving within a certain region

Geographical coverage:
National, regional, local (if data are available)

CALCULATION TOOL[1]

$$\frac{\text{Total use of fresh water}}{(\text{No. of residents} \times 365) + \text{No. of overnight stays}} \times \text{Total number of overnight stays}$$

Interpretation keys:
The pressure from tourism measured as the amount of water used by tourists. If the amount of water used is increasing the demand for treatment of the water is increasing. The amount of water used by tourists during seasons causes an extra pressure of the treatment capacity.

Sources:
Directive 98/83/EG. New Cronos Database, Eurostat. Regional environment. Total gross abstraction of total fresh water (ground + surface) by public water supply. Regional and/or local data can be used when available.

Time coverage:
1980, 1985, 1989-2000

Future indicator development:
A somewhat better calculation may be attained if the residential
population is assumed to spend part of the year outside the area, e.g. for their own recreation on other holiday resorts.
This indicator can be a key measure of physical carrying capacity for water-poor destinations and can also provide warning of potential limits or stresses on the supply system. (WTO)

Comments:

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[1] For more information see General issues

INDICATOR: 9	
Generation of municipal waste by tourists	Pressure

Description: Generation of municipal waste caused by tourism.

Objective: To avoid negative health effects, to keep an agreeable environment (avoiding rats, flies, vermins, bad smells etc.) and to not disturb the natural biological processes, the amounts of waste have to be treated in an acceptable manner. Increased treatment of waste means extra pressure (costs) on the local society and the environment, partly due to transport of waste, partly due to various types of emissions to air or land use.

A positive effect of tourism in this connection could be the possibilities to invest in new and more effective treatment procedures. Even so, the treatment of waste causes economic and environmental effects.

Geographical coverage: National, regional, local (if data are available)

CALCULATION TOOL[2]

$$\frac{\text{Total amount of municipal waste}}{(\text{No. of residents x 365}) + \text{No. of overnight stays}} \times \text{Total no. of overnight stays}$$

Interpretation keys: The extra pressure of waste generated by tourists. The more waste the more treatment is needed.

Sources: New Cronos database, Eurostat, Municipal waste. Regional and/or local data can be used when available.

Time coverage: Annual data (1995 – 2003), Overnight stays see indicator 6.

Future indicator development:

Comments: Could be calculated as ton produced by tourist or in relation between high and low seasons.

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[2] For more information see General issues

INDICATOR: 10	
Discharge of sewage water due to tourism	Pressure

Description: Volumes of water returned to the environment after being used by the tourism sector (as sanitary water, for cooking and washing purposes etc.).

Objective: After being used for various purposes, water used by tourists as well as by the residential population will have to be returned to the environment. This water is contaminated in various ways, depending on the type of use. Therefore sewage water will generally be channeled through mechanical, biological and chemical processes in water treatment plants. In the end the treated water volumes will be released to lakes, streams or to coastal water. Depending on the degree of treatment the water released to environment will still contain contaminants. This will cause a pressure on the receiving water bodies and will influence the possibility to use the receiving water for household purposes. The total amount of water returned to the environment will give a rough estimate of this degradation of water bodies in the environment.

Geographical coverage: National, Regional and Local (if data are available)

CALCULATION TOOL[3]

Sewage water per day and capita for tourists

$$\frac{\text{Total amount of sewage water}}{\left(\text{No. of residents}\times 365\right)+\text{No. of overnight stays}}\times \text{Total no. of overnight stays}$$

Interpretation keys: The tourist pressure measured in the amount of sewage water generated by tourists. If the sewage water by tourists is increasing the tourist region will be in need of extended water treatment. Possible negative influence on the bathing water quality.

Sources: Eurostat New Cronos database; Regional environment: Total waste water generated from point sources and by domestic sector. Regional and/or local sources can be used when available.

Time coverage: Annual data 1980, 1985, 1989 - 2000

Future indicator development: It should be possible in the future to present sewage water released to the environment divided by type of treatment. The higher the degree of treatment, the better for the environment. This is one example of how tourism and possibly increased expenditures on tourism consumption could help to arrive at a better environmental situation.

Comments:

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[3] For more information see General issues

INDICATOR: 11	
Areas used for specific leisure activities, e.g.: marinas, golf courses, ski areas etc. – time series	State Impact

Description: Area used for specific leisure activities, as area for presentation on a national or regional basis and as a percentage of total area within a tourist region or locality

Objective: Land use is important for the continuation of forestry, farming and fishing activities within a society. It is also important for the survival of many animal and plant species. Land use also influences the attraction of an area to tourists. The type of landscape preferred depends, however, on the type of tourism.

This indicator should be used to evaluate the existing balance between the traditional economic sectors, the modern landscape influenced or thoroughly changed by various human activities including tourism and the possibilities of survival of endangered ecosystem and species.

The indicator could be used in planning processes for possible further exploitation for tourism purposes or for legislation on protection of landscape and wild life.

Geographical coverage: National, regional and local (if data are available)

CALCULATION TOOL

Recreation land in the tourist region

$$\frac{\text{Recreation land and other open land}}{\text{Total area}} \times 100 = \% \text{ recreation land in the tourist area}$$

Interpretation keys: The recreation land in the tourist area should be compared with other types of land uses in these areas and be evaluated in relation to the benefit of having more or less recreation land.

Sources: New Cronos Database, Eurostat, Land use statistics. Regional and/or local sources can be used when available.

Time coverage: 1950, 70, 80, 85, 90, 95, 2000

Future indicator development: A more specific definition that corresponds to the tourist leisure activities would be useful.

Comments: Leisure activities are also a positive social factor. Tourism can make it easier for local people to use these areas.

INDICATOR: 12	
Areas covered by forest and other wooded land (%) - time-series	State Impact

Description: Percent area covered by forest and other wooded land in the tourist region.

Objective: Many tourists enjoy unspoiled natural land. The type of land cover and land use is important for the survival of many animal and plant species. Natural or semi-natural vegetation (land and water) also have a cleaning effect on air and water. Therefore the rate of change of rural areas to built up land or to degraded areas, caused by e.g. waste disposal, is of interest for environmental sustainability as well as for sustainability of tourism.

This indicator should be used to evaluate the possibilities of survival of certain ecosystems and species. This implies not only endangered species, but also all type of land with natural or semi-natural vegetation, creating the basis for landscapes enjoyed by both tourists and local residents.

The indicator could also be used in planning processes for legislation on protection of landscape and wild life.

Geographical coverage: National, Regional and local (if data are available)

CALCULATION TOOL

Forest and other wooded land in the tourist region

$$\frac{\text{Total land under forest and other wooded land}}{\text{Total area in the region}} \times 100 = \% \text{ area covered by forest}$$

Interpretation keys: If the total area covered by forest and other wooded land in the tourist region decreases, this indicates exploitation of the area and in tourist regions it probably have to do with pressure from the tourists.

Sources: New Cronos Database, Eurostat, Land Use

Time coverage: 1950, 70, 80, 85, 90, 95, 2000

Future indicator development:

Comments:

INDICATOR: 13	
Protected land and water areas (% of land and water in tourist regions), time series	State Response

Description:	Protected land and water areas (within NUTS 3 or smaller regions receiving a high number of tourists)
Objective:	The co-existence between built-up human societies and natural landscapes and species is regarded as an important goal in the continuous development process towards a sustainable environment. One method to achieve this has been the designation of legally protected areas. Such areas are of special importance for endangered species and fragile ecosystems. At the same time they are an attraction point for visitors, both for tourists and local residents. An increase of the area of protected land in relation to built up areas indicates better possibilities for survival of specific species as well as for a sustainable total environment.
Geographical coverage:	National, Regional and Local (if data are available)

CALCULATION TOOL

Protected land and water areas in the tourist region

$$\frac{\text{Protected land and water areas}}{\text{Total area in the region}} \times 100 = \% \text{ protected land and water in the region}$$

Interpretation keys:	An increased share of protected land is both positive for the environment and biodiversity but at the same time positive in the way that it attracts tourist to these kind of areas.
Sources:	New Cronos Database, Eurostat, protected areas for biodiversity. Regional and/or local sources can be used when available.
Time coverage:	2002, 2003
Future indicator development:	
Comments:	

INDICATOR: 14	
Tourists exposed to noise in hotels and similar establishments	Impact

Description: Tourists exposed to noise in hotels and similar establishments. Levels from: Tourism facilities, Airports, Traffic, Discotheque etc.

Objective: An increase in all sorts of transport by motor vehicles means in increase of noise levels. High noise could also be caused by tourist nightlife. If these levels exceed certain values, negative effects on people's health and well being can be expected. This indicator can therefore be regarded as a principally socially motivated measure. Increased noise will, however, also disturb wild species in the natural or semi-natural environment, which may result in the disappearance of certain animals or birds from an area.
Even if the impacts of tourism are generally beneficial for a society, certain negative effects cannot be avoided. An increase of the number of people disturbed by noise, caused by tourism, is an example of such negative impacts.

Geographical coverage: National, Regional and Local (if data are available)

CALCULATION TOOL

$$\frac{\text{No. of tourist exposed to noise at hotels}}{\text{No. of tourists in the area}} \times 100 = \% \text{ tourists exposed to noise}$$

Interpretation keys: The problem with noise is important as it affects the health of the tourists and also the attractiveness of the tourist region.

Sources: Regional and/or local satisfactory surveys

Time coverage: Varies between surveys.

Future indicator development: An indicator showing the problems with noise due to the tourism industry in the region and how it affects the local residents.

Comments: Noise comes from both tourist and the residential population but it is almost impossible to separate. See also indicator 20, where a question on noise is included.

INDICATOR: 15	
Bathing Water Quality, time series	Impact

Description: Bathing water quality

Objective: Many tourist regions are located in coastal areas or in lake districts. For these destinations the quality of the beaches and swimming water is an important factor, influencing the tourists´ choice of destination. At the same time an increase in the number of tourists means an increased production of waste, discharge of sewage water and other types of emissions. This often means an increased pressure on environmental quality, including natural water resources and bathing water quality. A deterioration of the water quality might lead to a decline in visiting tourists.

Geographical coverage: National, Regional and Local (if data are available)

CALCULATION TOOL

Bathing water quality in the tourist region according to the Council Directive 76/160/EEC.

$$\frac{\text{No. bathing areas complying guide values}}{\text{Total number of bathing areas}} \times 100 = \% \text{ complied bathing areas}$$

Parameters for which compliance should be calculated: total coli forms, faecal coli forms, mineral oils, surface-active substances and phenols.

Interpretation keys: An increasing share of bathing areas which comply with

guide values of the bathing water directive indicate an improvement of the environmental quality.

Sources: http://europa.eu.int/water/water-bathing/report.html or more detailed local information.

Time coverage: Annually from 1976

Future indicator development:

Comments: On 24 October 2002, the Commission has adopted the proposal for a revised Directive of the European Parliament and of the Council concerning the Quality of Bathing Water COM(2002)581.

INDICATOR: 16	
Sewage water treatment plants – volumes of water treated due to tourism – time series	Response

Description: Volumes of sewage water treated by treatment plants, by type of treatment, actual volumes due to tourism and as percentage of total volumes of sewage water, time series.

Objective: Discharge of sewage water will always influence the receiving water bodies, the more so if treatment of sewage water is insufficient. As a result the quality of water will be changed with negative impacts on the flora and fauna, on the possible use of water for household purposes and on the appreciation of tourists of the environment.
The level of treatment of sewage water will reflect the awareness of the community and the tourism industry of the risks with discharge of sewage water. Indirectly it will also be a measure of the expected water quality or expected positive change in water quality in the environment.

Geographical coverage: National, Regional, Local

CALCULATION TOOL

Total capacity of waste water treatment plants measured by m³ water in the tourist region.

$$\frac{\text{Total capacity of waste water treatment plants}}{\left(\text{No. of residents} \times 365\right) + \text{No. of overnight stays}} \times \text{Total no. of overnight stays}$$

Interpretation keys: The pressure from the tourists measured in volumes of waste water that should be treated. The capacity of treatment plants will rise as the number of tourist rises.

Sources: Regional and/or local sources should be used when available.

Time coverage: -

Future indicator development:

Comments:

INDICATOR: 17	
Share of tourist business establishments participating in recognized environmental schemes	Response

Description: Share of tourist business establishments participating in recognized environmental schemes (EMAS/ISO)

Objective: Different systems of environmental schemes exist. They may not be totally comparable, some having more ambitious goals than others. Irrespective of this, the participation in at least some sort of classification of environmental schemes can be taken as an indicator of the awareness of the problems. The more establishments that have EMAS or other environmental schemes, the more they try to reduce their environmental pressure. Another positive effect is increasing goodwill that may attract more tourists.

Geographical coverage: National, Regional and Local (if data are available)

CALCULATION TOOL

No. of tourist business establishments participating in recognized environmental schemes (EMAS/ISO or equivalents) in the tourist region.

$$\frac{\text{No. of tourist establ. with environ. schemes}}{\text{Total no. of tourist establishments}} \times 100 = \% \text{ tourist establ. with environ. schemes}$$

Interpretation keys: The percentage of establishments with environmental schemes indicates the management effort to take charge of environmental factors and reduce risks.

Sources: EMAS data: European Commission, DG ENV, EMAS ISO 14001 data. Regional and/or local data can be used when available.

Time coverage: Varies between countries.

Future indicator development:

Comments:

INDICATOR: 18	
Expenditure to maintain / restore cultural and historical heritage	Response

Description: Expenditure to maintain and restore cultural and historical heritage

Objective: Cultural and historical heritage attract tourists. Degradation of these buildings and monuments has become a growing problem in Europe. Air pollutants are one of the main causes to this destruction. The most effective long term reaction to these problems should probably be development and construction of new types of transport vehicles and use of other types of energy sources.
At present a measure of the efforts to counteract the negative impacts on cultural and historical heritage could be used as a more direct response of the society to these problems. The effects of these measures should clearly be a positive factor for both tourists and local visitors to these sites.

Scope: National, regional and local (if data are available)

CALCULATION TOOL

Governments and municipalities' expenditures to preserve cultural buildings

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Interpretation keys:
Increased expenditures to preserve cultural buildings may favor tourists at the same time as an increased number of visitors can raise the wear of the buildings.

Sources: National, regional and local sources can be used when available.

Time coverage: -

Future indicator development:

Comments: There is also a social dimension to this indicator. Tourists and residents health and recreation possibilities need our cultural and historical buildings.

INDICATOR: 19	
Eco-labeled tourism facilities (as % of total)	Response

Description: Eco-labeled tourism facilities (as % of total)

Objective: As in the case of the indicator on tourism establishments participating in environmental schemes (no. 17), various systems to describe the environmental friendliness of tourism facilities may exist. One example of eco-labeled tourism is the EU-flower certification. Even if these systems are not completely comparable, the participation in this type of classification can be taken as a measure of the awareness of the management of the impacts these facilities may have. It should be expected that the eco-labels would have a positive effect so that the real impacts on the environment from these facilities will decrease. Therefore this indicator could also be taken as an indirect measure of diminishing environmental impacts.

Geographical coverage: National, Regional and Local (if data are available)

CALCULATION TOOL

$$\frac{\text{No. of eco - labeled tourist accom. establ.}}{\text{Total no. of tourist accom. establ. in the region}} \times 100 = \% \, \text{eco} - \text{labeled establ.}$$

Interpretation keys: Indicates the environmental concern in the tourist accommodation establishments. A higher share indicates that more is being done to preserve the environment.

Sources: EU-flower for tourist accommodation under development, European Commission, DG ENV, Eco-label helpdesk. Regional and Local eco-labels sources can be used when available.

Time coverage: Annually, 2003 onwards

Future indicator development: See "Sources"

Comments:

INDICATOR: 20	
Existence of land use- or development planning processes, specifically referring to tourism activities	Response

Description: Existence of land use- or development planning processes, specifically referring to tourism activities

Objective: The balance between tourism and other activities within a region need to be decided at an early stage. This is partly to avoid conflicts about the use of natural resources (land and water) between local residents, tourism and other sectors such as fishery, industry etc.

The level of exploitation of land area is also a factor of importance for the attraction of tourists. Densely built up areas (outside older cities or cultural heritages) may be experienced as too crowded or lacking in atmosphere.

The indicator could be used as a measure of the awareness of such negative effects of overexploitation. The expected positive effects of planning processes should be possible to measure using other indicators, e.g. time series of land use.

Geographical coverage: Regional and Local

CALCULATION TOOL

Descriptive indicator:

	Yes	No	Under development
1. Planning processes exists also outside urban regions?			
2. Incorporation of tourism in the Planning Process			
3. Incorporation of environmental aspects in the Planning Process for tourist regions			
4. Noise problems are considered in the Planning Process for tourism			

Interpretation keys: The incorporation of Planning Processes for tourism and environmental aspects is important to prevent environmental problems due to tourism.

Sources: No international source, only regional and local sources.

Time coverage: -

Future indicator development:

Comments: