

## **Tourism and sustainable development indicators: two French experiments facing theoretical demands and expectations.**

**Jean-Paul CERON**

**Centre de Recherche en Droit de l'Environnement, de l'Aménagement et de l'urbanisme  
(CRIDEAU- CNRS Limoges)**

**34 Rue Duplex**

**87000 LIMOGES**

**Tel: + 33 (0) 5 55 33 78 90**

**[ceron@chello.fr](mailto:ceron@chello.fr)**

**Ghislain DUBOIS**

**Laboratoire Enseignement et Recherche Milieux et Sociétés  
(ERMES- IRD Orléans)**

**16 rue Daumier**

**13208 MARSEILLE**

**Tel: + 33 (0) 4-91-37-98-15**

**[dubois@orleans.ird.fr](mailto:dubois@orleans.ird.fr)**

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These last years have been marked by a revival of the demand for indicators in the field of environment and sustainable development. In the field of tourism, statistical institutions, but also international organisations (the World Tourism Organisation or the World Travel and Tourism Council with the Green Globe program), State and local authorities try to build sets of indicators enabling them to measure their progress towards sustainability.

What are the stakes behind these sustainable development indicators in the field of tourism? The most obvious is an improvement of assessment processes. In a sector where the weakness of the statistical data is often underlined, sustainable development added a certain number of new questions, which push assessment methods to be renewed in particular through the use of indicators. In return the construction of indicators underlines the need to improve the information systems. Secondly, indicators point out to a will to give a concrete content to the concept of sustainable development, which purely theoretical or ideological debates could render meaningless to local actors. Thirdly they tend to make actors meet and discuss common issues. Lastly, since the construction of indicators is, at least in theory, linked with a decision-making process, the study of current attempts shows how much opinions on tourism development policies, on its governance, can differ and thus reveal the stakes concerning tourism.

## A renewed interest for indicators

### ***The historical background: indicators before sustainable development.***

Undoubtedly it is first necessary to point out the historical context within which the first indicators were built and the social demand which motivated this work. From the very start one expected indicators to seize and translate a complex reality: the typical example is that of national wealth, of its growth, considered as the base of welfare, which GNP was supposed to express. This indicator, was supposed to enable to measure trends, to compare the situation of countries between them. It was not really subject to criticisms as long as the economic growth remained high (with annual increases of about 4%) and the global after war agreement on its content held.

When that ceased (May 1968, the oil crisis, the rise of environmental concerns) the context of the construction of indicators changed: the seventies were thus marked by the work on social indicators which were intended to correct the economicist character of the GNP. Later, the rise of environmental consciousness and the creation of related institutions, was followed by the construction of environmental indicators, answering a technical and administrative demand (for example, to monitor water pollution) but they initially remained confidential. The environment, after a temporary decline of the interest it was paid to, at the end of the seventies, came back on the public scene with in particular the attention to trans-border problems (damage to the forests by acid rainfalls, Tchernobyl) and to world-wide issues (climatic change). Environmental issues, given the recent recognition of their importance, now stand in the public debates on the same step as social and economic issues even if, in decision making, the economic dimension usually continues to prevail. This trend led to the emergence of the concept of sustainable development. The definition of sustainable development given by the Brundtland report, which is usually referred to, is not meant to displease anyone. Its very soft and its general formulation has the advantage of facilitating the meeting of people and institutions which hitherto ignored each other, the more so as sustainable development is declared for all human activities including tourism. Under these conditions however, the debates can quickly appear void of sense.

It is doubtlessly with this danger that the construction of sustainable development indicators is supposed to cope. Chapter 40 of Agenda 21 ("information for decision-making") insists on the fact that the need for information on sustainable development "is felt at all levels, from the national and international level for main decision makers to the local level and to that of individuals". "It is thus necessary to work out sustainable development indicators so that they constitute a useful base for decision-making at all levels." The same kind of arguments are put forward by the European authorities: the Cardiff Council (1998) recommends the construction of indicators so as to observe the progress made in dealing with the environment. In France, indicators have recently taken a major place in the assessment of public policies.

Numerous sets of indicators have been built. Focusing on sustainable development in general, one can distinguish:

- The works of 'think tanks' animated by academics or NGOs: for example the work of Wuppertal Institute or that of SCOPE, which gathered scientists who have been working for a long time in the environmental field. They tend to have a global view on the issues, to establish a hierarchy among them, which might reflect the specific scientific orientations or the ideological options of the networks within which the authors usually work.
- The works of government or international agencies. One can consider that there is often a search for new approaches of development which is mitigated by the obligation to produce results, recommendations, and to quantify. That can lead to an excessive focus on traditional data bases and only lead to a juxtaposition of well-known data. The sustainable development indicators of the United Nations are typical of this tendency: they just put side by side environmental, social, economic indicators which are supposed to be relevant for all countries.

In these works, very few indicators deal with tourism: if one refers to the British selection (Department of the Environment / HSMO 1996), tourism and leisure are taken into account through two indicators (stays and air travel). This is both inevitable if one keeps in mind the broad scope of the issues related to sustainable development, and at the same time very frustrating.

### **How can an indicator be defined?**

An *indicator*, is first a *variable* which can take a certain number of *values* (statistical) ...or *states* (qualitative) according to circumstances (temporal, spatial for example in the fields which we deal with). The values or the states of the indicators can sometimes be directly measured or observed; in the majority of the cases they result from an analysis and a processing of basic data. This treatment is more or less sophisticated and when it leads to a high degree of combination and aggregation, one rather tends to speak about *indexes*: there is thus no difference in nature between indexes and indicators, just a difference in complexity.

The key point which distinguishes the indicator from the basic data is its capacity to carry a meaning which exceeds its pure quantitative value, for example a temperature of 39C ° certainly indicates the temperature of the body of a person, but also the fact that he is ill (Rechatin 1997). This capacity of indicators makes their interest, although the simplification of phenomena indicators imply is frequently questioned (they generally express a significance which exceeds their value or state, only if the context remains unchanged). They then help to summarise and simplify information, to enlighten certain phenomena, and to quantify already known problems. This significance comes from the interpretation which is made of them, from their use within a diagnosis or an analysis.

Most definitions of environmental or sustainable development indicators exclude qualitative indicators: "*an indicator is a quantitative data which makes it possible to characterise a trend, a action or its consequences, to assess them or compare them with their state at other moments, passed or future, or with the states at the same date of other similar subjects*" (Plan Bleu 1996 quoted by (Rechatin 1999), p.4. Nevertheless, logically, a variable such as an indicator can take an ordinal, a cardinal value (a row) or a state (qualitative). It can for instance be reminded that, from an ecological point of view, the existence of some elements of the flora or fauna is frequently used as an indicator of the state of ecosystems (to simplify, the presence of *drosera* is an indicator of the good health of peat bogs). ...Qualitative indicators can be ranked on a numerical scale (for example: 0 for the worst state, 10 for best) ...which should not suggest a quantitative indicator, even if several indicators of this type are combined, weighted etc, to lead to a more synthetic indicator.

It is also necessary to clearly remind that the building of indicators must rest on serious scientific bases (ie: an agreement of the experts on the ability of a variable to reflect a given phenomenon) and on reliable data. The scientific requirement in principle implies that any expert having to assess the same issue and placed under the same conditions will come to the same conclusion. That does not exclude the margins of error but they must be stated and assessed. The qualitative character of certain indicators should not suggest it is possible to escape these requirements. Indicators are not "guesstimates".... Using the term anywhere and anyhow is likely to jeopardise one of the major interests of the work on the indicators which is to improve *the available data* so as the stakeholders can really understand them.

The scientific requirement raises another issue. Indicators being frequently used in a normative context (political decision) which implies value judgements on the facts that they are supposed to describe; should then the value judgements be included within the indicator or remain external to it. The users often push to the inclusion of value judgements, both because it simplifies their task and because it avoids explaining some choices (the decisions then seem to be purely based on quantitative data which are less likely to be questioned). Value judgements can be built into the indicator directly in the observation or assessment phases (indicators of the

aesthetic value of a landscape for ex.), they can be added after the observation of the data (by comparing them to a standard or to a goal); they can be conveyed by the weighting of data when they are aggregated.

Various authors have listed the requirements environmental indicators should comply with. We here refer to the list Rump (1996) gives since it seems one of the most complete.

We detailed in another text (Ceron, Dubois and Raoul-Duval 2000 (to be published)) the almost insurmountable difficulties to fulfil all these requirements. Abiding strictly to them, would only lead to a list of indicators inapt to document a significant part of the concerns tourism raises with regards to sustainable development. It is certainly challenging and useful to keep all these requirements in mind, but also to remain aware that each of them has more or less importance according to the specific list of indicators that is being constructed and its expected use: if the matter is to reveal trends and follow them, the homogeneity of series throughout time is indispensable etc. Since it is almost sure that the indicators one can build will not possess all the ideal attributes, it is necessary to specify their range and the limits of their interpretation through a comment: *ideally an indicator should be able to do without comments, in practice it is not the case.*

The construction of environmental indicators is based on the pressure-state-response framework which was first stated by OECD which began using it in the Eighties. It starts by describing the pressures which human activities exerts on the environment (or possibly on the society): the starting point here are the activities (either the economic activity as a whole: tourism..., or its various dimensions: for example in the case of tourism, transport, catering, leisure activities). Then follows a diagnosis which is usually organised around the classical environmental issues (air water), plus social and economic issues (employment, wages...) if sustainable development is referred to. Finally the answers to the identified problems are dealt with. This approach seems clear and decision makers do like it; it is less approved by scientists, for whom it appears too mechanistic, too Newtonian, and founded on a simplistic vision of causal links ; it badly accounts for the complexity and the uncertainty of knowledge that the environmental crisis revealed. The European Environmental Agency proposes an improved framework: *Driving forces* (economic and social factors or trends) *Pressures, State, Impact, Response* (DPSIR). The social and economic tendencies draw attention to framing elements which are not directly related to the environment but which is necessary to follow so as to understand the evolution of the activity considered and the stakes related to sustainable development (it would be the case for example for diminishing working time, demography, income increase, the Euro etc. in dealing with tourism). As far as the diagnosis is concerned, the distinction between *state* and *impact* makes it possible to part the direct effects of the pressures (on the environment...) from their effects on communities.

Lastly, in practice, constructing a set of indicators must necessarily start with the choice of a editorial line which includes defining:

- awaited objectives: assessment (of the main trends, of public policies...), help to decision-making, communication...
- the public for which the indicators are built: civil servants which will require technical and detailed information, decision makers who usually demand highly synthetic information, enlightened public (scientists), general public ...
- the type of desired product: complete sets of indicators or selected indicators, indicators just meant to feed traditional assessment reports...

In relation to this conceptual framework, various kinds of indicators can be defined, according to their objectives or to the step which they inform: framing indicators, pressure, state, impacts, alert, response indicators. The assessment of public policies is related to a particular category of performance indicators which are intended to appreciate the efforts carried out to achieve a definite goal.<sup>1</sup>

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<sup>1</sup> Performance indicators are themselves divided into several categories: result indicators ( including state and pressure indicators), response indicators (including efficiency, means and process indicators) (Rechatin, 1999, p.62)

Criteria to which the indicators of environment should comply<sup>2</sup>

1. *quality of the data and accuracy of analysis*

1.1 *scientific value* : “the indicator must rely on serious scientific bases and not be ambiguous. Experts should agree on the use of this indicator”.

1.2 *availability of the data*. They must of course be “available and accessible” “a reasonably long time series should be available to be consulted and the possibility of being able to have in the future data collected on a regular basis should be secured. The coherence and the possibility to compare the data through time and space must also be established”..

1.3 “The data must be of good *quality*, i.e. precise robust and reproducible ...it must be easy to handle them (aggregate, desegregate) ...” and even to indicate *the margins of error*.

1.4 “the data must be accessible at a reasonable *cost-advantage*”.

2. *relevance with respect to the tackled subject*

2.1 “the indicator must provide *an representative illustration* of the environmental situation which it describes”.

2.2 *geographic coverage* “the indicator must reflect the specificities of the whole studied; it must be adapted to the selected scale (national, regional, local) ...”.

2.3 *sensitivity to changes* “the indicator must be sensitive to changes and accurately reflect the modifications of the environment or the associated human activities”.

3. *Communication*

3.1. *Relevance* “the Anglo-Saxons speak about *the resonance* of the indicator, i.e. its faculty to arouse the interest and to be immediately understandable by the user”.

3.2. *Simplicity* “the interpretation of the indicator by the user must be simple, fast and non-ambiguous”

3.3. Existence of a *benchmark value* making it possible to evaluate the distance to a standard.

3.4. Possibility of "interregional or international comparisons ...which implies the existence of common methods for calculation”.

3.5. Potential use within the framework of prospective scenarios

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<sup>2</sup> from Rump 1996 and Rechatin 1997

## ***The specificity of indicators related to sustainable development***

Sustainable development created a new demand for indicators at the same time as it added another touch of complexity to a debate which was already not stabilised. This new context implies to take some methodological precautions.

1. Sustainable development indicators (SDI) must first translate both the normative and the assessment dimensions of sustainable development. From the normative point of view, sustainable development is a goal one seeks to reach, as it has been defined by Agenda 21 and the Brundtland Report; the indicators will thus aim to estimate the progress towards this goal. This more or less takes for granted that there is an agreement on the criteria of sustainability and non sustainability, which restricts the debate.

The assessment point of view does not need an *a priori* definition of what sustainable development should be, and is rather interested in the trends of society, for example to see how the properties of the tourism system evolve (its sensitivity to economic crises, its capacity to answer changes in demand, to adapt to more restrictive transport policies). This does not imply value judgements and the SDI are supposed to bring an objective help to decision making.

Owing to the controversies on what should be a sustainable development, and to the absence of a normative vision shared by all (even if, at the international level, Agenda 21 is paid lip service to), it can be understood that the current approaches mix the two points of view. Therefrom it stems that the subjectivity usually carried by indicators is rather inevitable with SDI, since this double point of view on sustainable development is not always perceived. Building indicators implies an implicit or explicit reference to a "model", to a vision of sustainable development which translates this subjectivity. The stake is all the more real as the conceptions on sustainable development can diverge as much among theorists ("strong", "weak" sustainability etc.) as among stakeholders. The Brundtland Report can provide a starting basis which remains very broad and is far from sufficient to allow to discriminate between all the choices which arise.

In addition, these two attitudes, normative and assessing, induce very different procedures in the building of SDI. If there is an agreement on sustainability standards or on an assessment method, it is possible to propose a limited number of indicators with rather clear use prospects in the decision-making process. If there is no such agreement, it will be necessary to set up a more participative procedure, in which the stakeholders to which the SDI are addressed will be questioned on their point of view regarding sustainable development and on their priorities, at the risk of a greater complexity of the work.

2. Another source of confusion comes from the lack of distinction between an *internal* and an *external* point of view on sustainable development. Even if one admits that sustainable development essentially refers to global environmental and development issues (global warming, desertification, poverty for example), it nevertheless remains that its questions all actors and economic activities: States, local authorities, business, cities, ... These stakeholders will inevitably have different approaches as regards development: a holiday resort, a State and a large company can see sustainable development in very different manners. Stakeholders belonging to the same category will not identify either the same priorities: a holiday resort will pay more attention to its landscapes whereas a community in an open field area will be worried by the quality of its drinking water. Each particular case requires to evaluate the capacity of a system to achieve objectives and priorities of its own in the long term, but also to contribute to external stakes. In the case of tourism, it is both necessary to assess the sustainability of tourism regarding its own objectives and priorities (for ex: avoid the destruction of the resources on which tourism is based by tourism itself or by other activities), but also to evaluate its support to development objectives and to global environmental management which are presently seen as external to the tourist system (travel intensity or energy consumption of tourism, both contributing to global warming, impacts on communities and cultures, conflicts with other economic activities ...). Keeping a balance between these internal and external dimensions is necessary: dealing only with international aspects, is likely to discourage local actors or firms, and to prevent them from seizing the concept of sustainable development. Focusing only on local concerns will direct the thinking on miscellaneous local issues, thus forgetting central problems which are more specific of sustainable development (Levarlet, 1999, op. cit.). Moreover, if the goal of a sustainable development has been pointed out at the international level, and by the national authorities, this has not been followed by targets fixed to ground level stakeholders who keep their own sphere of activities and their management habits ...and whom it is necessary to render aware of problems which do not appear at a first glance

as being theirs. Otherwise, one will produce SDI without referring to the theory and to the normative character of sustainable development which will lead to local or sector-based information systems on environment and development, without any link between them, and without reference to a common project though this seems a minimum when one calls for sustainable development.

The constraint is thus to take at the same time into account the common the stakes raised by sustainable development and the interests of the actors for whom the indicators are built. In practice, it is sometimes possible to translate a global problem into local considerations, so as to draw the attention of local or sector stakeholders on long term risks, using indicators such as: "impact of the global warming on the snow cover. " This is, as Christophe Bouni states it "*mobilising needs to concretise sustainable development principles* " (Bouni 1998). But in other cases, tourism will directly contribute to environmental problems without any direct negative feedback. The tourists who go on the Riviera contribute for example to the greenhouse effect through their travel. But how is it possible to address local stakeholders on a subject which does not threaten them in any way at least for the short and medium term, the more as the major part of the emissions takes place during the travel, that is outside of their region? One can certainly try to show that global and local issues are linked, and underline for example that the tourists who come by car contribute to the resort's traffic jams and parking problems, and try to convince them to come by train or bus (not by plane, though), but it is doubtful they will follow such an advice . Some environmental problems (the use of natural spaces for example) appear as externalities of the tourist activity; they neither affect the tourists directly nor the operators, and have impacts on groups, institutions or entities which are not represented in the decision process . Those who are in charge of building a set of SDI then have the responsibility to take into account the interests of absent third parties (future generations, natural habitats, any group likely to undergo the negative impacts of tourism).

Since it has to take into account the diversity of situations while keeping a common referent, to assess issues without closing the debate on the question of sustainability (but nevertheless clarify the assumptions behind each stakeholder's views), to find a balance between a top down and a bottom up approach, the construction of SDI has something to do with the art of a tight rope walker.

These theoretical considerations more or less clearly appear in the works on SDI in the field of tourism.

## **Sustainable development indicators of in the field of tourism**

In the field of tourism a certain number of attempts to build SDI have been carried out: we shall describe a few of them.

Generally, in these works, it is difficult to find the gap, mentioned above, between academic approaches and the works of governmental or international institutions. Expertise, academic work are here generally linked to institutions, especially at the international level (World Tourism Organisation). ... This is probably due to the weakness of alternative thinking on tourism itself (contrary to what occurs for example on environmental issues) and on the tourism-environment interface in particular: the questioning to which the concept of sustainable development could lead is therefore somewhat limited.

### ***Practical difficulties in implementing indicators***

The Blue Plan gathered in 1997 (Plan Bleu 1997) the preceding works on SDI for tourism. This collection goes back to 1981. The indicators selected appear often trivial, unrealistic and subject to criticism.

The main change, these last years has been a progressive slide from traditional economic or environmental indicators to more holistic approaches, combining and trying to achieve some consistency between economic, social, and environmental topics

Among the most recent work aiming to the construction of a complete set of SDI applicable to the tourist destinations, it seems necessary to first mention the work of WTO. A group of experts led by Edward Manning published a practical Guide for indicators of sustainable tourism ", "*intended for those who deal directly with the planning and the management of the national and regional tourist development, and for those which are directly responsible for the management of given destinations* " (Consulting and Audit Canada 1995), p.3. This work presents two series of indicators: fundamental indicators for sustainable tourism , and indicators specific to each great type of destination (seaside, parks) ...

Fundamental indicators of sustainable tourism (WTO 1997)	
Indicator	Specific measuring instruments
Site Protection	Category of protection of the site according to the index of the UICN
Pressure	Number of tourists visiting the site (by year/month)
Intensity of use	Intensity of use in peak period (people / hectare)
Social impact	Ratio tourists/inhabitants(average and in peak period)
Development control	Existence of a procedure to study the environment or of true controls of planning and density of use
Waste management	Percentage of waste water treated
Planning process	Existence of a systematic plan for the area of the tourist destination (including a "tourism") component
Fragile ecosystems	Number of rare or threatened species
Consumer satisfaction	Degree of satisfaction of the visitors (according to a questionnaire)
Satisfaction of the inhabitants	Degree of satisfaction of the inhabitants (according to a questionnaire)
Contribution of tourism to the local economy	Proportion of the global economic activity due to sole tourism
Composite indexes	
Carrying capacity	Composite measuring instrument warning on the state of key factors influencing the capacity of the site to handle various levels of tourism
Site disturbance	Composite measuring instrument of impact levels on the site (i.e. on its natural and cultural characteristics under the pressure of the added constraints of tourism and other sectors)
Interest	Qualitative measuring instrument of the characteristics of the site which make it attractive for tourism and which can change in time

Some of the above indicators do not seem easy to implement: even in a country possessing a important statistical system, it is impossible, for instance, to find directly the part tourism takes in the turnover of economic activities such as restaurants, transports etc.

Other indicators are obviously difficult or impossible to quantify, and the debate raised is whether you can call an indicator an information which is not quantified and includes a strong amount of subjective appreciation, even if that subjectivity is hidden by a classification on a scale from 1 to 5 (see above). It is the case for "development control" where mark "1 means there is no control on development while the gradually higher marks correspond to a proportional increase in the degree of control and its effectiveness" (p. 15).

### **Different strategies**

These practical difficulties of implementing indicators are the core of the Victor T.C. Middleton's work for the European Environment Agency: "Tourism and the Environment at European level. A practical framework for assessing the issues with particular reference to Coastal Mediterranean and Alpine Regions" (Middleton and Sieber 1999). The authors conclude to the impossibility of creating throughout Europe, on a national scale, a set of indicators making it possible to compare countries between them: "many highly desirable indicators have to be rejected because they cannot be made operational and comparable on an European basis or because a simple question cannot be phrased to produce a statistically reliable response" (p. 15). They think it necessary to start from the level of the firm and of major tourist destinations to implement indicators which could really be used "We deliberately target the three main sectors of larger hotels, larger tour operators and larger visitors attractions [...] ... when reliable measures in these three sectors are established, it will be relatively easy to expand and extend the scope of a European framework to embrace more sectors" (p. 15). He establishes a list of indicators for each targeted sector, and recommends to first deal with larger size stakeholders, for example tour operators sending more than 10 000 people to one resort, or sites seen by more than 50 000 people (see frame below). Implementing and putting figures to the indicators remains to be done.

**Indicators for visitors attractions** from (Middleton 1999) p 18

1. Significance of role in communicating/interpreting one or more aspects of the local environment through the attraction ...
  2. Formal (published ) statement of commitment to the environment ....
  3. targets and programmes set annually with an agreed formal system in place for monitoring and recording on file:
    - Energy consumption (kwh per m2)
    - water consumption (volume by visitor)
    - waste water treatment (percentage of re-use)
    - percentage of sewage/waste water treated through municipal facility or privately owned plant...
    - purchase of environmentally friendly chemical products...and safe disposal of hazardous waste
    - volume of waste sent to landfill (weight per visitor)
    - formal programme in place to purchase local food and other supplies...
    - program in place for local community involvement and environmental conservation (money, staff-time, materials)
    - local community employees as percentage of total full and part time work force
  4. regular use of CSQs with questions on customers satisfaction with the environmental aspects of visits
  4. representation on a local tourism forum...
  5. specific provision for transports other than cars...
  6. membership of eco-label or other environment award...
- financial contribution made annually to local environment conservation...

These methodological choices regarding SDI for tourism are not only technical choices. They also affect, lead to or suggest strategies for future tourism sustainable development policies. Victor Middleton's approach, similar in others of his publications (Middleton 1998) explicitly calls for self-regulation of the tourist sector: “ *Although local authorities are the chosen institutions for the exercise of statutory and regulatory powers, there is an increasing recognition that forms of self regulation through voluntary initiatives by commercial enterprises will be a vital element of any successful development and implementation of more sustainable practice. Public sector/ private sector collaboration at local level provides the essential forum for the effective development of self-regulation alongside regulatory powers* ”. (Middleton and Sieber 1999, op. cit., p.11).

This raises several questions:

- one can fear that issues which are not relevant or perceptible at the level of the firm or at the local level might be forgotten. Among these issues, one can point out to the assessment of spatial and seasonal tourist concentrations, which must also be seen and dealt with at a national level since they are both determined by the localisation policies of the larger operators and also determine public transport policies and their impacts on the environment: focusing exclusively on the local level does not allow to see these major trends of tourism on a national scale. The implementation of the "right to holidays" and social tourism also call for national solidarity mechanisms (aids to building popular resorts or to the departure of individuals) which are quite distant from the concerns of the tourist managers in resorts. The same applies to taking into account the impact of tourism on the global warming.

- the author is right to insist on the statistical difficulty, even on the impossibility of isolating tourism in the environmental assessments as well as in the national economic assessments (to obtain data such as: part taken by tourism in the production of sewage water or waste). It is also clear that information has a cost, and that more particularly the cost of this type of national assessment is important. The French Institute for the Environment (Ifen, see below), has nevertheless achieved such an exercise (Rechatin, Dubois and al 2000 ), which is a state of the art, limited by the currently available data on the relations of tourism and the environment. For example, it locates, using quantified indicators, the areas where tourism exerts an important pressure on natural habitats (using the census of ZNIEFF<sup>3</sup>), the positive contribution of tourism to the cleansing of coastal regions, and on the other hand its role in the artificialisation of the natural areas of the same coasts, or the parts of the territory currently subject to tourist pressures (by analysing the trend in the accommodation capacity between 1990 and 1999) etc. These data seem absolutely necessary to us to support future sustainable development policies, and cannot be obtained otherwise than through a national statistical approach.

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<sup>3</sup> roughly the equivalent of "sites of special scientific interest"

- on the other hand, once the stakes are clearly identified, it is clear that approaches focusing on stakeholders and the territories are fully legitimate. The various works carried out in this context show very variable contents. The Ecomost project (European Community Models of Sustainable Tourism) monitored by the International Federation of tour-operators shows a list of indicators focused on the local environment and the long-term sustainability of the profitability of the tourist activity, with topics like the safeguarding of the economic effectiveness, of the prosperity of local residents, of their cultural identity, the upgrading of accommodation etc. This logic remains rather professional (referring to the "internal" aspect of sustainable development as mentioned above), and the environment is most of the time taken into account only when it is likely to question the development of the resort. On the contrary, the approach of "the check list for tour-operators" developed by The German Monitoring Association is concerned with the external impacts of tourism and recommends the tour-operators a limitation of some their practices so as to take into account their impacts on the environment. Among the items, one can find: the preference given to the low season periods to limit concentrations, to close destinations to decrease transport, also the concern of avoiding air transport for short travels, of using means of transports and practising activities less intensive in energy (avoiding helicopters, water skiing), the encouragement to use less polluting vehicles, to privilege small size and not too luxurious accommodation and to buy local products ...

Other lists of indicators, or fairly near types of documents, coming from NGOs or professional associations could also be quoted.

The work completed by the ACCOR holding (la Charte environnement de l'hôtelier) deserves a detailed attention. It takes the form of a charter. The document deals in an extremely concrete and practical way with the following issues: energy, water, waste, asbestos, landscape: it thus refers to an environmental point of view and not to sustainable development which would require taking into account of many other dimensions. The document provides to hotels methods which enable them to describe their situation and to compare it with standards which can widely vary according to class and comfort, which by the way recalls that sustainability is not only a question of technique but also questions ways of life. The guide provides advice to improve the initial situation.

### ***French initiatives***

In France, two attempts of building environmental or sustainable development indicators in the field of tourism have come to an end, or near to it.

1. The first is that of Ifen. After an exploratory research on sustainable development indicators, the work was directed towards environmental indicators; it combines a national approach (excluded French overseas territories) and a spatial approach (coastal, mountain regions, countryside, cities). The aim is clearly an assessment of the current situation. The indicators deal with tourist flows and of their concentration in space and time to clarify the environmental consequences of tourist transport and of the stays (space, energy, water consumption, production of waste, pollution and other harmful effects). The work is strongly determined by the existence of data, and building indicators in the absence of quantitative information or when data are judged of too poor quality, has been given up. This can exclude important issues such as the impacts of French tourists abroad (whereas the impact of the foreign tourists in France is documented). The work endeavours to cross data coming the environmental sphere with data coming from the sphere of tourism or other activities (transport), insofar as these relate to tourism. This work is characterised by an effort in processing data.

2. The second is a work resulting from an initiative of the Agence Française pour l'Ingénierie Touristique (Afit). The aim here is to develop a guide allowing the territories (the geographical scale is that of the resort or of a territory with some tourist appeal) and their tourist firms to assess their situation as regards sustainable development (with four dimensions: environment, economy, social, ethical) and to progress in this direction. The guide is supposed to be used in a further step on experimental territories. The core of the exercise is the method designed to imply the various stakeholders of the territory on the path towards a more sustainable development; the place of indicators appears instrumental as regarding this aim and, in fact, rather secondary. Can be regarded here as an indicator the qualitative answer of an expert or the appreciation of an investigator.

The assessment phase corresponds for the territories to a attempt to evaluate and if possible to quantify the problems selected. This phase is not an end in itself, and is only part of the global process on the way to sustainable development. It must in particular be prepared by an identification of the stakes concerning sustainable development on the territory (which are not limited to the tourist sector) and by the choice of a relevant territory (boundaries of the resort, the rural area studied), then followed by an analysis of the diversity

of perceptions of the tourist development on the territory, all this before thinking to an action plan. This supposes that tourism is not only assessed within a professional logic (profitability of the resort), ...but also with regard to objectives which it is not accustomed to being confronted to, such as water management, air pollution, sensitivity to the crises and factors of weakness of the destination in the long term, distribution of the incomes of tourism in the local economy, economic diversity. Some of these topics are well known, others just emerge and suppose new means of evaluation. More generally, it is necessary to assess tourism with regard to two types of objectives:

- "internal" priorities for the territory and the firms, which are those of the tourism stakeholders or of the local community. They are related to questions such as "What is the profitability of tourism", "To whom does it profit? ", "does it lead to local environmental problems? ", "How is it accepted by the local community and integrated in its way of life? ". This supposes a preliminary knowledge of the territorial stakes in term of environment and development: Tourism is not assessed in an isolated way, but taking into account all the problems the territory faces.
- Priorities which are "external" to the territory and its firms, and which sustainable development pointed out to. A local activity can induce impacts beyond the territory. Does local tourism threaten species which are protected at the national level? Does it compete for the use of water with activities located in the same river basin? Does the territory or the firm contribute to the cohesion of the national community by accommodating during the holidays underprivileged people ? etc.

The national working group set up by Afit sought to synthesise in a balanced way this set of tourist and non tourist objectives, which are internal or external to the territory, using a set of *criteria*. At this stage, the normative dimension of sustainable development appears. These criteria, which are suggested to the experimental territories, guide the assessment process. They must be understood as objectives that the territories should seek to reach in the medium term to set their tourism on the path to sustainable development.

So that the indicators can be useful for the territories, one has tried to set *benchmark values*, to which the territories (or their firms) can compare themselves. Should one recommend a resort to widen its tourist season, and thus to start by evaluating its present length, it is necessary to enable it to evaluate its potential of improvement by providing the average values for its region or for France. The same applies for example for the length of stays, the tourist average expenditure, the contribution of tourism to the water consumption of the territory. What we name *benchmark values* is not exactly tantamount to standards, in the sense that the former do not always stem from a normative approach but can merely express an observation.

In both cases, these works attempts to produce data specific to tourism, and distinguish framing data and indicators. The framing data, will refer for example to the rate of overall unemployment of the territory; the corresponding indicator will be the rate of unemployment in the jobs related to tourism. Abiding by already known data without seeking an added value would just mean forgetting that one of the aims of building indicators is precisely to contribute to the improvement of the information systems in tourism. This objective is clearly assumed in the work of Afit, which exposes methodologies for defining some indicators even if it is known pertinently that the data will not be available on the studied territory but could possibly be collected. The aim is to foster a ground level effort to collect data or to start new specific inquiries relevant as regards sustainable development issues.

## A few decisive issues

### ***The difficult search for a common referent***

Since sustainable development is supposed to concern all stakeholders , it appears logically desirable that they should agree on what the stakes are and on the manner of approaching them. However, beyond the simple reference to Agenda 21 in speeches and papers, the diversity of the approaches and the lack of co-ordination of the initiatives clearly predominate. This is due to several reasons.

First, the choice of the indicators is related to the multiple points of view on sustainable development those who build them can refer to. It is desirable that this background be clearly stated. For example, the works of Afit, those of the European Environment Agency and more generally those of the public authorities are far from being founded on a maximalist interpretation of sustainable development, which is logical insofar as it would deeply question tourist development, both as regards its volume and to its development patterns. It is also a necessity to clarify the scenarios which one has in mind for the evolution of the activity and his context (external constraints): the question of the (non-)sustainability of tourist activity does not arise in the same terms according to whether one works with the hypothesis of a threefold increase for the next thirty years or simply a 50%

increase, or according to whether one makes the assumption of an average climatic change of 2 or of 4 degrees. The indicators to be built are not the same in each case. It is not easy to identify the moment from which different points of view on sustainable development make it impossible for partners to work together and build a common set of indicators; it is on the other hand certain that if one wants to see the stakeholders share such a project, it is necessary to leave open, to some extent, the question of the tokens of sustainability. Academics like very much to identify ambiguities but this is to be done with care in a working group.

Secondly, the choice of the indicators depends on the space level that is investigated: international, national, regional, local. The problems and priorities vary, so does the availability of data<sup>4</sup>. The capacity of sets of sustainable development indicators, (applied or not to tourism) built by international organisms (UNO, UNEP, WTO) (Ifen 1998). to match with the reality of any country is already problematic but the smaller the geographical scale is the more the discrepancy appears. Nevertheless if one wants the idea of sustainable development to keep some kind of interest, it is necessary to keep an eye on global problems and what is happening elsewhere, in particular with regards to equity issues in the use of the resources. This is why while building a set of indicators, one cannot start only from local concerns. We think that one must begin with an exploratory phase embracing all the dimensions of sustainable development and take the trouble to explicitly put aside those that do not appear relevant for the spatial entity considered; this is the way both to make local stakeholders aware of global problems and to take care of the diversity of contexts within which local stakeholders act. The stake is naturally not only intellectual since it can be expected that sooner or later global changes will have an impact at the local level.

### ***Linking the assessment procedures to sustainable development strategies.***

The priorities which are set in the construction of indicators also depend on the idea one has of the importance of the various stakes and of the governance of tourism in a prospect of sustainable development. Must one focus on the firms, on the territories, what part should the State and international organisations play? What should be left to voluntary initiatives and how far should constraining measures go?

These strategic considerations must influence the assessment methods. If it is chosen to rely on self-regulation, if it is believed that the most measures can be implemented by the private operators, the firms should be encouraged to a self-assessment and use indicators in that context. If one thinks on the contrary that certain stakes (transport) can be dealt with only by the national or European public authorities, the use of national assessments and indicators at this level will appear unavoidable. Moreover limiting the assessment to the local level, would be forgetting that the scale of tourist development has changed and that it depends more and more on the strategies of large world-wide companies (hotel conglomerates, tour operators), whose decision-making centres are largely external to the resorts. What is the sense of studying trends at the local level if it is known that this same level has no capacity to act on these trends?

To assess themselves regarding sustainable development, each category of stakeholders does not need the same set of indicators. On the one hand because they all are not challenged by the same issues, on the other hand, and it is partially linked, because their priorities are not the same. Though, is it necessary to build a set of indicators for each type of stakeholder? That can be the case if the focus is really on the stakeholders: if for example one concentrates on hotels, it will undoubtedly be interesting to compare throughout the country water or energy consumption etc. and to compare them to standards.<sup>5</sup> If one is interested in a territory, one will have to organise a dialogue and a confrontation of the various categories of stakeholders, each having their own concerns and priorities will have to be organised. It will thus be necessary at the same time to start from a territorial specificity which exceeds the concerns of each category of stakeholders and to take them into account. Practically, that results in the building of a set of indicators centred on the problems identified for the territory; this selection will already deal with a good number of dimensions interesting the stakeholders (keeping an eye on the quality of the rivers on the territory is of some interest for the professionals who hire canoes etc.); and it will be supplemented by a certain number of indicators specific to definite categories of stakeholders.

### ***Medium-term prospects***

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<sup>4</sup> Our work, with AFIT has shown us that data available at a national level are far from being always possible to split to the regional level and never at a resort level. Data at the level of territories, when they exist, are usually collected according to very diverse methods. It is thus not easy for a location to compare itself neither to others nor to larger spaces.

<sup>5</sup> See for example the ACCOR charter

Higher in this paper, we at the same time shown the historical context of the demand for indicators as well as its linkages with the concept of sustainable development . We have reviewed recent works on the subject and pointed out the difficulties which the building of sets of indicators faces. Given this state of the art, the question that stems is: what help can be reasonably expected from indicators, and what goals could be set to improve this tool in the years to come ?

We will start by warning against some possible illusions and drifts. The first is that of a certain planning Utopia. With the indicators one would have found an decisive instrument making it possible to control the evolutions of tourist activity and thus to direct them towards sustainable development. The illusion is here twofold, on the one hand because the tool is far from being reliable, on the other hand because it cannot substitute political action. The wish to master the future currently meets with an increased will to control public action. Everything is assessed and controlled, one denies the fact that a certain inaccuracy, some slack, in fact leaving some initiative to the grassroots policy level, is necessary for organisations to work properly. In such a context, "certified" sustainable development indicators could become well a new vector of the power of upper-level bureaucracies, subordinating their aid to the construction of sets of indicators . The prospect for the translation of SDI for the tourist firms into a formal EEC directive, called for in the work of Middleton for the EEA should be appreciated in this context: "*with experience and success, and given the vital importance of sustainable development within overall EU Policy, it maybe judged appropriate in the future to develop the framework into a formal Directive* " (Middleton and Sieber 1999, op. cit., p24). The danger that ground level stake holders or communities might just pay lip service to what they could perceive as bureaucratic demands and give them the conventional answers these authorities expect, to the detriment of dealing with the issues.

In the same way, it is necessary to beware that the debates around sustainable development do not give rise among grassroots stakeholders to false requests driven by the desire to obtain grants or to create a public image.

To avoid this it is necessary to permanently recall the basic contents of sustainable development but also not to let over expectations regarding the use of indicators develop. The users, but also some theoreticians often insist on limiting the number of indicators which should moreover be readily usable: in short the idea is that decision can be guided by a few ratios. One of the major dilemmas with indicators is that on the one hand one wishes to have access to a wide realm of indicators that can describe reality in an accurate manner, in spite of complexity that that generates; but on the other hand one wishes to have all this in the most concise possible form, ideally a single index, in spite of the distortions of results which this simplification imposes. It is certainly necessary to limit the number of indicators, but the works which we took part to (see in particular the work for Ifen which only deals with the environmental dimension of sustainable development) convinced us that remaining under a hundred indicators for a territory already necessitates some serious thinning out (unless aggregation into indexes is accepted with all its drawbacks). Indicators imply their users invest some time and a thinking effort; this should not be hidden..

After these warnings, one can wonder how the tool could be improved. The difficulties recent works on the subject had to face suggest the following priorities. It seems necessary:

- To better assess the quality of the data on which SDI are built; and this is especially true in the field of tourism
- To collect new data allowing to inform some important aspects of sustainable development on which it is not currently possible to build indicators. The scope of this recommendation will of course be drastically limited by the cost of information
- To draw the lessons from the works already carried out, and highlight the existing lacks of data, so as to contribute to the improvement of the information systems on tourism.
- To make the indicators more easily understandable and handy to the users. For example the search for benchmark values or the attempts of Ifen to work on the communication aspect of indicators seem to go in this direction.

## Bibliography

- Bouni, C. (1998), "L'enjeu des indicateurs du développement durable. Mobiliser des besoins pour concrétiser des principes", *Natures, Sciences, Sociétés*, 6(3), pp. 18-26
- Ceron, J. P., Dubois G. et RAOUL-DUVAL, J. (2000 (to be published)), "Théorie et pratique des indicateurs de développement durable: leçons d'une application au tourisme", in *Les territoires du développement*, G. Loinger (dir)
- Ceron, J. P., Dubois G. Grille et éléments d'évaluation du tourisme durable au niveau des territoires. CRIDEAU, ERMES-IRD, AFIT. Dec 2000 151p.
- Consulting and Audit Canada (1995), *Ce que les gestionnaires du tourisme ont besoin de savoir. Guide pratique pour l'élaboration et l'emploi d'indicateurs de tourisme durable*, Madrid, Organisation mondiale du tourisme, 45 p.
- Departement of the environment / HSMO (1996), *Indicators of Sustainable development for the United Kingdom*,
- Ifen (1998), *Test des indicateurs de développement durable des Nations Unies- Rapport de la France*, Coll. Etudes et travaux, Orléans, Ifen, 410 p.
- Levarlet, F. (1999), *Les indicateurs de développement durable. Méthodes et perspectives*, Coll. Etudes et travaux, Orléans, Ifen, 133 p.
- Middleton, V. T. C. (1998), *Sustainable tourism. A marketing perspective*, Oxford, Butterworth Heinemann, 266 p.
- Middleton, V. T. C. and Sieber W. (1999), *Tourism and the Environment at European level. A practical framework for assessing the issues with particular reference to Coastal Mediteranean and Alpine Regions*, Copenhagen, European Environment Agency, 38 p.
- OMT "Ce que les gestionnaires du tourisme ont besoin de savoir. Guide pratique pour l'élaboration et l'emploi, d'indicateurs du tourisme durable". Madrid 1997 75p.
- Plan Bleu (1997), "Tourisme. Indicateurs de développement durable. Première recherche d'indicateurs selon quelques références bibliographiques", Sophia- Antipolis, CAR/PB, 25 p.
- Rechatin, C. (1997), "Les indicateurs comme outils de communication sur l'environnement", Ifen, 30 p.
- Rechatin, C. (1999), *La diffusion de l'information sur l'environnement. Le reporting environnemental*, Coll. Notes de méthode, Orléans, Ifen,
- Rechatin, C., Dubois, G., et al. (2000) *Tourisme, environnement, territoires: les indicateurs*, Orléans, Ifen, 261 p. env.
- Rechatin, C., Theys, J., et al. (1997), *Indicateurs de développement durable: bilan des travaux étrangers et éléments de réflexion*, Coll. Notes de méthode n°8, Orléans, Ifen, 72 p.
- Rump, P. C. (1996), *State of the environment reporting: source books of methods and approaches*, UNEP.
- Theys, J. (1999), "Un nouveau principe d'action pour l'aménagement du territoire ? Le développement durable et la confusion des (bons) sentiments", Note pour le groupe DATAR/ CPVS "villes et territoires du XXIème siècle", 26 p.