

INDICATORS FOR THE SUSTAINABLE MANAGEMENT OF TOURISM



**Report of the
International Working Group
on Indicators of Sustainable Tourism
to the Environment Committee
World Tourism Organization**

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International Institute for Sustainable Development
161 Portage Avenue East - 6th Floor
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R3B 0Y4

Phone: (204) 958-7700

Fax: (204) 958-7710

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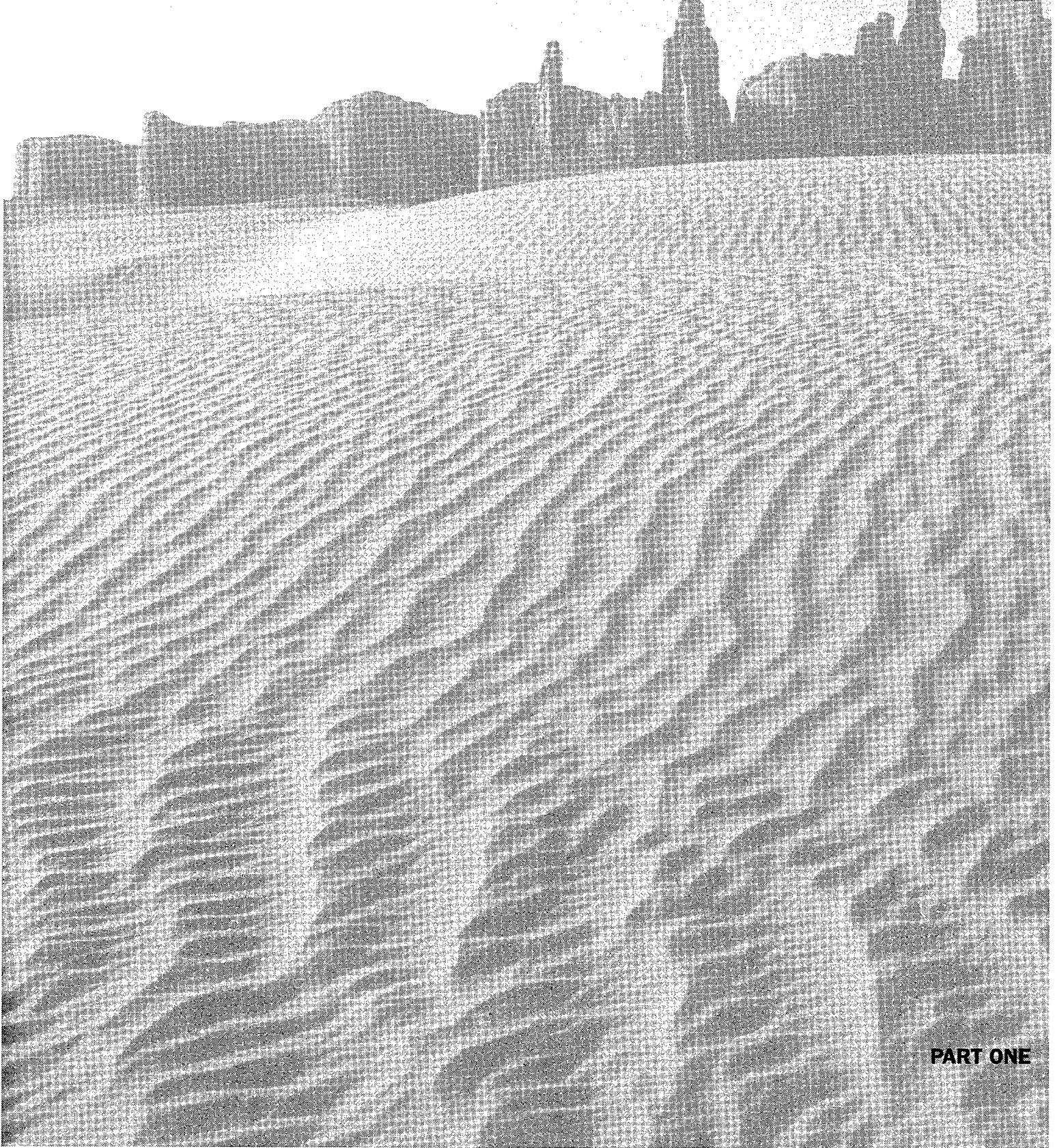
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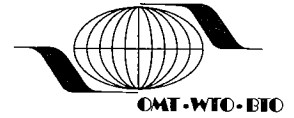
EXECUTIVE SUMMARY

AND

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PART ONE

EXECUTIVE SUMMARY AND RECOMMENDATIONS

**ORGANISATION MONDIALE
DU TOURISME**

**WORLD TOURISM
ORGANIZATION**

**ORGANIZACION MUNDIAL
DEL TURISMO**

**ВСЕМИРНАЯ ТУРИСТСКАЯ
ОРГАНИЗАЦИЯ**

The tourism sector requires better information to support its sustainability. Recognizing this, the WTO Environment Committee established a task force to investigate the development of international indicators of sustainable tourism for the sector. These indicators will support industry decision-makers in managing the fortunes of the industry in the face of growing concern globally and locally about environmental quality. The indicators are designed to address the links between the tourism industry and the environment, the impact of the industry on the environment, and the effects of social and natural environmental factors on the prosperity of the industry. This initiative contains indicators both for the industry itself and for the governments who oversee tourism development and tourism activity.

The initiative to develop indicators of sustainable tourism began with a proposal from Canada (Annex 2) to the WTO Tourism Committee. At the April 1992 meetings in Madrid, a Working Group was struck (see Part 2 for membership) to carry out the development process and report back to the WTO Environment Committee in the Spring of 1993. This is the report of that committee, prepared and submitted by the committee Chair, Dr. Edward W. Manning of Tourism Canada. The report reflects the results of a workshop held at the International Institute for Sustainable Development in Winnipeg Canada, and several rounds of review and input by the Working Group members.

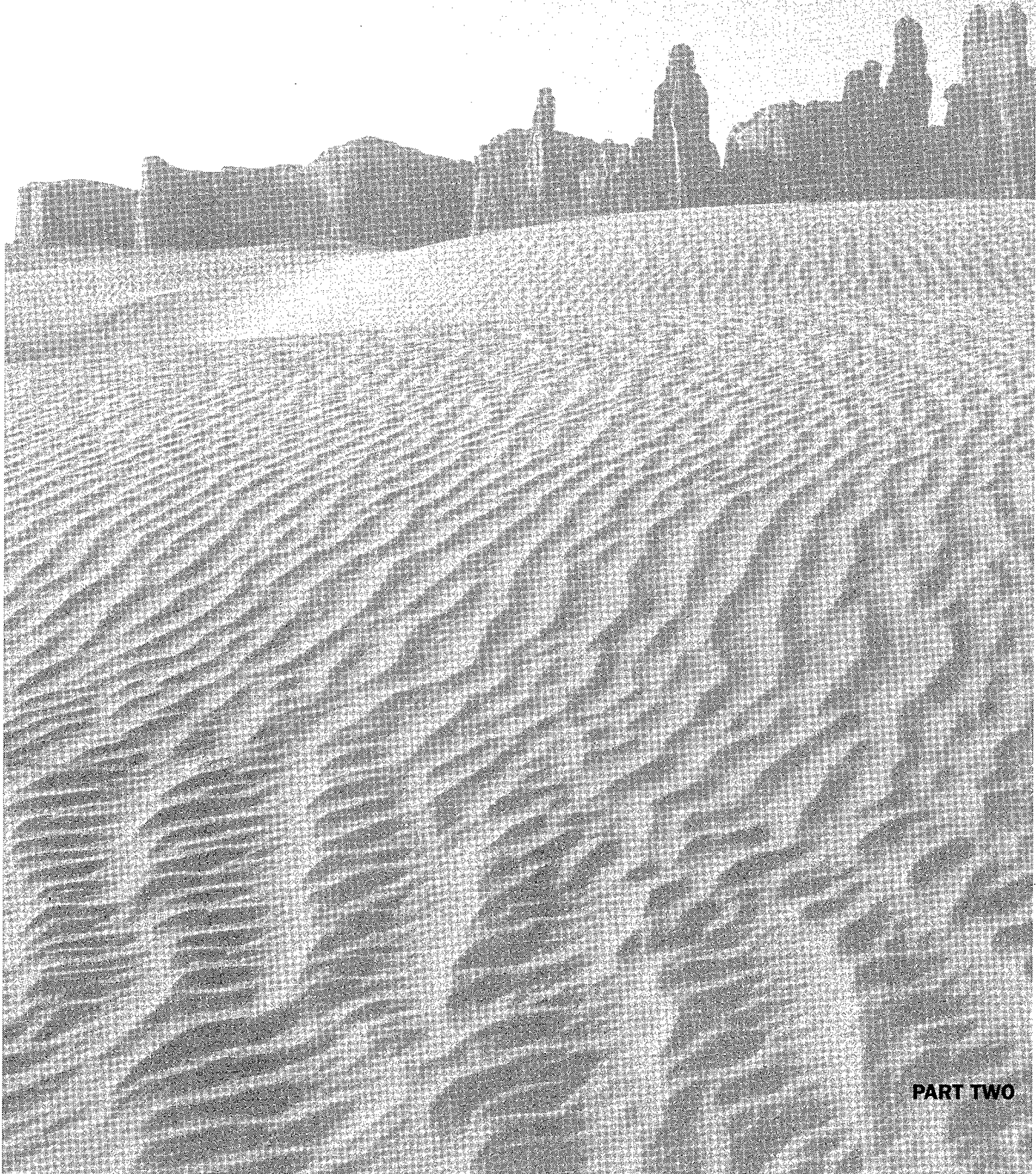
The working group submits this report to the WTO Environment Committee with the following recommendations:

- It is recommended that the WTO Environment Committee accept the list of indicators and derived indices contained in Part 3 of this Report as the basis for testing and formal development of international indicators for the sector.
- The Working Group recommends a three-element approach:
 - composite indices [destination attractiveness and destination stress]
 - national level indicators [table 1]
 - site or destination specific indicators for hot spots and critical areas [table 2]
- It is recommended that the next step be the pilot testing of these indicators and indices on a voluntary basis by five or more WTO member nations. The pilot tests should occur during 1993–4, and if possible include a range of nations in size, level of development and tourism types.
- It is recommended that the WTO hold a workshop on the further elaboration of the indicators, involving the representatives of nations carrying our pilot studies and representatives of the working group. The focus of this workshop should be on data sourcing, modification of specific indicator application to reflect data availability and validity.

- It is recommended that the WTO collaborate with the OECD in the advancement of the derived indices, and in the development of a site-specific process to target and review site impacts for critical areas and hot spots.

- The results of each pilot, and the workshop results should be presented to the WTO Environment Committee in time for synthesis and circulation prior to the 1994 meetings.

**WORKING GROUP/
ADVISORY COMMITTEE**



PART TWO

INTERNATIONAL WORKING GROUP

W.M. (Bill) Baker

World Meteorological Organization
Scarborough, Ontario, Canada

Stephan Barg

International Institute for
Sustainable Development
Winnipeg, Manitoba, Canada

A.M. (Sandy) Gillies

International Institute
for Sustainable Development
Winnipeg, Manitoba, Canada

Ted Manning

Tourism Canada
Ottawa, Canada

Scott Meis

Tourism Canada
Ottawa, Canada

Avertano Role

Ministry of Environment
Government of Malta
Floriana, Malta

Jack Ruitenbeek

Consultant, Environmental Indicators
Gabriola, British Columbia, Canada

Peter Shackleford

World Tourism Organization
Madrid, Spain

David A. Simmons

Simmons & Associates
St. Michael Barbados

Ginger Smith

U.S. Department of Commerce
U.S. Travel and Tourism Administration
Washington U.S.A.

Carolyn N. Wild

Tourism Industry Consultant
Ottawa, Canada

Tom Wolters

Ecoplan Environmental Consultants
Willemstad, The Netherlands

CORRESPONDING MEMBERS

Victor Middleton

World Travel and Tourism Research Centre
Oxford England

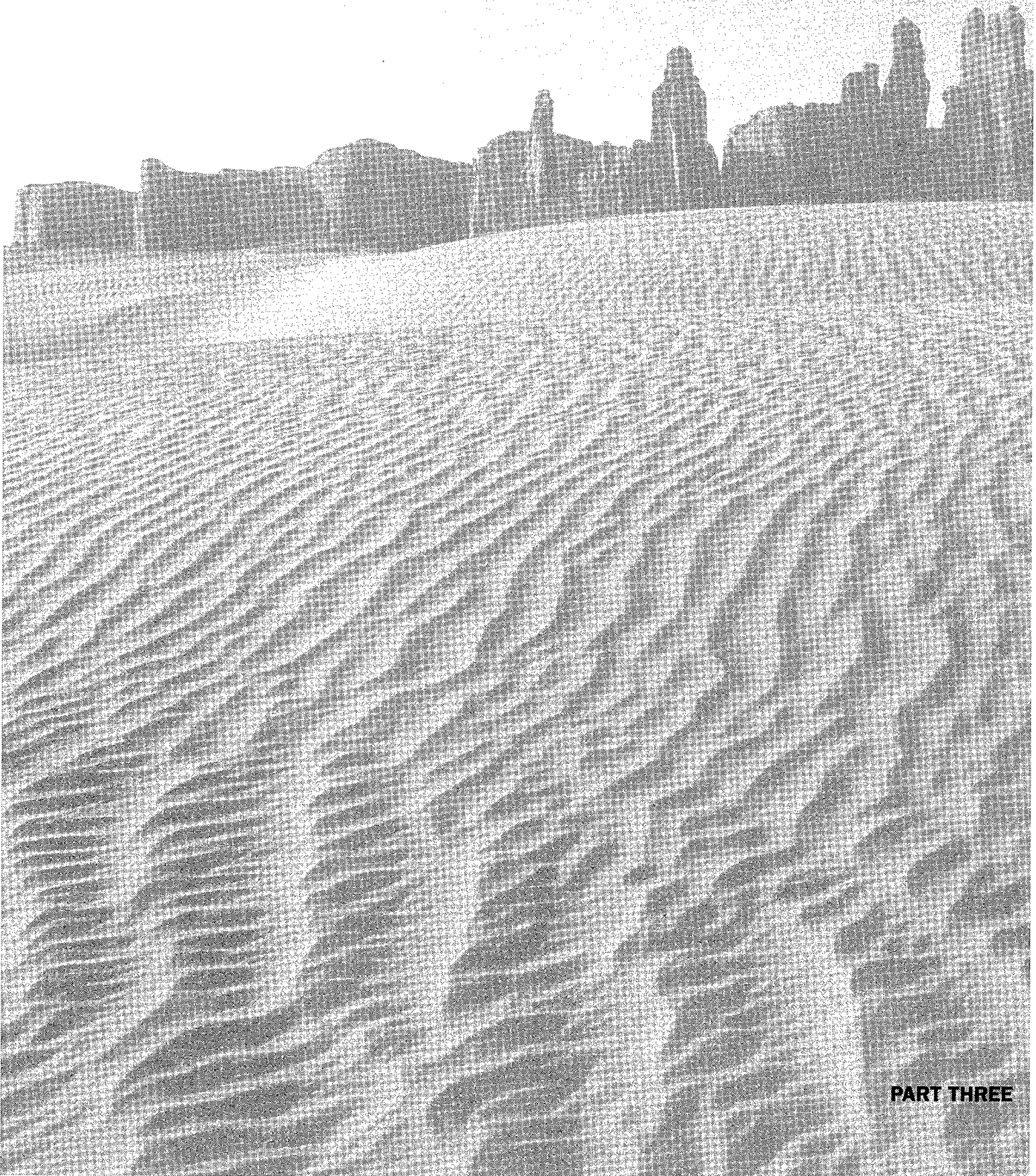
Dan Tunstall

World Resources Institute
Washington U.S.A.

REPORT OF THE INTERNATIONAL WORKING GROUP ON
INDICATORS OF SUSTAINABLE TOURISM TO THE
ENVIRONMENT COMMITTEE WORLD TOURISM ORGANIZATION

INTRODUCTION:

THE NEED FOR INDICATORS



PART THREE

INTRODUCTION: THE NEED FOR INDICATORS

Businesses and governments must continually make decisions which affect the tourism sector and the natural and cultural environment in which it operates. Many decisions are taken without adequate understanding of the effects of these decisions on the environment, or without knowledge of the environmental factors which may aid or hinder the tourism sector's long-term prosperity. Tourism managers are typically faced with large quantities of data and information about social, economic and environmental concerns. Much of this is in a language or format which they little understand and infrequently have the time to examine in depth. Lost in the incoming snowstorm of paper may be the key fact or trend which means success or disaster to the enterprise, or to the region within which it operates. There are important implications in the changes we see in the natural and cultural environment for our success.

The impact of the environment on our goals, and the effects of our actions on the environment are not factors which can be ignored by decision-makers. Increasingly, we are faced with the fact of accountability and responsibility for these relationships. Therefore how are we to understand the challenge well enough to manage it effectively. Degraded environments, legislated limits, lost markets all show up in the bottom line. Located at the top of the environmental and industrial food chain, tourism is extremely sensitive to environmental conditions and to the impacts others have on the system. In fact, the state of tourism itself may be a key indicator of system stability. Because of this linkage, the tourism sector needs increasingly to become a knowledgeable participant in the planning of the use of the environment, and a knowledgeable manager of its own impacts. ***What do decision-makers in the tourism sector need to know to do this effectively – to risk reduce their own future?***

The mandate of the WTO Environment Committee is to "Assist...members to attain and maintain the highest possible standards in their tourism development..." Recognizing the growing concerns over the link between tourism and the environment, the WTO has embarked on a task to develop a set of internationally accepted indicators or measures which will aid in providing managers and planners of tourism development with the digestible information they need to understand their links with and impacts on the environment within which they operate. In the Spring of 1992, the Environment Committee launched an initiative to develop an agreed set of internationally used indicators to support better decision-making by governments and the tourism industry in support of a sustainable tourism sector.

The sequence of development is summarized in Annex 1.

FOCUS OF THE INTERNATIONAL WORKING GROUP

The international working group focused on the development of a set of indicators of sustainable tourism to aid decision-makers in understanding:

- links between the tourism industry and the natural and cultural environment,
- effects of environmental factors on the tourism industry and
- impacts of the tourism industry on the environment.

The indicators are designed to encompass environmental factors and sensitivities, measures of human actions which stress the environment, measures of results of human impact, and measures of the human and biological consequences of these impacts. As such, they include many of the same measures of level of activity (numbers, economic measures) which are currently in use to measure industry activity. Other indicators will be based on commonly collected environmental information, massaged to be of maximum utility in presentation and format to decision-makers in the industry. At the same time, a number of derived indicators will be devised which, using existing information sources, will provide the issue-specific information that real decision-makers need to make real decisions in real places. While, for example, measures of numbers of tourists or measures of length of accessible seashore are in themselves of some use, the calculation of metres of seashore per tourist [one such calculation from Malta estimated less than 30 cm per tourist in peak season] may be a far more telling management indicator.

Given the nature of the problems facing tourism managers, the selected indicators will need to operate at several scales. Indicators useful to measure international-level flows, stresses, and impacts will be ill-suited to most regional and project-level planning. Similarly, measures and procedures suitable to support effective project-level planning and operations may be difficult to use more broadly or to aggregate to national or international level indicators. Further, the question of standards needs to be initially addressed; many nations now collect information – can it be compared to other nations and other sectors? **Above all, indicators need to be useful tools;** the reason for their existence is that they aid understanding, and help managers to avoid risks, or to take calculated risks with more complete knowledge of likely outcomes. All these factors were considered by the working group in its deliberations.

INDICATORS TO RESPOND TO THE NEEDS OF TOURISM

Internationally, many indicators are commonly used to guide decision-making. Some, like Gross National Product, population growth rate, literacy rate or net trade balance are widely used as touchstones against which to judge national or regional success. Like the canary in the mine, indicators are used to warn of areas of concern so that action can be taken in time. Tourism currently lacks such a canary, or finds it too late in the form of already dead wildlife swept up on the shore. Because of this, some have viewed the industry as a victim, under constant pressure from external changes to the environment it must use, or regulated in its access or use of sensitive environments. What information must the industry have to better take charge of its own, sustainable,

future? How can it bring into its own management purview many of the risks to its sustainability – to avoid future surprises which can be very costly to its viability?

Developing effective indicators for sustainable tourism is particularly challenging. The industry is multisectoral. It involves mass movement of people. The tourism product is affected by the actions and activities of many other sectors. The prosperity of the industry in one part of the world may depend on economic or political circumstances thousands of miles away. Further, Tourism is not well represented in international sets of economic indicators, and may even be missing from sectoral summaries or national accounts. (e.g. Canada has no such systematic accounting for tourism in the national accounts.) A set of international environmental indicators similar to the well-accepted economic indicators has yet to be developed. But it is increasingly clear that there is a need for such indicators which can capture the effect of industrial development, including tourism, on the environment, and show the changes in the natural and cultural environment which will be important to the sustainability of industries like tourism.

LINKS BETWEEN TOURISM AND THE ENVIRONMENT

Tourism is both a major contributor to global, national, regional and local economies and a contributor to human stress on the environment. Tourism is also sensitive to the qualities of the natural and human environment. Loss of the attributes which make a site or region attractive to tourists can spell economic disaster to the industry and those who depend upon it. The emerging area of ecotourism targets sensitive ecological areas and cultural resources – the areas most sensitive to its impacts. Tourism is also the source of demand for significant amounts of energy. It consumes many goods and services, some of which are produced only to serve tourist demands. By their numbers and activities, tourists affect the ecology and culture of the areas they visit.

The long term viability of the industry is dependent on maintenance of a country's natural, cultural and historical attractions. Yet some aspects of the industry may degrade the very features which support its existence. Because of these linkages, the tourist industry cannot ignore environmental issues in its management and has much to offer and to gain from being a leader in sustainable development. The industry also has a key role in generating an informed world citizenry and in sensitizing individuals to the benefits of a clean environment.

Without an effective means of understanding the limits and opportunities afforded by the environment, and lacking a way to measure the impact of its actions, the tourism industry risks its own future stability. A set of indicators will help the planners and managers of tourism anticipate and prevent problems. Indicators are an investment in reducing the risk of inadvertent damage to the industry and to its own resource base. Indicators can also help in understanding the effects of management efforts, and provide a framework for obtaining objective supporting information to allow the industry to take credit for its successes.

MEASURING WHAT IS IMPORTANT

Indicators are measures of important factors... those things which a decision-maker needs to know to reduce the risk of unknowingly taking poor decisions. All information or data sets are potential indicators. Selecting the right indicators reduces the wide range of potential information to a smaller set of useable and meaningful measures of those factors important to the decision-maker.

Which indicators are important depends on the goals chosen, and their relative priorities. If the objective is to preserve natural environments, key indicators may be those which measure areas protected, or losses of critical attributes which are the focus of protection (species, ecosystems). If the objective is to reduce risk of degrading environments used by humans (beaches, built attractions), the most important indicators may be levels of use, extent of impact on the biological or cultural values critical to continued use, or market trends showing changes in interest in continuing to frequent the area. To address the broad area of tourism sustainability, these and many other types of indicators are likely to be useful to help decision makers understand the links between their actions and the continuing capability of the environment to sustain them.

Many kinds of indicators are now in use to support decision-making. Much has been written on the theoretical foundation for indicators of sustainability (e.g. Daly and Cobb, Victor, et. al. 1991). Most of these focus directly on biophysical measures of environmental health, or on measuring the stresses placed on particular environments.

WHAT TOURISM SECTOR MANAGERS NEED TO KNOW

While these theoretical foundations are valuable, for practical application it is essential to begin at the decision-maker and ask the question: what is it he or she needs to know to make better decisions? In this paper, an initial step has been taken to define and classify indicators based on their function in supporting the types of decisions that governments and industry decision-makers encounter in their planning and management of tourism, nationally and more locally. The general types (based on decision-maker *need to know*) include:

■ Warning indicators:

These sensitize decision-makers to potential areas of concern and to the need to act to anticipate and prevent problems. Example of commonly used warning indicators include the measurement of cholesterol levels as an indicator of future risk to health, or the monitoring of investment in productive plant as a leading economic indicator to attempt to predict future economic outlooks. The canary referred to above serves just such a purpose for miners, indicating risk before it is too late to respond. What are the key early warning signs of risk to the prosperity and sustainability of the tourism industry?

■ **Measures of pressures or stresses:**

These measure key external factors of concern, or trends which must be considered in any management response. Examples are: population growth, changing expectations or demands, increased pressures on shared resources. How do changes in these stresses or externalities relate in reality to the fortunes of the industry and its component parts?

■ **Measures of the state of the natural resource base (product) and measures of levels of its use:**

These allow managers to understand what has changed regarding the resources which they manage or influence, and to discern how they stand relative to others, to last year, or to established standards. Examples are: current levels of pollutants, current use levels of facilities, destinations.

■ **Measures of impacts/consequences:**

These allow decision-makers to include known effects or impacts in their business plans, and to target the actions of others which they may wish to influence. Examples are: days of beach closures due to pollution, loss of animal populations in impacted areas. **Two sets of measures are:**

- Biological and physical impact
- Cultural and economic impact
(some of which may be a result of the physical impact.)

These imply knowledge of specific cause/effect relationships.

■ **Measures of management effort/action:**

These give decision-makers information on the level of action being carried out by governments and industry in response to particular situations. Examples are: levels of pollution regulation, amount spent to control waste, areas protected, existence of sustainable tourism plans. They respond to questions such as “are we doing enough?”

■ **Measures of management impact:**

These permit decision-makers to understand the effect of responses, to adjust their approaches and instruments to obtain the desired result, and to allow credit to be taken for successes. Examples include measures showing changed levels of waste production or reductions in measured levels of degradation (e.g. the same ones measured in *Measures of impacts/consequences* and *Measures of management effort/action* above) which can be used to evaluate the effectiveness of our interventions to try to improve sustainability.

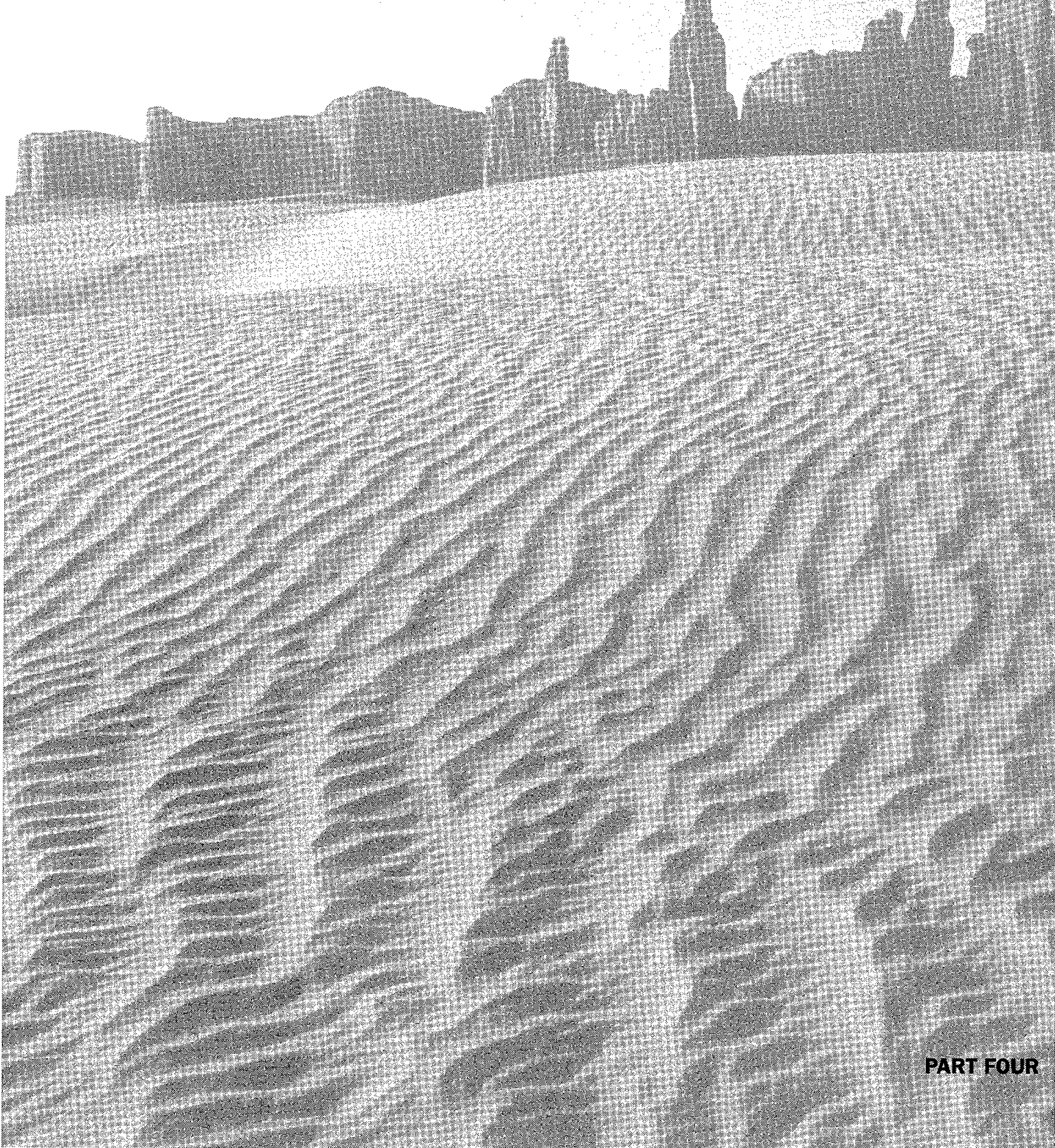
The indicators needed to help the tourism industry to define and take a sustainable path are varied. They include ecological, cultural and economic measures. But many of the key indicators rely on information which is commonly required by different sectors and much can be built from existing information sources. While each of the six types listed above serve different management needs, there is much commonality. The same indicators useful to measure impacts, for example, may serve to measure the effectiveness of management actions to address the impacts. For example, positive change in an indicator such as days of beach closures may reflect the results of efforts

to reduce pollutant loadings. Negative change in the same indicator may reflect the impact of increased development and use, either by the tourism sector, or by others. The working group has considered the utility of each of the proposed indicators in terms of these six needs. Will the information be at the right scale to support better decisions. What other indicators are needed to clarify what the changes in a particular indicator may really mean?

In Annex C, the process of identification of an initial long list of indicators, and the means by which this list was analyzed and evaluated to result in the recommended approach to indicators is documented. The challenge has been to identify indicators which provide the range of information required, and which are practical for most nations and/or regions to provide. All indicators tend to be a compromise between a desire for accuracy and the practicality of obtaining timely and useful information. The objective has therefore been to propose a practical set of indicators as part of an overall framework which will allow tourism sector decision-makers to risk reduce their decisions with regard to the linkages between tourism and the environment.

It is also important that the industry remain closely in contact with the development of indicators in other related sectors – particularly e.g. forestry, transportation, water, etc. Access to the indicators development work in other sectors can provide context for the tourism-specific information, act as a source of supporting knowledge on the milieu within which tourism operates, and serve as a cross-check or validation for common measures. In particular, work by international organizations such as the OECD and UNEP should be monitored to reinforce the environmental information available to tourism sector decision-makers.

**PROPOSED INDICATORS
AND
COMPOSITE INDICES**



PART FOUR

PROPOSED INDICATORS AND COMPOSITE INDICES

The working group has produced the following recommended set of indicators and derived indices for the World Tourism Organization. If the WTO accepts this recommended set, the next stage will be the more detailed elaboration of each, and pilot testing in the field. This next step will be a prerequisite to test their utility in different circumstances. If this list is accepted by the WTO, the next step is likely to be the pilot testing of these in selected nations, leading to adaptation as required and final acceptance for international use. ***Both individual indicators and derived composite indices are recommended because of their different capabilities to serve the needs of decision-makers.***

A. DERIVED INDICES

Certain derived indices may be of great use, particularly in the development of key indicators for hot spots and smaller regions, localities. These are different than specific indicators, but do help in identifying problems and areas needing attention. Ideally, such indices are a form of early warning which would cause decision-makers to look to other indicators and more specific information regarding the specific sites. These indices will need to be set up as agreed consensus indices, as they are necessarily subjective. The content and weighting (if any) will require agreement.

The Working Group has identified the utility of derived indices: 1. an index of destination attractivity, and 2. and index of levels of stress.

■ 1. A destination attractivity index

Based on such measures as landscape variety, cultural variety, uniqueness, level of maintenance, level of unrest/hostility/security, ease of access, etc. Such an index could be derived from, for example the criteria used to identify UNESCO sites, with some aggregate weighted index produced. This would be meaningful as it could rise or fall relative to local conditions (e.g. Shining Path depredations would have a negative impact on the index for Cuzco or Machu Picchu, restoration work, access and political stability a positive impact on Angkor Wat). An alternative would be a report card approach:

e.g.:

Michelin type	A (baseline overall attractivity)
natural environment	B
cultural environment	C
public security	A
accessibility	C
overall rating	B- etc.

If an overall numeric index of attractivity is used, it would be initially based on a site assessment involving all of these. One concern is whether a numerical index might be misleading if it was used to rank sites (e.g. "Niagara Falls is a 78 and Xochimilco is just a 73 therefore Niagara must be better".) Attention will need to be given to potential use of these indices if developed. One possible approach would be to assign each destination a baseline index of 100 in year 1; – this would then serve as a relative index for the site, showing improvement or degradation over time.

[this approach would eliminate the possibility of comparisons with other sites – and may therefore be a limiting factor for the utility of such indices]. To some extent these indices will be built over time, at least in part based on the more specific indicators. The recommended configuration of composite indices is a starting point – the formalization of these, with agreed contents and weighting will be needed before they can be put into more general use. A key task for the next step in development of support mechanisms for decision-makers will be the further elaboration of these indices – the agreement on contents weighting and format.

■ **2. A Site Stress Index** (to be used with the site attractivity index).

A site stress index would be derived from several measures of levels of use intensity pertaining to specific identified priority sites or hot spots.

Elements in the index would include:

- measures of spatial intensity of use (persons per sq. metre, per cent of site and surrounds built up, density of development)
- measures of temporal intensity of use (per cent of visitors on highest use day, seasonality of use)
- measures of potential cultural impact (tourists per local)
- measures of environmental stress (per cent of site degraded, needed expenditures on repair to damage from use)
- measures of effects of use (pollution levels on water, air, volume of waste production)

Together, these two composite measures could be summary indicators for hot spots - used both to target current and potential hot spots or critical areas and to measure changes over time in their state and stress levels. As indicated in the initial findings report, "Hot spots" or critical areas are to be treated separately from the national level indicators. It has been suggested that the use of these indicators can focus on identifiable tourist destinations as a first cut. Critical areas [hot spots] are defined as:

- areas of concentration of activity
- areas of known problems/degradation
- areas of rapid change
- areas of extreme natural or cultural sensitivity.

At the national level, indices of this sort are less likely to prove useful, principally because of the great variety in size of nations. Nevertheless, an overall **perceptual index of national attractivity** could be developed – based primarily on persons' perceptions of the desirability as an overall tourist destination of a particular country. For smaller to mid-sized nations, this might serve as a reasonable indicator of potential demand and/or of reaction to perceived quality/risk/satisfaction. For larger nations, more regionalized uses of such an index, focusing on specific destinations would be more likely to be useful (e.g. Florida, the Costa del Sol,

Tasmania, Bali). In all cases, composite indices are a single tool which must be used in concert with other information – such as more specific indicators – to support more knowledgeable decisions at all scales. The development of these composite indicators is of value, in that they may become useful targeting tools for the attention of decision-makers. As they are in part derived from the individual indicators, the development and agreement on the content of these indices may take time but should remain an element of this initiative. In the deliberations of the International Working Group, there was some concern expressed regarding such indices, as they are necessarily arbitrary, and the weightings are by definition subjective. Nevertheless, such indices, if agreed as standards, can be strong decision-support tools. (e.g. consumer price indices, UNDP development index, standard of-living-indices.)

B. INDIVIDUAL INDICATORS

Two distinct levels of indicators are identified in this paper:

- national level and
- local (or critical area) indicators.

National level indicators are generally aggregated to the national level. The data supporting these measures may in some cases be collected at borders and therefore be available only at national levels of aggregation. Local indicators generally pertain specifically to attributes of particular sites and usually will need to be collected at the site, or with specific reference to it. The candidate list for these two levels follows. There will in some cases be a complementarity between the two levels of indicators – with data at the national level representing a form of aggregation of lower level data. Thus the two levels can be done in tandem for less effort than each done separately.

■ Short List of Candidate Indicators – National

TABLE 1 is a summary of the work by all participants to select/merge/rank the specific indicators which emerged from the Winnipeg workshop as most relevant to decision-making on sustainable tourism at the national level. The table is a short list which reflects the ranking and advice received from all respondents.

In **TABLE 1**, the following format is followed:

COLUMN ONE is the description of the indicator and specific sub-sets of the indicator which would elaborate the specific indicator.

COLUMN TWO contains specific comments on the utility of the indicator for national level policy-making and related national-level uses.

COLUMN THREE identifies potential availability of base data at a national or aggregate level to support the indicator, and whether or not it is available in the short-or long term.

COLUMN FOUR contains further comments on the priority, and use of the indicator. In the pilot-project process, this column can be further elaborated to act as practical

guidelines for the use of the particular indicator.

■ Short List of Candidate Indicators for Local/Hot Spots

TABLE 2 summarizes the indicators identified as most promising for use at the local level to review specific projects and to monitor hot-spots. It describes the form of these indicators as applicable to local/site measurement of key attributes;

COLUMN ONE describes the specific indicators suitable for local use.

COLUMN TWO identifies the specific utility of the indicator to identify change and to support policy and operational decision-making.

COLUMN THREE identifies the potential availability of suitable data at a site-specific level and the logistics of its production/acquisition.

COLUMN FOUR contains further comments regarding the priority and use of the indicator.

SUMMARY

The indicators initiative is a strategic step by the World Tourism Organization and by its Environment Committee to help governments and industry to make better decisions leading to a more sustainable tourism industry. Used properly, these indicators will strengthen the ability of decision-makers to understand the principal factors which will influence their long-term prosperity. If we are successful in establishing these measures as an internationally agreed set, future international and interregional comparisons, measures of major trends, and understanding of major policy challenges will be strengthened. As the public, major interest groups and local communities demand increasing accountability and responsibility by tourism sector decision-makers, it becomes increasingly necessary that we arm ourselves with the best information possible. Without this information, we will continue to be the surprised victims of environmental economic and regulatory impacts – impacts which do harm to both our corporate interests and to the environment in which we must survive.

TABLE 1: SHORT LIST OF CANDIDATE INDICATORS FOR NATIONAL USE

Indicator	Policy Relevance	Logistics	Comments
<p>A. Area protected (% of national territory)</p> <ul style="list-style-type: none"> • subclassification re level of protection • subclassification re permitted uses 	<p>Comparative performance indicator. Links to Agenda 21/IUCN biodiversity goals</p> <p>Measure of priority to “treasures”</p>	<p>IUCN index available. Data already reported by most governments to UN agencies. Work needed on classification and standardization.</p>	<p>Concern: may need to be related to other indicators re need for protection, level of enforcement to yield good policy information.</p>
<p>B. Endangered spaces (area under stress)</p> <ul style="list-style-type: none"> • proxy indicator = endangered species 	<p>Endangered species are key to ultimate impact on biodiversity, variety.</p>	<p>Available through most governments (CITES, WWF, IUCN)</p> <p>Variable levels of knowledge/classification</p>	<p>Measures effects of stress on a key tourism resource. Does not necessarily give adequate value to areas not recognized as protected, but ecologically or aesthetically important.</p>
<p>C. Cultural protection</p> <ul style="list-style-type: none"> • % of nation’s cultural themes protected • number (%) of protected cultural sites 	<p>Measure of existence of recognition of cultural values, and action to protect them.</p>	<p>Classification of cultural themes is new. Data may be initially hard to obtain. Classes such as cultural tourism, rural tourism used differently by each nation.</p>	<p>May need to be adapted to suit smaller or culturally homogeneous nations as opposed to larger ones containing several discrete cultural communities.</p>
<p>D. Travel Intensity (number of domestic and international trips per capita)</p>	<p>Measure of level of travel – hence potential impact, or potential response to environmental/cultural changes</p>	<p>International is easily obtainable at borders for most nations. Domestic is more difficult but collected by many larger nations – where it may be more meaningful.</p>	<p>Readily available in short term on comparative basis for most nations. Needs attention to standard definition of tourist, trip. (use WTO standard)</p>
<p>E. Use Intensity (several complementary measures):</p> <ul style="list-style-type: none"> • number of localities classed as hot spots due to use levels, stress or degradation • % UNESCO sites classed as stressed • concentration (% focused on specific natural features or types of features) • % of all tourists visiting top 5 sites/defined hot spots 	<p>Key high priority measure of current and potential stress/problems</p>	<p>Will depend on some standard form of identification of hot spots – beginning with UNESCO sites, and augmented. Much information will be sourced from attractions themselves – therefore this links well to hot spot indicators</p>	<p>Links to application at local scale of stress measurement for identified priority areas and hot spots.</p>
<p>F. Key resource consumption:</p> <ul style="list-style-type: none"> • water • energy (Express consumption per tourist, per bed, or per night) • fuel (air) 	<p>Indicator can be compared to use of resources by locals as well as to other nations or change over time.</p>	<p>Most nations will collect this for national level, but many will not break out tourist sector, particularly for domestic tourism.</p> <p>Problem to isolate and relate fuel use to get to destination to specific sites/nations.</p>	<p>As air travel is a significant component of overall energy use by the sector, attention need be given to an overall (international?) use index per tourist. (or per airline?)</p>
<p>G. Ratio of tourists to residents:</p> <ul style="list-style-type: none"> • annually (tourists/resident) • peak period (tourists/resident) 	<p>Use with E, I to clarify pattern and destination of stress on system.</p>	<p>Statistics normally collected by most nations. Indicator may not be very meaningful for larger nations – therefore use the comparable destination/hot spot statistic.</p>	<p>May be key indicator of social stress – and leading indicator of potential social or environmental problems.</p>
<p>H. Health/Social Impact:</p> <ul style="list-style-type: none"> • % tourists charged with/affected by reportable crime • % tourists affected by reported communicable diseases. • general health indicator from WHO 	<p>Key indicator of social distress. Different components (diseases or crimes) may be better indicators of specific stresses. (AIDS, gastrointestinal disease, robbery)</p>	<p>Data may be unreliable and not currently collected in compatible form – but through WHO and regional counterparts (e.g. PAHO), and through Interpol/UNESCO/ UNDP some currently exists</p>	<p>Does this measure different social/hygiene standards, or real stresses?</p>

Indicator	Policy Relevance	Logistics	Comments
I. Foreign or non-resident Ownership: percentage of tourist facilities owned by foreigners or non-residents.	Relates to control of investment and to overall impact by outsiders.	Likely available from national investment agencies where collected.	This may show levels of impact of foreign development dollars, or reflect host government's policy re such investment.
J. Political stability index: (UNDP)	Key social indicator of risk to product, and of risk to tourists. Major direct impact on market. Can be used with H to give rough indicator of risk to travellers.	Directly available from UNDP sources.	While this may be a good risk indicator, many countries with "good" ratings may be affected by perception of conflict elsewhere (e.g. overall tourism decline due to Mideast conflict). Politically controversial indicator.
K. Environmental Standards: <ul style="list-style-type: none"> • % of homes, and/or hotels with potable water. • % of urban communities/coastal communities serviced with sewage treatment (% of sewage discharged raw into watercourses/seas). • % recognized beaches meeting blue flag or equivalent standard. 	Direct measure of environmental impact and of effects of cleanup/waste reduction.	Available at national level from a majority of governments – as input to UNEP. Beach data available for Europe and for many other nations. Need to standardize means of measure and reporting. Otherwise establish minimum baseline for coliform count etc, met x days per year (or number of days in season beach should be closed).	Uses existing data in most cases. Ties in directly to local measures.
M. Infrastructure capacity utilization: <ul style="list-style-type: none"> • sewage and water • transportation (roads, airports, ports) • energy supply 	Measures stress on infrastructural system.	Data likely available for airports, port facilities, unlikely available for roads transport except for hot spots.	Indicator most suitable for smaller nations or regions with a limited number of entry points. May be difficult to relate to the part of infrastructure which relates directly to tourism.
N. Tourism Employment: <ul style="list-style-type: none"> • ratio of tourism job creation to jobs in other industries • ratio of management to menial jobs • percentage locals employed in tourism industry at each level. 	Indicator shows economic effects of tourism in terms of job creation. Also shows potential social effects re involvement of nationals in key job sectors.	Data likely available at national level through national inputs to ILO, UNDP. May need to specifically seek tourism sector data.	
O. Environmental Planning: <ul style="list-style-type: none"> • existence of comprehensive environmental strategy at national level - component elements: sustainable tourism strategy, protected areas strategy. • adoption of national-level codes of practice for tourism operators and tourists. 	Indicator of level of government attention given to protection of key tourism/ environmental values.	Readily available – may have to be refined over time to cover specific contents and measures of effectiveness of implementation.	
P. Environmental Review process: <ul style="list-style-type: none"> • existence of legislated EIA process for all projects. • level of resourcing/application of process re major tourism projects • measure of effectiveness of review procedure/enforcement 	Key indicator of level of concern for future environmental/social impacts.	Existence of process is easy to establish. Development of accepted measures of effectiveness will be a medium-term process, linked to standards for EIA application to tourism/other projects and to evidence of follow-through.	After the fact evaluations of effectiveness of EIA procedures are rare – existence of process does not necessarily mean real impact or enforcement.
Q. Foreign Exchange Leakage: percentage of foreign exchange from international tourism which leaves the country. (as opposed to that which remains in the form of local purchases, wages, profits etc.)	Measure of net benefit of inbound international tourism to host nation.	Available from most (particularly more-developed) national governments as part of foreign exchange/trade statistics but problems exist with package tours and multi-destination or pass-through traffic.	Links to environment/economic sustainability.

TABLE 2: SHORT LIST OF CANDIDATE INDICATORS FOR HOT SPOTS/LOCAL APPLICATION

Indicator	Policy Relevance	Logistics	Comments
A. Destination attractiveness index (described above) -individual indicators which make up this composite are included below	Key overview indicator.	Development of standardized measurement process and agreed criteria is essential.	See section on composite/derived indices above.
B. Site stress index (described above)	Key overview indicator.	Site monitoring required-data unavailable unless part of site management process.	See section on composite/derived indices above.
C. Site Protection: <ul style="list-style-type: none"> • level of site protection (IUCN index) • % of site for visitor use • % of site hardened off (paved) 	Shows base condition of site and level of designated protection.	Site-specific inventory required.	Readily available for officially recognized and managed sites through e.g. UNESCO.
D. Endangered spaces: is site considered endangered or under stress. Does site contain unique ecosystems or rare species?	Site categorization.	Use ordinal scale – base on IUCN sites in danger list.	Readily available through WWF/IUCN for listed sites. Need for standardization of site measures and definitions .
E. Use intensity: number of visitors to site <ul style="list-style-type: none"> • total annual numbers • peak day/month numbers 	Baseline measure of levels of use.	Readily collected on site for all controlled sites. Unmanaged sites (open beaches, high use communities (Lourdes, Niagara, Oberammergau, Montego Bay) may require special data collection. Need for standardization of definition of visitor, means of collection.	Key definitive variable for hot spots.
F. Consumption: <ul style="list-style-type: none"> • energy consumption per visitor day • water consumption per visitor day 	Useful indicators for destination resorts, measuring stressors.	Requires access to municipal water/energy records, which may not readily differentiate between users to allow tourist sector use to be isolated.	May need special survey or monitoring at hot spots – particularly those in energy or water poor areas.
G. Ratio of tourists to residents <ul style="list-style-type: none"> • annual totals • peak day/month 	Related to (E) above. Measure of potential cultural impact.	Same data source as E.	May require surveys.
H. Development density: <ul style="list-style-type: none"> • site – sq. metres per tourist (avg/peak) • existence of development density controls or limits 	<ul style="list-style-type: none"> • measure of intensity of impact • indicator of control or management 	Will require development of standard definition of site. May also need to differentiate clearly between developed sites and undeveloped/limited access sites.	Will require on-site survey.
I. % of site facilities foreign owned	May indicate level of national control or level of foreign impact.		May be protected information – or in some countries subject to freedom of information/privacy limits.
J. Environmental Quality: <ul style="list-style-type: none"> • air quality – % days exceeding standard • water quality – potable water on site • % of waste from site serviced by sewage treatment • days of beach closures/exceed limit • report in last year of waterborne diseases (e.g. cholera, bilharzia) 	Key indicators of existing stress levels on the key attributes of the environment important to tourism – cleanliness, health, aesthetics.	Available in many nations from existing municipal/local environmental records. May need agreement on common standards.	Basic element in environmental monitoring and could tie into WMO or UNEP/UNDP measures and initiatives.

Indicator	Policy Relevance	Logistics	Comments
K. Capacity utilization of infrastructure: <ul style="list-style-type: none"> • sewage • water • transportation (air/road) 	Indicator is most meaningful for developed sites, but can also show emerging stresses on key facilities for less developed sites.	Directly available from local authorities and site managers in most cases.	Will require on-site survey.
L. Existence of integrated site/area management strategy with tourism/ environmental components.	Indicator of level of attention being given to environmental concerns as part of tourism development process.	Directly available from site managers/local authorities. Quality of policy instrument may vary and this indicator could set standards and categorize type/quality.	Key indicator of whether or not framework is in place to deal with other concerns.
M. Existence of comprehensive environmental review process for new development in/affecting site.	With L above – measure of level of attention being given to tourism impact on environment.	Directly available from site managers/local authorities. Quality of policy instrument may vary and this indicator could set standards and categorize type/quality.	Central element in overall environmental policy/planning – but on-site effects may vary.
N. Expenditures: <ul style="list-style-type: none"> • overall amount spent to maintain site • amount spent to mitigate damage • both points above as % of estimated need to maintain site on sustainable basis. 	Indicator of level of impact and of level of response by managers.	Directly available from site managers for managed sites. May be difficult to obtain for sites not under formal management or access control.	Will require site to be managed by some body.
O. Critical Habitats: are any species of rare or endangered plants or animals known to occupy the site or adjacent areas.	Element of sensitivity index.		Ties into completion of world net on endangered species. Link to WWF/IUCN and UNEP activity.

ANNEXES AND REFERENCES

ANNEX 1: THE INDICATOR DEVELOPMENT PROCESS

The WTO Indicators initiative draws on work under way in several nations and internationally to develop indicators of sustainable development, and of environmental impact. Many of these efforts have generated long lists of sector-specific indicators, measures of biological integrity, and measures of system stability. The approach proposed taken by the WTO working group begins with an initial framework based on several of the sources (see reference list) identifying those which seem best able to be adapted to address sustainable tourism concerns. The working group approach has focused on the development of a practical subset of the much longer list of possible comprehensive indicators. This initial list covers a range of possible measures which together provide a comprehensive ability to monitor all elements of the changing human/environment relationship as it relates to the tourism sector. But this list is much too long and detailed to be fulfilled by most nations and regions, even over several decades. The challenge to the working group has been to identify indicators which provide the range of information required, and which are practical for most nations and/or regions to provide. Table 1 shows the relationship between :

- A) an “ideal” comprehensive list of potential indicators
- B) the focus of the work of the WTO working group, and
- C) the range of suitable information likely to be readily available without a large additional effort.

The following paragraphs summarize the contents of table 1 as they relate to the indicators exercise.

A. A COMPREHENSIVE SET OF INDICATORS

Given unlimited financial resources and time, the ideal would be a comprehensive set of indicators to cover all factors important to tourism and the environment. Such a set of indicators would respond in all respects to the need to measure the state of the environment, tourism-environment linkages, and the effects of our actions. A comprehensive set would contain relatively sophisticated measures of, for example, ecological integrity and long-term economic viability. This long list (column one of table 1) shows the complexity of the need and provides context for the choice of a more limited practical set of operational indicators.

B. CANDIDATE INDICATORS (OBTAINABLE IN THE MEDIUM TERM)

In the medium term, it will be possible to identify a set of practical indicators toward which the tourism sector can reasonably build over the coming decade. A number of these indicators already exist in some form. Others may require changes in the data collected, the development of international standards, and the alteration of classes and categories of currently collected data to allow international comparison. The candidate indicators would cover the most important subjects at a national or regional level that tourism decision-makers need to know to build towards a more sustainable form of tourism development. The development of this set of candidate indicators (column two of table 1) forms the focus of work by the International Working Group. This column has been left vacant in the table; the results of the work of the International Working Group

in addressing these issues appear in the latter section of this paper, and in tables 2 and 3.

C: BASE INDICATORS

(USING EXISTING DATA AND OBTAINABLE IN THE SHORT TERM)

In the short term, it will be necessary to make use of what is already collected, or what can be easily adapted from existing information held by most nations. In column three of table 1, a short list has been developed as minimum baseline of information generally available from national and international sources. It is aimed at creating an internationally agreed base list. Many of the indicators shown in this list are already being collected by most nations for submission to international agencies. These indicators are in many cases already available. Others are easily derived from current records. Nevertheless, some nations may find that not all are currently collected. This third list constitutes a minimal response – the least needed to allow an understanding of some key elements of the tourism/environment relationship.

TABLE 3: FRAMEWORK FOR INDICATOR SELECTION

Category of Indicator	Ideal Set of Indicators	Medium Term Set Of Indicators	Short Term List (Existing Data)
<p>1. Components of the Environment (Resource characteristics)</p>	<p>The needed indicators identify those attributes of the natural and cultural environment which are critical to supplying the tourism product, and which are most sensitive to the impacts of tourism. (e.g. ground water levels, species counts, beach stability, slope stability, cultural integrity)</p> <ul style="list-style-type: none"> • comprehensive inventory of site characteristics <ul style="list-style-type: none"> - biological and physical monitoring of key qualitative and quantitative variables - inventory of cultural resources, designation of precious or critical environments including area protected, different levels of protection, access. 	<p>National</p> <p>(This column is the focus of attention of the WTO Working Committee on Indicators)</p> <p>Local/Hot Spot</p> <p>(The results of the Working Committee activity are shown in the body of this report)</p>	<ul style="list-style-type: none"> • area protected (% of national territory protected). • number of designated protected sites/areas.
<p>2. Carrying Capacity of the Resource Base</p>	<p>Measures of the levels of different types of tourist use which can be sustainably supported by different ecosystems.</p> <p>Measures to identify the limits of carrying capacity for representative ecosystem types and the sensitivity of certain parts of the natural and cultural environment to different levels of use.</p>	<p>National</p> <p>Local/Hot Spot</p>	<ul style="list-style-type: none"> • existence of a classification system which reflects ecological or capability criteria • amount of national territory classified.
<p>3. Levels of stress</p> <ul style="list-style-type: none"> - ecological (e.g. pollutants) - cultural 	<p>Ecological</p> <p>Comprehensive monitoring at source of the levels of pollutant generation by the industry, and by other sectors which influence the resource base of the industry. Key components include monitoring of production of solid and liquid waste, discharge of sewage, and from other sectors, oil spills, toxic waste discharge, air pollutants, and visual pollution, loss of key resources (fauna, flora, beach access, etc.).</p> <p>Cultural</p> <p>Monitoring of state of cultural resources, including measures of cultural change at national, local levels, state of local economies, levels of maintenance or degradation of key cultural resources.</p>	<p>National</p> <p>Local/Hot Spot</p>	<ul style="list-style-type: none"> • amount/percentage of liquid waste which receives primary treatment. • volume of solid waste produced per tourist (measured at place of residence). • species classed as endangered/threatened. • area/% of nation/region forested (in natural forest cover). <p>Local</p> <ul style="list-style-type: none"> • volume of solid waste production (for enterprise).

These indicators are measures both of the existence of a factor and of changes in it over time. The table which follows illustrates the nature of indicators required and the constituent elements which need to be part of a more locally focused review process.

Category of Indicator	Ideal Set of Indicators	Medium Term Set Of Indicators	Short Term List (Existing Data)
4. Levels of consumption Levels of Use	<p>Use levels by tourism – at national, regional and local scales, including mode of use, intensity, and frequency. (Tourist days by type of activity, intensity of use), origin/destination data, transportation use.</p> <p>Levels of consumption of energy, water, paper products, foodstuffs, (including source of product).</p> <p>Measures of market response to specific ecological, and cultural values and monitoring of sensitivity of the market to altered environmental conditions.</p> <p>Monitoring of cash flows, levels of leakage of tourist dollars, levels of investment in local infrastructure, foreign investment in tourism sector, environmental protection and enhancement.</p>	<p>National</p> <p>Local/Hot spot</p>	<ul style="list-style-type: none"> • number of visitors/visitor days. • (derived indicator of ratio of tourists per native, for nation and for tourist regions-based on tourist days). • amount spent per tourist day (express as index based on daily average wage of host nation/ region). • tourist receipts/net tourist balance of trade. • volume of water consumption per capita. • total area owned/managed by tourism industry operators (or percentage of waterfront).
5. Impacts/Residual contaminants	<p>Comprehensive monitoring of levels of pollutants in the environment, particularly those which can degrade the tourism product. (identification of contribution of tourism industry to pollution.)</p> <p>Key measures are of water quality, water availability, volumes of waste, composition of solid waste.</p>	<p>National</p> <p>Local/hot spot</p>	<ul style="list-style-type: none"> - coliform counts in beaches (number of days above standard) – or days of beach closure (if standard and monitoring in place). - an air pollutant index based on WMO standards which showing how many days per year are above acceptable standards.
6. Measures of ecological and cultural response to stress	<p>Measures of response of the natural or cultural environment to use by the tourism industry (sometimes cumulative with other sectoral uses).</p> <p>Key responses should include, monitoring of ecosystem degradation (species loss, biodiversity, ecosystem resilience, changes to critical habitats, specific measures of chemical and physical change based on above variables).</p> <p>Cultural impact measures, including linguistic, crime, economic and demographic indicators.</p>	<p>National</p> <p>Local/hot spot</p>	<ul style="list-style-type: none"> • list of endangered or impacted sites (hot spots) • frequency of tourism-related crime (number of tourists involved in/affected by crimes). • number/% locals speaking indigenous language, foreign language. • % of labour force in tourism sector. • % of tourism labour force which is local. • % of food bought/produced in country/region.
7. Efficiency of use of materials and energy	<p>Measures of the efficiency of use of key products by the industry. Should include energy, material resources. Indicators of input-output ratios, percentage waste, use levels of e.g. energy, paper products, water per capita.</p>	<p>National</p> <p>Local/hot spot</p>	<ul style="list-style-type: none"> • energy consumption per tourist day. • % of national/regional energy consumed by tourism industry (for major players) % of waste stream recycled.

Category of Indicator	Ideal Set of Indicators	Medium Term Set Of Indicators	Short Term List (Existing Data)
8. Institutional Response/ Management activity	<p>Inventory of government or industry actions to address environmental concerns. Includes level of funding, personnel on issue, identification of existence and implementation of environmental strategies, level of effort aimed at influencing strategies and plans at national, regional levels and by other sectors.</p> <p>Monitoring inclusion of sustainable tourism objectives and strategies in national/regional/local planning instruments.</p> <p>Includes inventory of key regulatory instruments on pollutants, use levels, measures of investment levels in infrastructure to mitigate or eliminate environmental problems.</p>	<p>National</p> <p>Local/hot spot</p>	<ul style="list-style-type: none"> • pollution regulation in place for solid waste <ul style="list-style-type: none"> - for liquid waste • existence of sustainable tourism plan/strategy • level of expenditure on programs directed at environmental tourism/ protection and conservation of tourism resources.
9. Measured Response to Management Actions	<p>Based on above indicators, measures of response of key ecological and cultural variables to specific management initiatives. Derived indicators to show response of environment to management inputs.</p> <p>Measures of the economics of investment in conservation and protection of environmental values.</p>	<p>National</p> <p>Local/hot spot</p>	<p>(these are evaluative indicators derived from the indicators collected above)</p> <ul style="list-style-type: none"> • change in areas protected • change in list of endangered species, places • change in levels of monitored pollutants
10. Levels of Future-Oriented Activity (strategies, planning)	<p>Monitoring of levels of long-term planning for sustainable tourism. Levels of effort, key inclusions, in planning and regulatory framework.</p>	<p>National</p> <p>Local/hot spot</p>	<ul style="list-style-type: none"> • Sustainable tourism plan in place nationally, for specific regions.
11. International Participation	<p>Monitoring of levels of participation in international and bilateral efforts to support sustainable tourism.</p> <p>Monitoring of cash flows between nations relative to the tourism industry and to environmental protection of key tourism resources.</p> <p>Participation/signing of key international accords affecting tourism and the environment.</p>	<p>National/International</p> <p>Local application</p>	<ul style="list-style-type: none"> • number of designated UNESCO sites • signatory to: climate change convention <ul style="list-style-type: none"> - biodiversity convention - UNESCO

This candidate set of indicators has been the point of departure for discussions aimed at the creation of an agreed set of indicators for use by members of WTO, and the tourism industry, worldwide.

QUESTIONS OF SCALE

A complicating problem in dealing with any indicators of this nature is the variety of scales at which indicators are used. An indicator which is useful to measure large scale flows of tourists across international borders may be irrelevant in decisions about specific developments in specific communities. Those most meaningful for small island nations may be less useful when tourists are spread across thousands of kilometres. The suggested indicators in the table above are focused on the national scale. This level is most appropriate for nations, large regions, international bodies, or broad scale industry-wide planning. Some are adaptable to local circumstances because they are assembled from more local data (e.g. water quality, waste production). Others cannot readily be disaggregated to be useable in more local circumstances. Therefore a two-element approach is necessary, including national indicators for use at the international/national/regional level and local indicators and review process to support better local and destination specific planning, involving access and analysis of appropriate information at the project scale (or for hot spots of particular interest **including key site-specific indicators**).

Internationally compatible indicators may be the most appropriate tool at the national and international level to measure progress over sizeable regions, or to compare large scale trends between areas. For more local planning, and in particular for site planning, it may be more effective to develop **a process of environmental assessment and monitoring** which can be used to answer questions of tourism/environment links. Local environments and the attributes which are valued by different cultures are varied. Consequently, the possible range of projects and plans is correspondingly wide. It would be unlikely, then, that a set of micro-indicators could be developed which would be suitable in all instances, although key indicators for hot spots may be desirable. In related initiatives, aimed at supporting better decisions on tourism and the environment, the WTO is involved in projects to support a better planning process for specific developments. A "Guide for Local Planners" is in preparation. This guide will aid local planners in asking the pertinent questions, acquiring appropriate information, and following appropriate assessment procedures to support sustainable tourism. WTO is also developing guidelines for planning of marine national parks and protected areas for tourism, and has commissioned work to examine the concept of carrying capacity. These initiatives will buttress the indicators work and aid in developing stronger planning tools for local application.

ANNEX 2: INITIAL PROPOSAL AND RESOLUTION FROM WTO

Accepted by the WTO Environment Committee, Madrid, April 1992.

RECOMMENDATIONS

1. It is recommended that an International Working Group be established under the sponsorship of the WTO Environment Committee to further explore and prepare recommendations for appropriate indicators of sustainable tourism and to examine the feasibility of producing a recommended evaluation process for local planning of tourism in an environmentally responsible manner.

2. It is further recommended that a small expert workshop involving representatives of interested WTO Environment Committee members and selected international experts take place within the next six months to carry this initiative forward.

If the above recommendations are accepted, one means of advancing this project would be to respond positively to an overture by the International Institute for Sustainable Development (in Winnipeg, Canada) to host and contribute to sponsorship of such a workshop focused on the preparation of a more thoroughly developed package of indicators and procedures. Other opportunities may exist through the auspices of similar institutes elsewhere in the world, or through appending such a workshop to the International Geographic Union Conference stream on Recreation in August 1992 in Denver, Colorado, U.S.A. or the World Congress on Adventure Travel and Ecotourism in Whistler B.C., Canada in Sept. 1992.

ANNEX 3: WINNIPEG WORKSHOP REPORT

The direct result of the Winnipeg Workshop was the production of a "long list" of possible candidate indicators for further discussion and elaboration. This list appears as Annex 3.

WINNIPEG TOURISM AND THE ENVIRONMENT

International Working Group MEETING

October 13, 1992

General Conclusions of the International Working Group

The International Working Group began with a detailed analysis of the need and application of indicators in the Tourism sector. Based on this discussion the following general conclusions were reached:

- The principal focus of this exercise should be on the development of indicators suitable for decision support of national level governments in their efforts to manage for tourism sustainability.
- To support national-level decision-making, two distinct sets of indicators are required:
 - aggregate/national scale indicators
 - site specific indicators (hot spots)

[Note: This recognition of 2 separate scales of resolution disagrees with conclusions of such groups as WTTC, whose approach is more site and business specific. This dichotomy therefore represents a new position on the utility of indicators for tourism and the environment developed in the Winnipeg meeting.]

- The focus of this working group has been on the national-level indicators, although some attention has been given to indicators which may be appropriate at other scales. A candidate list has been developed.
- Work will also be required to develop a procedure for the identification of hot spots for more specific attention and application of the more site-specific indicators/process.

[Note: Some hot spot indicators can be aggregated for use as national indicators]

Critical Areas

The definition of **hot spots** is the following:

1. areas of concentration of activity
2. areas of known problems/degradation
3. areas of rapid change
4. areas of extreme sensitivity.

A hot spot may have any or all of these characteristics.

Hot spot indicators will need to be developed as a separate and/or related exercise and will relate well to environmental/social impact assessment processes now in development.

- Some measures identified as potential indicators are already generally available through other datagathering processes. Others will require attention over time for development, probably in collaboration with other international organizations, national statistical agencies, and the private sector.
- The workshop recognized the potential for indicators to be misused, particularly if used alone as targets in isolation from other indicators and measures.
- The workshop recognized the variability of country capability of collecting adequate data (national/local), but feels that this exercise can act as a stimulus for academic research, a focus for data management, and a catalyst for integrated information infrastructure development.

Indicators: Scope and Specifications

One common limiting criterion for all indicators that are considered is that they must be directly or indirectly related to the phenomenon of tourism. This then requires some consistency to the definition of tourism. At the 1991 WTO Ottawa Conference on Travel and Tourism Statistics on international tourism the scope of this phenomenon was broadened to include all travel except that relating to immigration and direct remuneration i.e. paid work. The phenomenon was divided into four major sub-categories along two different dimensions:

- International Travel (i.e. inbound and outbound)
- Domestic Travel (i.e. internal travel both same day and one or more nights)

The Ottawa Conference defined tourism as a generic concept comprising the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes. It is proposed that for the purposes of this exercise, the Ottawa definitions be used.

The use of this broad concept makes it possible to identify tourism between countries as well as within countries. "Tourism" refers to all activities of "visitors" including both "tourists" (i.e. overnight visitors) and "same day visitors" (i.e. excursionists).

A "visitor" – is defined in turn as any persons travelling to a place other than his/her usual environment for less than twelve months and whose main purpose of visit is other than the exercise of any activity remunerated from within the place visited.

For the purpose of the development of indicators of the relations between tourism and the environment.

Visitors should be classified as:

- International Visitors Comprising
 - tourists (overnight visitors)
 - same-day visitors
- Domestic Visitors comprising
 - tourists (overnight visitors)
 - same day visitors

The current statistical systems from which to draw available data as a basis for the indicators is most developed for the sub-phenomenon of international tourists. However in many developed countries the phenomena of domestic tourism is the dominant form that drives and supports the industry. In Canada, for example, domestic tourists generate approximately 70 percent of the industries' receipts.

For the purpose of the WTO indicators development project, therefore, the International Working Group defined that with reference to tourism the primary scope of focus would be limited to indicators dealing with both domestic and international tourists.

The relevant environmental features, activities and associated stresses relating to excursionism (i.e. same day visitors at both the domestic and international level) would be excluded from the primary focus of analysis at the national level. In some instances however both forms (tourists and excursionists) will need to be included to adequately capture the full stress on the environment, particularly when the focus is on hot spots. Both forms will also be required to place those stresses relating directly to tourists in their proper context.

TABLE 4: LONG LIST OF POTENTIALLY USEFUL INDICATORS

(This table is a complete list of the possible candidate indicators for use by the tourism sector which was generated at the Winnipeg Workshop sessions. For jurisdictions who may wish to expand their tourism indicators beyond those being developed as an international standard, this can act as a source.)

A. BASELINE INDICATORS

(measures of biophysical and sociocultural conditions)

BIOPHYSICAL INDICATORS:

1. A destination attractivity index

(i.e., based on composite of range of amenity resources plus infrastructural resources)

2. Gross % area protected [made more specific by IUCN index]

SUB INDICATORS:

a. % protected level a, b, etc.

b. proportion of entity designated for visitor use

c. % of area "hardened off"

3. Endangered spaces indicator (area considered endangered)

a. Number of species endangered [= proxy indicator for environment and tourism because endangered species is both a measure of human impact and a potential attraction for tourists]

4. National park receipts as % of total visitor expenditures

[if high indicates importance of visits to parks or charging of high fees; if low, no parks, inaccessible, not collecting revenues (i.e., free). Complex indicator; may become counter productive in terms of protection if e.g. used only to raise GNP]

Sociocultural Indicators: (This was an area where our expert panel feels that it was weak and should seek additional advice)

5. Cultural Wealth/cultural diversity.

No specific indicator selected. [Panel had difficulty with definition of cultural wealth of a country: suggests inventory of unique and cultural themes of a society first, representative cases, second; panel noted that some cultural treasures have no specific sites (traditional activities, events, ideas, artistic forms; some sites are merely a plaque). Culture represents the self-definition and creativity of a people. It is the sum of the beliefs and customs, traditions, and ways of expression.] i.e., there exists a range of values held by local population and tourists:

a. cultural indicators cultural diversity measures (# ethnic groups in country)

b. absorptive capacity (index of size, level of risk to groups)

6. Percent of cultural themes represented in the protection system

[cultural themes are equivalent of ecosystems, inventory of cultural themes of a country have physical manifestations.]

7. Existence of an inventory of sites from cultural perspective

(inventory and classification of cultural patrimony)

8. Area of distribution of tourism destinations and tourism packages, classed by type of tourism (e.g ecotourism) expressed as

- a. an index of concentration or
- b. % of national area affected/targeted.

9. Measure of degree to which tourism is based on local culture specific elements

(specialized restaurants, hotels in native styles).

Measure of local restaurants/hotels as % of total. (volume/value)

SOCIAL BASELINE INDICATORS

10. Poverty and class; index of wealth distribution within country per UNDP

11. Travel intensity indices:

- a. # of domestic trips/ member of pop.
- b. # of international trips per member of population

B. STRESS INDICATORS

(measures degree of current or potential stress on system)

1. Use intensity measures:

- a. # of localities classed as hot spots
- b. % of UNESCO sites considered under stress

2. Energy consumption per tourist:

- a. per bed or
- b. per tourist day

3. Ratio of tourists to residents (annual/peak)

4. Differential between culture of origin and destination

(i.e., Catholics to Catholic country = low stress) as measure of stress potential

- a. % of tourists from different culture
- b. ratio of tourists/locals modified by a differential weighting

5. Crime rates involving tourists:

- a. number of victims (or % of all)
- b. number charged (or % of all)

6. Health/social impact:

- a. number of tourists catching transmittable diseases
- b. number of locals reporting transmittable diseases

7. Encounters between visitors and residents:

- a. total number of encounters
- b. encounters per local
- c. encounters per tourist

8. National/local concentration measures/time period (goal shoulder periods):

- a. ratio of peak period to lowest,
- b. % of total tourism in peak month.

9. International tourism concentration measure

- a. tourists/local or
- b. tourism nights vs. total pop. nights)

10. Tourism exposure rates: Ratio of international arrivals to total population

11. Measure of cultural integrity preservation

(perceived, actual, political) [concern = stress between cultural significance and physical entity priorities, for eg., Canada; eg., Indian heritage sites; also generates debate over positive/negative impact of tourism on culture]

- a. % of locals speaking native tongue
- b. expenditures/day of tourists relative to natives

12. Existence of legislation/management for protection of cultural industries

[note this is also a management indicator, but in this case may indicate by its existence that a need has been perceived]

13. Intensity of use/ potential for stress

- a. % of all tourists visiting top 5 (10) attractions
- b. % of all tourists targeting defined "hot spot"

14. Segment (%) of all major demand flows interested in outdoor/nature tourism;

15. Consumption measures (political/cultural):

- a. consumptive trips to total trips (i.e., hunting/fishing vs photography) i.e., relationship to total cultural resource system
- b. total tourism angler days to total tourist days
- c. total tourism hunting days to total tourist days

16. Amount of private ownership of entities used by tourists (domestic/foreign)

17. Index of industrial concentration

(# firms responsible for 80% of business) concentration tends restrict openness yet facilitates regulation]

18. Comparative density of development

- a. sq. meters of surface areas sequestered by one tourist bed, (i.e., tourist density, compared to rest of population density)
- b. % tourism facilities which are low density (restricted to height of palm tree, or similar to local structures)

19. Average visitor stay

(longer stay = lower per capita impact? but example of cruise ship day visitors may not support this; index requires national boundary and scale relevance ex. Japanese/Can. 6day package demands some measure of distance travelled and range (return Japanese visitor not follow this pattern)

20. Measure of car miles driven by tourists (or expressed as a % of total road net)

21. Growth in golf courses (% of national territory, or % of arable land)

C. IMPACT INDICATORS

(measuring effects that have taken place, positive and negative, i.e., resultant impact of community on tourists or tourist on community). Many of these imply a defined carrying capacity: specific standards which define acceptable levels of use, pollution, or change.

1. Incidence of water borne diseases

(indicates overall system capacity caveat: difficult to measure due to unreporting)

- a. incidence among tourists
- b. endemic local incidence
- c. ratio of a to b

2. Political instability index (base on UNEP data)

(rationale = conflict's relationship to environmental degradation (relocation, social unrest, infrastructure damage, etc.)

3. Numbers (%) meeting "blue flag" beach program or equivalent standard

- a. number of beach closures/closure days

4. Compliance with environmental regulations

- a. air quality (% days exceeding standard in major centre(s))
- b. water quality (% homes/hotels with safe water)
(ordinal quality of major rivers drinkable/swimmable/fishable/boatable)
- c. sewage treatment (% dwellings serviced by treatment, or % of hotels/tourism establishments on sewage treatment)

5. Actual capacity utilization of existing infrastructure

(if low, means below stress level)

- a. sewage and water infrastructure
- b. transportation infrastructure (airports, roads)
- c. foreign direct investment in private infrastructure for tourism

6. Recorded infractions against site preservation

i.e., littering, dumping, defacing etc. (may be more meaningful by site)

7. Number of tourist dollars (%) remaining in country (leakage)

8. Number of jobs created

- a. number of managerial jobs/menial jobs

9. Number of enterprises established

- a. local enterprises as % of total

10 Number (%) of original language speakers

11. Job creation of tourism as % of creation by other industries

- a. Ratio of national/cultural component v.s. other parts of tourism industry

12. Taxation indices direct/indirect taxation per tourist vs per resident

13. GDP = consumption index (therefore potential for pollution, degradation, etc.)

D. MANAGEMENT INDICATORS

(measures of management action, results)

Activity

1. Existence of integrated national conservation/sustainable development strategy

a. existence of particular components in such a strategy (e.g. sustainable tourism element, parks strategy, explicit steps to define or manage in terms of carrying capacity)

2. Measures of marketing programs

(creation of demand, level of awareness of destinations, hot spot attractions; \$ spent in creation of market desire for destination; management requires front end content analysis of market of advertisements/package tours)

a. % of marketing which stresses ecotourism

b. % of marketing which targets hot spots/UNESCO sites/top 5 destinations.

3. Amount of money (% of budget) spent to protect endangered spaces

4. Existence of tourism code of ethics

a. adoption of a code of ethics by the industry/local government (informal)

b. official adoption at national level (more formal)

5. Existence (level of) tourism/environment training programs

a. # of tourism training institutes with environmental components

b. # of tourism boards with environmental policies

6. Percent national budget spent on environmental "goods"

(note: work at IISD is aimed at supporting this indicator)

7. Percent of budget national/local spent on people employed in educational, interpretive measures (i.e., national parks, cultural sites, staff)

8. Membership in regional tourism associations v.s. national associations index of cooperation, cohesiveness

(heterogeneity = characteristic of industry yet strong industry developed associations are possible and represent good indicators of potential promulgation of a set of indicators and standards throughout the industry, regionally, nationally, internationally)

such cooperative developments could be examined over time

9. Active protective/enhancement policy/process in place

a. Number of sites so designated, national treasures

b. Ratio of sites identified internationally to those protected nationally

10. Existence of national environment taxes

a. applied to tourism

11. Existence of effective environmental impact assessment at regional, local levels as part of national tourism policy

a. coastal zone, downtown rejuvenation

b. expenditures of industry on these measures (tends toward management results)

12. Country membership in ICOMOS

13. Existence of business plans or programs for environmental issues

- a. private sector budgets expended (VRTC resources)
- b. analysis of content/areas covered in plans (national and regional levels)

14. Percent national budget spent on cultural events

(can be good indicator of government involvement (i.e., system in place at all, levels of expenditures, existence of national, internationally recognized standards)

- a. measurement of real performance = more problematic

15. Percent national budget spent on site restoration

(= potential for over/understatement exists, esp. religious sites)

16. Amount of \$ spent by private interests on cultural events/preservation

17. Existence of energy management plan within tourism,

i.e., plans for renewable energy use

18. Existence of tourism planning standards for cultural elements

19. Existence of Green Tourism program

status of existing tourism management and marketing plans and marketing with environment element (green label)

20. Institutional structures:

- a. # of government institutions that have identified concerns of tourism and the environment in their mandates, missions, and operations (shows penetration of environmental economic planning eg. = U.S. Rural Tourism Development Program draws from a number of federal agencies (agriculture, forests, etc.; interagency coordination not possible 10 years ago)
- b. existence of Ministry of Tourism with explicit environmental element to mandate
- c. identification in nonWestern context of existence of institutional structures supportive of management effectiveness in area of tourism & environment-separate bodies (from tourism) can have tourism mandate

21. Existence of accepted plans/processes (at park/regional level)

22. Comprehensive environmental review process applied internationally to tourism development international level (USIA, CIDA, Non-Aligned Group, etc.)

23. Amount/% of budgets from International Organizations, such as World Wildlife Fund, World Bank, UNDP, into tourism protection/development

24. Public opinion

- a. Gallup, "green" surveys of how industry is viewed by public as having environmental responses, (formerly nationally measured, now internationally.)
- b. measure of public demand for greening of industry practice
- c. level of appearance of green tourism in marketing (brochures)

25. Corporate sensitivity and response

(VMC could have role here in developing measures of code of ethics, cooperation, environmental sensitivity, public awareness)

- a. existence of corporate codes
- b. budget for green practice
- c. % with corporate environmental office

Indicators of Results

26. Control of imagery of destinations

measures of effectiveness of diversification of image, message away from hot spots through management of marketing activities

27. Tourist perceptions of nation's sensitivity to:

- a. environmental health,
- b. perceptions of danger,
- c. cleanliness/uncleanliness,
- d. personal health and safety

28. Management of hot spots as indicator for systemic needs

- a. change in number of Hot Spots
- b. change in status of Hot Spots re risk index

A process of prioritization of these in the light of needs and availability followed the Winnipeg Workshop, and included several rounds of review with the Working group.

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