THE DEVELOPMENT OF INDICATORS FOR SUSTAINABLE
TOURISM: RESULTS OF A DELPHI SURVEY OF TOURISM
RESEARCHERS

Graham Miller

University of Westminster

35 Marylebone Road

London NW1 5LS

Tel: +44 207 911 5000 ext 3054

Fax: +44 207 911 5171

Email: G.Miller01@wmin.ac.uk

ABSTRACT

This paper presents the results of a two round Delphi survey conducted into expert opinion on the development of indicators to measure the movement of the tourism product at a company/resort level towards a position of greater or lesser sustainability. This research forms part of a wider project to develop indicators that consumers can use in the selection of their holidays and promote a more sustainable form of tourism. The results of this expert survey show considerable disagreement over “sustainability” and where the borders of the concept exist. In addition, the research identified contrasting views over the use of qualitative versus quantitative indicators and the role that consumer pressure can play. The use of the Delphi technique to address complex and uncertain issues is also explored.

Key Words: Delphi, indicators, sustainability

INTRODUCTION

"It is when the hidden decisions are made explicit that the arguments begin" (Hardin 1968:1244)

The aim of this research is to develop indicators that can be used by consumers to assist in their choice of holidays and promote a more sustainable form of tourism. This paper presents the results of the first stage of that research. The aim of this paper is to identify what expert opinion believes constitutes sustainable tourism, what criteria are necessary for successful indicators and which indicators can promote a more sustainable form of tourism. Later research will seek to identify industry and consumer opinion.

Hart (1997) simply describes an indicator as "something that helps you to understand where you are, which way you are going and how far you are from where you want to be", while the Department of Culture Media and Sport (DCMS 1999) more simply state the "aim of indicators is to produce what is measurable and show us something". Indicators today have an increasing resonance in politics, with a seemingly endless desire to measure the previously unmeasured and to compare the performance of different providers of service. Schools are monitored for the value they add, health services for the standard of care they provide, and transport for the punctuality and quality of provision. The increased need for transparency of

investment and consumer involvement has fuelled much of the need to measure what may previously have been considered too subjective.

The list of acronymic organisations involved in this development of Indicators of Sustainable Development (ISD) is long and impressive. The European Environment Agency (EEA), United Nations Environment Programme (UNEP), United Nations Development Programme (UNDP), The World Bank, World Watch Institute, International Institute of Sustainable Development (IISD), New Economics Foundation (NEF), United Nations Commission for Sustainable Development (UNCSD), WTO (World Tourism Organisation) and nationally Department of Culture Media and Sport (DCMS) and Department for Environment Transport and the Regions (DETR) are just the main organisations. In addition, industry in non-tourism sectors has increasingly developed indicators for use at all levels, right down to the individual production unit. Yet, the common theme to all indicators, whoever is using them, is that they can be criticised. The EEA concedes of its own indicators “in the view of the agency ... (they) have had little success in arriving at meaningful tourism indicators” (quoted in DCMS 1999). The subject is relatively new, the concept that it is trying to measure is difficult and there are a myriad of perspectives to take. ISD can therefore be classified on any number of alternative basis, yet what is important is how the ISD are selected, Rutherford (1997:156) comments, “...the best indicators conceptually may not be available in practice, either because basic data are not selected or because the methodology to turn available data into indicators of the desired type is unavailable...On the other hand...indicators that

really do catch the attention of policy and decision makers will be chosen not by those who advocate logical frameworks, but rather by the decision makers themselves because they are perceived to be useful for monitoring something that is important". The essence then, of indicator selection, is to make open and explicit the criteria used for indicator selection and decision taking. The review below seeks to make common criteria more explicit.

INDICATORS SELECTION CRITERIA

Qualitative or Quantitative indicators

The principal criterion for selecting indicators is that the indicators measure the phenomena intended to be measured. However, some phenomena are inherently difficult to measure in a manner satisfactory to the end users. Angrist *et al* (1976; quoted in Carley 1981) observe, "If we have physical and psychological inputs into our lives, then it is axiomatic to measure both in order to determine a quality of life". Thus, there is agreement that the phenomena needs to be measured, but the contention arises in the manner in which this, or any phenomena, should be measured. Traditionally, quantitative data have been used because these were seen as more rigorous and credible. The US department of Health, Education and Welfare in its 1969 document "Towards a Social Report" gave the first definition of a social indicator and defined it to be a "statistic of direct normative interest which facilitates concise, comprehensive and balanced judgement about the condition of

the majority of a society” (quoted in Carley 1981). Yet despite the need for indicators selected to be normative, the report recognised the subjective element in determining whether an increase in the number of policemen on the street was a good thing or not. In addition to this subjectivity, Gallopin (1997) recognises the subjectivity in determining which phenomena to measure, determining the target value of that attribute and the weighting of simple indicators in any composite scale. For Dahl (1997) the subjectivity involved with weighting indicators is sufficient that any such approach can be rendered “suspect”. However, Schneider & Donaghy (1975:308) counter, “the use of objective measures alone as quality of life indicators is...highly suspect”.

Gallopin (1997) suggests that the reason the majority of ISD selected are objective, quantitative and normative is due to the subject matter, which more naturally lends itself to quantitative measurement. However, he acknowledges that this approach will only perpetuate the over representation of economic data which in turn lends itself more naturally to quantitative measures. Carley (1981) also warns of being seduced and enamoured by the unlikely triumvirate of numbers, statistical procedures and models. Yet, as a selection criteria, UNEP reports how the International Chamber of Commerce (ICC) refer to the need for “appropriate information” while the World Wide Fund for Nature (WWF) require “effective data” (UNEP 1995) implying that whichever indicators can best perform the task, then they will be selected. However, the WTO (1995:7) perhaps reveal the true position of many organisations towards qualitative measures, stating, “...indicators of

sustainability are not always quantifiable and may necessarily be somewhat subjective. This *limitation*, however, does not in any way detract from their utility as management information in promoting sustainable tourism” (this author’s emphasis added). That the qualitative nature of the indicator does not diminish from its ability to provide information and yet is still seen as a limitation is indicative of the bias against qualitative data. Thus, being quantitative is itself a selection criterion unless choosing a quantitative measure refutes more of the following selection criteria than would using qualitative indicators.

Policy Relevant

Perhaps the next most important criterion for the selection of ISD is that they are policy relevant. However, this is contentious because of the different beliefs in what sustainable development (SD), and in turn sustainable tourism (ST), is, how it should be achieved, and the extent to which it relates to social goals. While it does seem paradoxical for an instrument to rely on policy relevance when the aim of that instrument is to make policy relevant, Moldan and Bilharz (1997:5) argue, “the very process of developing indicators contributes to the creation of a better definition of SD”. Thus by way of measuring relativity and proximity ISD function as measures of discrepancy between the current and desired positions. What is necessary is that we have a clear understanding of that which is desired.

Generate Public Support

Such a criterion may seem unlikely in developing ISD. Yet, chapter eight of Local Agenda 21 states the need to integrate the general public into the decision making process and to encourage public participation. In addition to meeting a key requirement of SD, ISD are strengthened methodologically by having public participation and public involvement. Moldan (1997:60) states, “The role of powerful information, preferably in the form of a few clearly understandable and strong indicators is obvious. The role of indicators is very important in this second stage of the cycle”.

Insert Figure One Here

MacLellan (1999:16) in his study of “soft indicators” found that although the value of the indicators could be questioned in measuring how sustainable the tourism industry was, the use of basic indicators was “viewed as a good start, and effective for awareness raising, good PR and better than before”. The implication is that ISD can operate on a ladder principle, with indicators initially being used which attract existing interest in subjects, but which maybe do not reflect the wider issue in their entirety. Then, with public interest raised, the ISD can widen and deepen analysis and in turn, the awareness of the general public. Peterson (1997) makes this point although he also issues a warning that in the initial stages of the ISD development, indicators should not be accepted which threaten the credibility or reliability of the

programme. Such action would jeopardise the extent to which the general public would be willing to support the exercise, or would otherwise remain resistant/apathetic. Thus a careful line exists in setting criteria for indicator selection between the need to attract public support and the need to safeguard the credibility of the programme. The position of this trade-off will be determined by the degree to which the implementation of policy, and thus the aim of the programme, depends on public support. Taking the Organisation for Economic Co-operation and Development (OECD) as an example, the role of the public as consumer has been identified as integral to the reduction in many of the problems that the OECD pressure indicators have identified. The OECD (1991:244) believes “consumers should be provided with information on the consequences of their consumption choices and behaviour, so as to encourage demand for environmentally friendly sound products and use of products”. Peterson (1997:12) concurs, “It is possible...that a greater environmental awareness will stimulate the public into taking a more active role in reducing environmental pressures arising from their own individual actions”. These approaches fit closely with that identified in the framework by Moldan above and also with the goals of this research to produce ISD that the consumers of tourism products can use in their purchasing decisions.

In addition to these criteria stated above, there is a need for the methodology of the indicators to be made reliable and transparent in order that potential end-users can assess the value of the information. Van Esch (1997) believes the credibility of the indicators, which is related to the reliability, measurability, and consistency of the

data will influence public support for the indicators. For this research, where the end-user is the general public in its guise as consumer, then the credibility and transparency of the information is critical if the indicators are to be accepted and employed. Thus, an independent body should be charged with the task of measuring, or at the very least auditing the process. Not only does this affect the credibility of the measures, but also their legal standing. Other criteria identified for ISD to meet include being easily understandable, enabling comparison, appropriate to the scale of operation, cost-effective and timely.

METHODOLOGY

The Delphi technique is described by Kaynak and Macauley (1984:90) as "a unique method of eliciting and refining group judgement based on the rationale that a group of experts is better than one expert when exact knowledge is not available".

Linstone and Turoff (1975) describe the Delphi as "...a method of structuring a group communication process so that the process is effective in allowing a group of individuals as a whole to deal with a complex problem". If ever a topic could be described as a complex problem and also one lacking in perfect knowledge then sustainability would appear to be so. Therefore while the traditional usage of the Delphi technique is as a forecasting tool, a closely adapted approach could enjoy the benefits of being able to generate opinion and move towards consensus on any issue that requires the input of geographically disperse experts.

Green, Hunter and Moore (1990) who used the Delphi technique as a way to assess the environmental impact of future developments, identified three rounds or iterations in the study as sufficient to achieve group consensus and held that any extra stages would incur diminishing returns of increased convergence against declining response rates. This view is supported by Kaynak and Macauley (1984) who claim that the Delphi technique is not a decision making tool, but rather a tool of analysis and as such the aim is not to achieve a definitive answer, but instead to aid in the development of possible solutions, based on the Delphi results.

The first round that Green et al (1990) identify in the iterative process is a general questionnaire, which asks panel members to identify the issues relating to the question under consideration. Taylor and Judd (1989) concur that the initial round should use open-ended questions to glean as much information in the exploratory stage as possible. However, in a rejoinder to the article by Green et al, Wheeler, Hart and Whysall (1990) criticised this preliminary stage because of its inability to produce the level of information that a thorough literature review could generate. Linstone & Simmonds (1977:24) in addition wrote that the "key weakness in Delphi analysis has always been that certain questions were not asked; they did not seem important when the study started". To counter this problem the research conducted a thorough literature review and filtered indicators developed primarily by the United Nations (UN 1996) and WTO (1993, 1995) with additional input from other organisations and authors (OECD 1991, Craik 1995, Payne 1993, Harris and Nelson 1993, Hart 1996, Hughes 1996, Peterson 1997) through a series of questions derived

from the objectives of the research (see table 1). This technique of developing research criteria and then using these to screen the body of potential indicators mirrors the approach adopted by the CSD (Mortensen 1997). This research also utilises the "conclusion statements" method as used by Seely, Iglarsh and Edgell (1980), under which respondents are presented with statements (in this research indicators) for consideration, rather than asking questions or presenting variables and requiring answers to complex problems. By asking for comments on pre-determined indicators the task is simplified without reducing the value of comments received. Clear instructions were given to respondents about the purpose of the indicators and to further strengthen the research instrument the round one questionnaire involved the extensive use of open-ended questions in a bid to reflect the exploratory nature of the research.

Insert Figure Two Here

If Seely et al (1980) consider that the most important potential weakness of the Delphi is not asking pertinent questions, then Taylor and Judd (1989) consider the most important step to be choosing the respondents. Wheeler et al (1990) cite the need for a "balanced" panel and accept that there must be an element of judgement in achieving such a panel across a spread of experts from different backgrounds (e.g. academics, business representatives and local residents). The aim of this author's research was to ascertain the opinion of informed academics and consultants on indicators presented to measure movement towards sustainable tourism. The sample

of 74 individuals was taken from those who had published on the subject of sustainability in any one of four major tourism journals (Tourism Management, Annals of Tourism Research, Journal of Sustainable Tourism and Journal of Travel Research) over the two and a half years preceding the research. It had been considered that this sample might contain a bias through excluding non-publishing experts and this potential weakness is acknowledged. However, the existence of published research as a mark of expertise meant potential respondents had had their expertise assessed by two or three anonymous referees during the publication process. Using non-published experts would mean asking the expert to self-evaluate their own knowledge. Identifying a sufficient number of experts through this process would have been cumbersome and provide a group that were experts in their own mind with no external validation of that expertise. Other Delphi surveys have asked respondents to grade their own level of expertise before responding although in this research it was felt that having had at least one article published displayed sufficient expertise.

The first round survey used an email adaptation of the Dillman et al (1974) Total Design Method (TDM) to achieve a 73% response rate (54 responses) of which 68% (50) were received within the time allowed. For round two, the mean scores were then calculated and recorded alongside the score that each respondent gave to the indicator and sent back for re-consideration by the respondent. In addition, the comments that were made by respondents were grouped and where appropriate turned into questions to establish the depth and strength of opinion relating to that

particular issue (Uysal and Crompton 1985). Round two received an 80% response rate (40) although three of these were received after the deadline for replies leaving 37 valid answers (74%), again using the adapted TDM. The two rounds of the survey generated over 865 comments, which fuelled 37 extra questions in round two and helped to strengthen the understanding of the factors which respondents feel should shape indicators.

One of the almost paradoxical aims of the Delphi survey is to achieve group consensus without groupthink, or the "bandwagon effect" which does, of course, assume that there is a meaningful group consensus to be achieved. While the temptation may be to perform extensive statistical testing on the results, Seely et al (1980), Kaynak & Macauley (1984), Green et al (1990), Taylor & Judd (1989) and Moeller & Shaeffer (1983) all content themselves with the mean/ median score to measure the central tendency and the standard deviation to measure the degree of convergence. This research showed a very slight increase in the convergence in round two from round one although no significant movement in the mean scores was found, thus it was felt that continuing the research for further rounds would not produce any worthwhile extra convergence of opinion (Moeller & Shafer 1983). Liu (1988) experienced a similar lack of movement on several of his research issues from round one to round two, and considered that this showed a consistency of opinion over time. However, it is perhaps symptomatic of tourism's multi disciplinary nature, that even with no ego involvement (the "halo" effect), respondents may not feel able to achieve greater agreement. Despite, or because of

this, the level of converged opinions achieved still enables important lessons to be learnt from the research.

RESULTS OF THE DELPHI SURVEY

The first part of the survey attempted to ascertain what it was that respondents understood by the concept of ST. The option that the survey utilised was to derive sixteen commonly cited "components of sustainable tourism" from the tourism literature and ask the respondents to select the top five in order of preference from this list. The components varied widely and tried to represent opposite ends of opinion continua, although it must be acknowledged that given the paucity of space, the list was by no means exhaustive and different interpretations of the components may have been possible. Despite this, the aim was to provide a context in which the rest of the respondent's answers could be understood.

Insert Figures 3 & 4 here

Figure two shows the scores for the weighted top five responses. The first thing to notice is that of the sixteen components selected, fifteen received at least one score, with only "Utilises a technology based approach" failing to do so. The popularity of "the long term view" as the most important component of ST perhaps should not be seen as a surprise, (although it is axiomatic that achieving ST must be attached to a

strategy or policy rather than just the taking of a "long term view"). Perhaps the real surprise however is not the high score that the long-term view received, but that it should achieve a higher score than the policies designed to reduce impact. This will be due in part to the dilution of the scores that the policies chosen to achieve this longevity received (respondents picked different policies to pursue in the long term), yet Figure Three shows the first responses (what respondents considered to be the most important component of ST) given as raw scores, and the results confirm that longevity is cited far more frequently first than any policy to achieve sustainability.

Figure four shows which group of players respondents considered to be primarily responsible for achieving ST. This question acknowledges that no single group should be required to bear the full burden of responsibility, however the question aimed to determine where the onus was deemed to lie primarily and most respondents felt able to give an answer albeit occasionally qualified by further comments.

Insert Figure Five here

A frequently made comment was that industry should be the most responsible group but in the absence of any evidence that the industry has accepted this responsibility and with little faith in the ability of self-regulation to be effective, the national government was most frequently chosen. National government's role was seen as one of stimulating involvement, leading, supporting and guiding the stakeholders

and then mediating, though some respondents thought that regulation was the only way in which even government could effect any significant changes. The emphasis on national government rather than local government could perhaps signify that respondents have identified where the initial steps should be taken rather than the group responsible for implementing these steps.

The aim of these two initial questions was not to produce a definitive "Brundtland" type definition of what is ST. The responses however do show that if the opinions of experts vary then necessarily opinions on relevant policies and the type of indicators to achieve a sustainable industry in the future will also vary.

Qualitative versus Quantitative

"I must confess to an instinctive conviction that what cannot be measured may not exist" John Vaizey (1962:14, Quoted in Daly & Cobb 1990).

A predominant theme recurring throughout the first round of the survey was the disagreement as to whether qualitative or quantitative methods offered the better approach to measurement. Survey respondents were suspicious of the efficacy of a qualitative approach (resident attitude surveys) in assessing environmental impact, when more "scientific" methods were available. Comments centred on the lack of knowledge and understanding that residents would have of issues such as air, water and noise quality as well as their potential bias given the "emotive" subject matter.

It was considered that an approach that relied on the perceptions of untrained locals could not be accurate or reliable and that independent consultants using quantitative measures would provide a more valid result. Further reasoning given was of the need for baseline data which it was felt was less concrete if based on resident attitude surveys, and also that qualitative methods could not address the issue of cumulative, incremental impact.

Despite this criticism of qualitative techniques by some respondents, other respondents were equally forthright in their approval of that approach. Locals are considered by many respondents to be key to the issue of sustainability, and as such their negative perceptions of tourism are a "barrier to sustainability". Locals must be convinced therefore of the benefits from tourism before any progress can be made towards a more sustainable position. Further, some respondents believed resident attitude surveys facilitate the indicators to cope with locational differences and enable local input to a standardised set of indicators. Reflecting Gallopín's (1998) need for cost-effective ISD, the qualitative approach was thought to provide a good summation of a situation where a range of complex and expensive quantitative indicators would otherwise be necessary.

Table 1

Indicator	% S. Agree / Agree	% Neutral	% S. Disagree / Disagree	Mean	Std. Dev
Resident attitude survey on air quality	36.1	22.2	41.6	2.9	1.3
Resident attitude survey on water quality	58.3	13.9	27.8	3.3	1.1
Resident attitude survey on noise pollution	63.9	8.3	27.8	3.3	1.3
Resident attitude survey on change in environmental quality	72.2	8.3	19.4	3.7	1.3
Resident attitude survey on congestion	64.8	18.9	17.2	3.6	1.1
Resident attitude survey on change in local culture	70.2	18.9	10.8	3.8	1.1
Resident attitude survey on access to local amenities	75.7	13.5	10.8	3.9	1.0

Measured on a five point Likert scale 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

As can be seen from Table 1, criticism of resident attitude surveys was less when applied to measuring social impacts rather than physical impacts although the doubts remain whether given an acceptable alternative quantitative method, the level of endorsement for qualitative approaches would have been so high.

Policy Relevant

The research aimed to determine what issues were considered relevant to the concept of sustainability and what was felt to be beyond the parameters of the concept.

Employment

Table Two

Indicator	% S. Agree / Agree	% Neutral	% S. Disagree / Disagree	Mean	Std. Dev
% Locals employed in tourism resort: % non-locals employed in tourism resort	83.4	11.1	5.6	4.2	.86
Av. Wage of locals in tourism resort: Av. Wage of non-locals in tourism resort	69.4	16.7	13.9	3.8	.97
% Males employed in tourism resort: % females employed in tourism resort	16.7	50	33.4	2.9	.97
Av. Male wage in tourism resort: Av. Female wage in tourism resort	36.1	41.7	22.2	3.2	.95

The employment of locals compared to non-locals in tourism related activities was an area considered in round one of the survey and strongly supported (83% agreeing or strongly agreeing against 5% who disagreed). However, when the same indicator was applied using males and females instead of locals and non-locals, then, as can be seen from table Two, there was a definite disapproval of its suitability as an indicator. When the issue was expanded to measuring the average male wage against the average female wage, although there was greater approval, the figures were still far below those for locals/non-locals. The large number of comments made on the question of gender belied the neutral score given by many respondents. Thus round two asked whether

"wage/employment equity is important for sustainability",

and 74% agreed or strongly agreed that it was, while 3% disagreed with a significant proportion (22%) unable to commit. Although some respondents questioned

whether equity was necessary to achieve sustainability, the problem many felt was the failure to separate male/female equity from local/non-local equity. The issue of location was again raised and respondents deliberated over the importance of culture and tradition to determine the male/female ratio. Others expressed support for such indicators as they could help to redress the imbalance of gender currently employed in the industry and thus begin to change the image of the industry as being female dominated (albeit in low paid positions). To add to the confusion, the UN (1996:28) states, "It is important to have an assessment of remuneration offered women vis-à-vis their male counterpart to ultimately determine the level of women's participation in the economy". This in addition to the Local Agenda 21 requirement for the full participation of women. Others respondents questioned the role of indicators in measuring gender equality because this is a western concept and not relevant to all societies. While the role of values is a complex issue, the issue of female equity relates to basic female empowerment and through improved access to education and the likely reduction in infant mortality that this improvement brings. If tourism is to take its position as an instrument of development in general rather than a self-interested industry, then it must begin to accept that just as forces beyond tourism can influence the industry, then so too can the industry influence factors beyond itself. If tourism can pass the blame for problems to factors external to tourism or internal to a specific location, then it would seem hypocritical for the tourism industry not to accept responsibility for those wider factors which tourism has the potential to positively influence.

Financial Leakages

Table Three

Indicator	% S. Agree / Agree	% Neutral	% S. Disagree / Disagree	Mean	Std. Dev
Amount of money leaving the tourism locality: Total revenue received by the resort	89.3	2.7	8.1	4.4	1.1

The indicator on financial leakage sought to measure the amount of money leaving a tourism resort compared to the revenue received and 89% of respondents agreed or strongly agreed that this approach was of value, although concern was voiced over the problem of measurement as well as the extent to which the indicator was an over-simplification of the situation. Dymond (1998:289) questions the complexity that surrounds revenue generation and multipliers, and suggests that using alternative measures of tourism's role in local economies may in fact be more cost-effective and appropriate than conventional approaches. Round two was again used to determine the depth of feeling on this issue and respondents were asked to comment on the statement

"measuring the leakage of first round expenditure and profits only against income received severely oversimplifies the situation".

The results were very mixed, but comments illustrated that, although the indicator was an oversimplification, it did represent valuable information and as such should be retained. Many respondents, again reflecting Dymond's thoughts, confessed their preference for simple over more complex calculations and criticised the use of

multipliers for introducing spurious levels of accuracy at the cost of high levels of complexity and confusion.

Customer Satisfaction

Table Four

Indicator	% S. Agree / Agree	% Neutral	% S. Disagree / Disagree	Mean	Std. Dev
Results of customer satisfaction survey	52.7	30.6	16.7	3.4	1.1

A divisive issue was that of customer satisfaction and the extent to which this enabled progress towards a more sustainable position to be measured. The initial indicator was in favour of measuring customer satisfaction, however the large number who remained neutral and those who disagreed did not see the relevance of satisfaction to ST. Those who agreed expressed their claim for customer satisfaction to be one of the most important areas in discussing sustainability. Other areas for consideration were raised and then put to respondents in round two, firstly

" local staff training and career advancement is not relevant to sustainability"

was overwhelmingly rejected by 86% who disagreed or strongly disagreed. The second statement was

"customer satisfaction with environmental issues at the resort is not relevant to sustainability",

again 89% disagreed or strongly disagreed and 80% disagreed or strongly disagreed with the statement

"staff satisfaction is not relevant to sustainability",

while 75% agreed that

"measuring the extent of staff/guest environmental education would be of value".

The final question on this subject asked whether an indicator that included all these issues would be of greater value than one which just measured customer satisfaction and the result was a very confirmatory 85% agree or strongly agree with only 11% disagreeing or strongly disagreeing. There is recognition of the gap between customer satisfaction and staff training and education, as customers may be very content with a poor standard of service and vice versa. Similarly, customers can be dissatisfied with a resort that is taking every environmental step possible (see next section on the role of the consumer). ST requires all stakeholders to be educated as to the role that they can play in promoting sustainability, and it seems to be this belief that has caused the high levels of support for these indicators.

Environmental Impact Assessment (EIA)

Table Five

Indicator	% S. Agree / Agree	% Neutral	% S. Disagree / Disagree	Mean	Std. Dev
Was an EIA conducted?	83.7	8.1	8.1	4.1	1.1
What extent and coverage does the EIA have?	89.1	5.4	5.4	4.3	1.0
Will there be continuance and reappraisal of the EIA?	91.9	2.7	5.4	4.3	1.0

All three of the indicators relating to the use of EIA had mean scores amongst the ten highest of the twenty-nine indicators presented for grading. The first question of round two concerned the value of appraising a tourism resort if a social impact assessment could be included in the EIA. 97% of respondents agreed or strongly agreed that this would indeed be of value. The second question concerned comments about by whom the measurement would be conducted and relates to the question shown above about who is considered responsible for taking steps to promote ST. However, in the second round the question was phrased differently, asking whether the commitment and measurement should come from local authorities to which 52% agreed or strongly agreed, 26% disagreed or strongly disagreed and 20% remained neutral. The reluctance to endorse local government measurement centred around the perceived lack of neutrality, the paucity of the skills required to perform the task, as well as what one respondent described as the "tragedy of small decisions when local government is involved". Some respondents

stated that it should be independent consultants charged with the task while others saw the developers as being responsible. However, although it is inevitable that the body who pledges commitment and accepts the task of measurement will vary according to the political situation in destination countries, the research shows that respondents feel the most competent body should be independent, credible and willing to apply standardised and universal EIA procedures.

The nature of the tourism industry with its large underbelly of small and medium sized enterprises (SMEs) means that any approach that excludes the small and medium sized enterprises risks misrepresenting the value of the measure. Thus opinion was sought on whether it would be appropriate for EIA to be applied to all tourism resorts regardless of their size. Here 74% agreed or strongly agreed that this would be of value, with 17% disagreeing or strongly disagreeing. Doubts were expressed at the cost of such an exercise and whether sufficient commitment could be achieved, although it was thought that EIA were certainly relevant to SME's and ultimately should be applied to all resorts regardless of size.

Role of Consumers

After the indicators had been presented to respondents in round one, respondents were then asked to comment on the role that these indicators could then play in the achievement of a more sustainable position. Middleton & Hawkins (1998) claim that consumers are the catalyst ready to ignite the sustainability touch paper, and the

research aimed to test the extent of this feeling. Firstly the survey asked if the indicators taken as a package would

"enable consumers to make more informed decisions on their choice of resort",

and 75% agreed or strongly agreed with this statement and 11% disagreed or strongly disagreed. A second round question asking if progress could be made by providing consumers with the information that the package of indicators would produce, again 75% agreed or strongly agreed against 16% who disagree or strongly disagreed. This seemed to support the view of many that consumers may be willing to forgo the hedonistic past and adopt a more sensitive style to holidaying in the future. Comments, however, revealed that while they felt the indicators would help better inform consumers, they could only do so if the consumers were willing to be informed - and most respondents felt that this was not the case, with consumers only concerned to maximise their individual utility for the two-week vacation. Further, how would the consumers weight the indicators according to their own understanding of what constitutes a more sustainable tourism industry? If tourism experts have been shown to disagree over what ST should include, then certainly we could expect consumers to vary greatly in how they at least mentally weight various issues.

The next question asked if the indicators would provide marketers with useful information and again reflected the same feeling that the information would be useful, but only where consumers expressed concern. Alternatively, academic

suspensions were raised about the information just being used as a marketing gimmick, reflecting Wickers' (1992) concerns over the excess of marketing babble. Thus, while it was acknowledged that better informed consumers would potentially demand more sustainably managed resorts, and that the indicators developed through the filtering process would aid the education of consumers, there was still doubt as to where the movement towards a more sustainable position was going to come from. The statement which sought to ascertain this asked if "*external pressure from consumers*" was more likely to produce this movement than "*internal drive from the industry*", and although 59% agreed or strongly agreed, over 25% remained neutral and reflected the scepticism that neither party was likely to take any positive steps. Many who agreed with the statement qualified it by observing that just because the consumers had the power and knowledge to influence the situation it did not necessarily mean that this was part of the agenda. Others commented that the information from the indicators could also be of value to industry and government and that this may increase the potential for the stakeholders to act in tangent, reflecting their shared responsibility rather than trying to pin all the burden on one party.

CONCLUSION

Although it seems paradoxical to develop indicators for ST when no satisfactory definition of the concept exists, the process of developing the indicators does help in determining the important tenets of the concept. Further, if ISD, and indeed the concepts of SD and ST are to be accepted and understood by the general public then they must be relevant to the public. This paper has sought to determine expert opinion on the nature of the indicators, the breadth of their concern and what the role of the consumer could be in promoting a more sustainable form of tourism. Future research will focus on what the industry can provide and then what the consumer wants from ISD. It is expected that this future research will reveal large gaps between the theoretical and practical aspirations.

This research has identified that, although there is general agreement on the need for ST to focus on the long term, there is little agreement on what policies we should employ over this time period. This disharmony is reflected in the varying opinions expressed on the range of possible indicators presented. Similarly there is a spread of opinion as to who should be responsible for mitigating impact. This in turn has led to disagreement over the extent to which qualitative measures are appropriate. Criticism of resident attitude surveys centred on the lack of information that locals possess to perform this task accurately. Yet the survey also identified a strong core of support for local involvement in the development of tourism. This is a dichotomy that urgently needs to be addressed. The issue of equity was also one that proved

divisive, is “equity” part of the drive for sustainability, or simply an "add-on" which only serves to confuse the debate and weaken the significance of the term? What is the value of an indicator that is an admitted simplification of a complex issue and should we use indicators when they cannot provide us with a complete picture even if the partial image is a greater sight than presently enjoyed? Are customer satisfaction, staff training and environmental awareness relevant issues in measuring progress towards sustainability? These and other questions have been considered by this research and the answers have shown a spread of opinion. If tourism is to progress in a united manner rather than follow the traditional piecemeal approach, then some or all of these questions need answers. The answers may vary from location to location, for we need to capture what is specific to individual locations and what is also common to tourism in general, but at the very least we should begin to ask these critical questions in a more formal way.

REFERENCES

Carley, M. (1981) Social Measurement and Social Indicators: Issues of Policy and Theory. George Allen and Unwin, London

Craik, J. (1995) Are there Cultural Limits to Tourism. In Journal of Sustainable Tourism, Vol.3, No.2, pp87-98

Dahl, A.L (1997) The Big Picture: Comprehensive Approaches. In Sustainability Indicators: Report of the Project on Indicators of Sustainable Development. Moldan, B., Bilharz, S (Eds), Wiley & Sons, Chichester, pp69-83

Daly, H.E., Cobb, J.B. (1990) For the Common Good: Redirecting the Economy Towards Community, the Environment and a Sustainable Future. Green Print, London

DCMS (1999) Sustainable Tourism Indicators Workshop. 7th May and 3rd June, DCMS, London

DETR (1999) Monitoring Progress: Indicators for the Strategy for Sustainable Development in the UK, HMSO, London

Dillman, D.A., Christensen, J.A., Carpenter, E.H., Brooks, R.M (1974) Increasing Mail Questionnaire Responses: A Four State Comparison. *American Sociological Review*, vol.39, pp755

Dymond, S. L (1997) Indicators for Sustainable Tourism in New Zealand: A Local Government Perspective. In *Journal of Sustainable Tourism*, Vol.5, No.4, pp279-293

Gallopín, G. (1998) Indicators and their Use: Information for Decision-Making. *Sustainability Indicators: Report of the project on Indicators of Sustainable Tourism*, Moldan, B., Bilharz, S., Matravers, R. (ed) John Wiley & Sons, Chichester, UK, pp13-27

Green, H., Hunter, C., Moore, B. (1990) Assessing the Environmental Impact of Tourism Development; Using the Delphi Technique. *Tourism Management*, June, pp111-120

Hardin, G. (1969) The Tragedy of the Commons. *Science*, vol.162, pp1243-1248

Harris, J.E., Nelson, J.G. (1993) Monitoring Tourism from a Whole Economy Perspective: A Case from Indonesia. In Nelson, J.G., Butler, R.W., Wall, G (ed) *Tourism and Sustainable Development: Monitoring, Planning and Managing*, Department of Geography Publications Series, University of Waterloo

Hart, M. (1996) Characteristics of Effective Indicators.

[Http://www.subjectmatters.com/indicators/](http://www.subjectmatters.com/indicators/)

Hughes, P (1996) Planning for Sustainable Tourism: The ECOMOST Project.

International Federation of Tour Operators, London

Kaynak, E., Macauley, J.A. (1984) The Delphi Technique in the Measurement of Tourism Market Potential: The case of Nova Scotia. *Tourism Management*, June, pp87-101

Linstone, H.A., Simmonds, W.H. (1977) *Futures Research: New Directions*, Addison-Wesley Publishing, Reading, MA.

Linstone, H.A., Turoff, M (1975) *The Delphi Method: Techniques and Applications*, Addison-Wesley Publishing, Reading, MA

Liu, J. (1988) Hawaii Tourism to the year 2000: A Delphi Forecast. *Tourism Management*, December, pp279-290

Middleton, V.T.C., Hawkins, R. 1998. *Sustainable Tourism: A Marketing Perspective*. Heinemann-Butterworth, Oxford.

Moeller, , G.H., Shafer, E.L. (1983) The Use and Misuse of Delphi Forecasting. In Recreation Planning and Management, Lieber, S.R., Fesenmaier, D.R. (eds), E.F.Spon ltd, London, pp96-104

Moldan, B (1997) Decision Making Cycle. In Sustainability Indicators: Report of the Project on Indicators of Sustainable Development. Moldan, B., Bilharz, S (Eds), Wiley & Sons, Chichester, pp59-62

Moldan, B., Bilharz, S (1997). In Sustainability Indicators: Report of the Project on Indicators of Sustainable Development. Moldan, B., Bilharz, S (Eds), Wiley & Sons, Chichester, pp1-5

Mortensen, L.F (1997) The Driving Force-State-Response Framework used by the CSD. In Sustainability Indicators: Report of the Project on Indicators of Sustainable Development. Moldan, B., Bilharz, S (Eds), Wiley & Sons, Chichester, pp47-53

OECD (1991) The State of the Environment. OECD, Paris

OECD (1991) Environmental Indicators – A Preliminary Set. OECD, Paris

Payne, R (1993) Sustainable Tourism: Suggested Indicators and Monitoring Techniques. In Butler, R., Nelson, J.G., Wall, G (Eds) Tourism and Sustainable

Development: Monitoring, Planning, Managing. Department of Geography
Publication Series, pp249-253

Peterson, P.J. (1997) Indicators of Sustainable Development in Industrialising
Countries: From Concepts to Actions, Vol.2. Institute for Environment and
Development (LESTARI), Universiti Kebangsaan, Malaysia

Rutherford, I.D. (1998) Pieces of a Greater Picture. In Sustainability Indicators:
Report of the project on Indicators of Sustainable Tourism, Moldan, B., Bilharz, S.,
Matravers, R. (ed) John Wiley & Sons, Chichester, UK, pp149-156

Schneider, A.E., Donaghy, W.C (1975) Organizational communication. McGraw-
Hill, London

Seely, R.L., Iglarsh, H., Edgell, D. (1980) Utilising the Delphi technique at
International Conferences; A Method for Forecasting International Tourism
Conditions. Travel Research Journal, Vol.1, pp30-35

Taylor, R.E., Judd, L.L. (1989) Delphi Method Applied to Tourism. In Witt, S.,
Moutinho, L (eds) Tourism Marketing and Management Handbook, pp95-99

UN (1996) Indicators for Sustainable Development: Frameworks and
Methodologies. UN, New York

UNEP (1995) Environmental Codes of Conduct for Tourism: Technical Report #29.

UNEP

United Nations Conference on Economic Development (Rio Earth Summit) Agenda
21 (1992)

Uysal, M., Crompton, J.L. (1985) An Overview of Approaches used to Forecast to
Tourism Demand. *Journal of Travel Research*, Vol.23, No.4, pp7-15

Van Esch, S (1997) Indicators for the Environment Programme in the Netherlands.
In *Sustainability Indicators: Report of the Project on Indicators of Sustainable
Development*. Moldan, B., Bilharz, S (Eds), Wiley & Sons, Chichester, pp310-317

Wheeller, B., Hart, T., Whysall, P. (1990) Application of the Delphi Technique: A
Reply to Green, Hunter and Moore. *Tourism Management*, June, pp121-122

Wickers, D (1992) Whither Green. *Sunday Times*, 5th January

WTO (1993) Indicators for the Sustainable Management of Tourism. Report of the
International Working Group on Indicators of Sustainable Tourism to the
Environment Committee, International Institute for Sustainable Development,
Winnipeg, Canada

WTO (1995) What Tourism Managers Need to Know: A Practical Guide to the
Development and Use of Indicators of Sustainable Tourism. WTO, Madrid, Spain

Figure One. Source: Moldan (1997:59)

Figure Three

Figure Four

Figure Five

Figure Two

Name of indicator	
-------------------	--

Type of indicator	
-------------------	--

Page number	
-------------	--

		Yes	No	
1	Is the indicator applicable to tourism?			See Notes
2	Is the indicator a complete indicator?			See Notes
3	Is the indicator applicable to all types of tourism?			See Notes
4	Is the data for the indicator easily obtained?			See Notes
5	Is the calculation required for the indicator simple?			See Notes
6	Is the indicator understandable?			See Notes
7	Is the data objective, quantifiable and reliable?			See Notes
8	Does the indicator point towards sustainable development?			See Notes
9	Can the indicator be measured on an ongoing basis?			See Notes

Links to other indicators

Notes