

# Concepts of Tourism Yield and Their Measurement



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SUSTAINABLE  
TOURISM



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## **ABSTRACT**

The report develops tools for measuring and enhancing the yield from tourism at the business, regional and national level. It clarifies the different concepts of tourism yield. Different stakeholders (operators, governments, community, researchers etc.) mean different things by 'yield' and this presents a barrier to communication and policy discussion. Each of these concepts is defined and their relevance to firms and destination managers assessed. The report develops operational measures of yield at the level of the firm and regional, state and national destination management levels. It also develops ways to measure the yield from different types of tourists. With the increasing sophistication of tourism data sets, such as the Tourism Satellite Account (TSA) and Computable General Equilibrium (CGE) models, it is now feasible to develop new and more useful measures of tourism yield. Some measures, such as sustainable yield, resist easy estimation and the difficulties in operationalising such a concept are discussed. The report also discusses and analyses the policy implications of the study. The results can help to develop strategies to achieve highest sustainable yield. Achieving long term sustainable and profitable tourism products would secure a competitive advantage for Australia as a desirable tourist destination with benefits to all tourism stakeholders. The results can improve the capacity for management decision making by tourism stakeholders to promote 'high yield' sustainable tourism that enhances competitiveness in the tourism industry.

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Given the substantial scope of the report, some specialisation was inevitable. Larry Dwyer and Peter Forsyth, members of the STCRC economic modelling team, assumed primary responsibility for developing the economic measures. Marg Deery, Liz Fredline and Leo Jago developed the social measures and Lundie developed the environmental measures. That said, the interest of all team members is in moving away from the separate development of yield indicators towards an index of 'sustainable yield'. Unfortunately achievement of this task still represents an ongoing challenge for researchers.

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## **SUMMARY**

Until recently, tourism industry focus has been on visitor numbers rather than yield. However, there is now widespread recognition of the fact that tourism visitor numbers have little meaning, with the term 'profitless volume' being used since the early 1990s. A key theme of the Federal Government's Tourism White Paper (2004) is that to attract visitors and generate repeat visitation, Australia's tourism industry must earn a reputation for quality, value and variety. A focus on 'yield' is an important aspect of business strategies to maintain and enhance Australia's tourism competitiveness.

Yield can be viewed from the perspectives of a business, an industry, a particular niche market or a nation. Using a narrow definition of 'yield', as used by many tourism stakeholders, the concept refers to the expenditure injections of tourists (sales revenues) or the profitability of catering to different visitor markets. Yield can be defined purely from an accounting perspective where it approximates sales revenues per visitor or the financial rate of return to operators, or gross operating surplus of different industry sectors. Alternatively, the profitability to the tourism industry of different market segments can be assessed. However, yield can also be defined from a wider economic perspective where it is associated variously, with contribution to Gross Domestic Product (GDP), contribution to gross value added, or employment generated. This appears to be the viewpoint adopted in the White Paper. Taking a wider viewpoint, the notion of 'yield' includes environmental and social value in addition to economic value. The report identifies and distinguishes these different yield concepts, their relevance to firms and destination managers and their advantages and disadvantages in different contexts.

The report then provides an overview and critique of recent attempts by Tourism Research Australia (TRA) to measure tourism yield. The purpose of this discussion is to illustrate how certain of the concepts may be operationalised. The yield measures derived by TRA rely on the Australian Tourism Satellite Account, ignoring the economy wide effects of expenditure from the incremental tourist.

Simple expenditure measures of yield are estimated using International Visitor Survey (IVS) data. The authors develop measures of tourism yield using data purchased from TRA. Since the injected amounts of expenditure depend upon total numbers of tourists by origin, their daily expenditure, and their length of stay, it is informative to consider expenditure per night in association with duration of stay. Two types of markets are highlighted; inbound tourism from fourteen countries and three regions, and eleven special interest markets. The limitations of expenditure measures are discussed.

Four yield measures are estimated: employment, real value added, gross operating surplus, and net benefits. The steps involved in estimating each type of yield are outlined. It is found that the different measures of yield give different rankings for the same tourist types. Since consistency in this respect is necessary for informed decision making as to which niche markets to target, the yield measures provide conflicting advice to destination managers.

The report presents a framework to help develop the concept of sustainable tourism and aid in its operationalisation. Different types of tourists tend to undertake different patterns of activities and thus have different types and levels of social and environmental impact. It is hypothesised that the impacts that particular groups of tourists have on their host destination vary with four sets of variables: the characteristics of the tourists; the characteristics of the tourism activity; the characteristics of the destination; and the destination's management practices. The framework is used to explore the issues involved in incorporating social and environmental impacts into measures of tourism yield.

The method of operationalising social yield involves four steps: profiling communities in terms of their robustness, socio-political values and the effectiveness of tourism management in the destination; examining the relationship between the characteristics of tourists and the activities they undertake; examining destinations in terms of the tourist groups they attract large proportions or greater than average proportions of; and analysing the activities associated with those groups in terms of their social impacts in that type of community. The relevant environmental impacts include those on energy use, water use, greenhouse gas emissions and (in aggregate) 'ecological footprint'. For the eleven special interest markets, measures of the environmental impact are developed per dollar spent, per visitor night and per stay.

The report also discusses the advantages and limitations of 'sustainable yield', a broad notion of yield that incorporates social and environmental impacts alongside the financial and economic impacts that comprise the standard definition. While this notion has conceptual appeal there are difficulties in its operationalisation.

The report concludes with a discussion of the implications of the study for tourism operators and destination managers, and also highlights challenges for further research. An outcome of the study is an enhanced capacity for tourism stakeholders to develop policies to enhance destination long term competitiveness. Enhanced destination competitiveness can be an outcome of planning initiatives, new product development, and marketing promotion strategies at both the 'macro' level by destination managers and also at the 'micro' level by individual operators. The research agenda tabled in the report can once actioned, help to promote the sustainability of Australia's tourism industry.

## *Chapter 1*

# INTRODUCTION

Until recently, tourism industry focus has been on visitor numbers rather than yield. However, there is now widespread recognition of the fact that tourism visitor numbers have little meaning, with the term 'profitless volume' being used since the early 1990s. Although there has been much said about the need to move beyond visitation numbers to more meaningful measures of yield, this has been little more than rhetoric. A key theme of the Federal Government's Tourism White Paper (2004) is that to attract visitors and generate repeat visitation, Australia's tourism industry must earn a reputation for quality, value and variety. The White Paper claims that Australia should strive to be a 'Platinum Plus' destination, one that meets and exceeds customer expectations in terms of the quality and value it provides. To this end, Australian tourism stakeholders (operators, governments, community, researchers etc) should be pro-active in developing new and innovative products and experiences with a focus on developing 'high-yield' niche markets. A focus on 'yield' is an important aspect of business strategies to maintain and enhance Australia's tourism competitiveness.

'Effective niche marketing targeted at high-yield markets will seek to ensure the industry gains optimal returns on tourism investment. By understanding the yield potential of different source markets and segments, the industry will know why and how to target them' (White Paper 2004: 29).

In recent years, other tourist destinations have shifted their marketing focus away from simply increasing the number of tourists to enhancing the 'quality' associated with tourism growth. The way to increase quality is often articulated as moving away from mass tourism, with low expenditure per person, and moving towards quality tourism with high per capita spending.

The research literature has extensive references to tourism yield (Dwyer & Forsyth 1997; Becken & Butcher 2004; Northcote & Macbeth 2006). Yield has many dimensions. It can be viewed from the perspectives of a business, an industry, a particular niche market or a nation. An ongoing study of tourism yield in New Zealand equates yield with business enterprise financial position and performance and hence attractiveness to investors. In the present study we are not interested in the measurement of investor financial yield to firms or many of the other measures that are explored in the TRREC study, though we are interested in financial yields to the industry from different markets. The focus here is on the clarification of different concepts of yield that can inform decision making at firm or destination marketing and investment strategy rather than on tourism industry performance.

In measuring the yield from tourism, an important question is whether the yield is closely related to the tourist expenditure and whether there are systematic variations in this relationship for different types of tourists. This question has been explored by Dwyer and Forsyth (1997). Using a narrow definition of 'yield', as used by many tourism stakeholders, the concept refers to the expenditure injections of tourists (sales revenues) or the profitability of catering to different visitor markets. Yield can be defined purely from an accounting perspective where it approximates sales revenues per visitor or the financial rate of return to operators or gross operating surplus of different industry sectors. Alternatively, the profitability to the tourism industry of different market segments can be assessed. However, yield can also be defined from a wider economic perspective where it is associated with contribution to Gross Domestic Product (GDP), contribution to gross value added, or employment generated. This appears to be the viewpoint adopted in the White Paper. Curiously, the White Paper does not define the meaning of 'yield' or 'optimal returns' that reflect high yield. However, in claiming that 'industry sustainability is derived from maintaining an appropriate balance between tourism numbers and yield' and that, 'to date, the industry has tended to be more numbers focused to the detriment of maximising yield' (2004: 29), it would appear that 'yield' is considered to have, primarily, a financial or economic dimension.

Taking a wider viewpoint, the notion of 'yield' includes environmental and social value in addition to economic value. Such a perspective is adopted by Tourism New Zealand when it describes the ideal visitor as a high-yield tourist who engages with the local cultures and the environment in an interactive way. The New Zealand Tourism Strategy 2010 (NZTS) recommends: '[a] sustainable yield driven strategy based on growing tourism demand and financial returns while enhancing the quality of the visitor experience and New Zealanders' quality of life' (Ministry of Tourism 2003: ii). Indeed, the notion of yield can be extended to cover all impacts of tourism activities, including employment and foreign exchange effects, regional dispersal effects, resource allocation effects, terms of trade effects, balance of payments effects, government revenue effects, environmental externalities, and social and cultural impact (Dwyer & Forsyth 1997).

Northcote and Macbeth (2006) claim that sustainable development should imply direct gains or improvements in all aspects, including social, cultural and environmental, not just the financial/economic sphere, and that such gains should be an important aspect of how we measure tourism yield. They argue that a more holistic approach is required to understand the costs and benefits associated with tourism development. This would include an understanding of the knowledge of limitations that must be imposed on development if it is to be sustainable. This broader conception of sustainable yield has important policy implications.

The White Paper recognises that the capability of tourism businesses to deliver what they promise, and to satisfy customer expectations, depends upon sound management practices. If the enhancement of yield is proposed to be an important objective of firm or destination management, the concept needs to be clearly defined. The industry, at its different levels, needs clarification as to what yield is, how it is measured, and how it can be enhanced.

The primary aim of this report is to develop tools for measuring and enhancing the yield from tourism at the business, regional and national level. This overall objective subsumes several more specific objectives:

Firstly, clarify the different concepts of tourism yield. Since the notion of a 'high yield' tourist will differ according to the different concepts of yield, clarification of yield is an important aim of the study. Each of these concepts needs to be defined precisely and their relevance to firms, and destination managers assessed. The existing literature will be critically reviewed to provide a better conceptual understanding of the different definitions of tourism yield, and a better understanding of the relevance of the different concepts of yield to firms, regions and nations.

Secondly, develop operational measures of yield at the level of the firm and the destination – including regional, state and national management levels. This objective requires recognition of the different measurement problems associated with the different yield concepts, and exploration of difficulties in measurement at the micro and macro levels. An important issue also involves developing ways to measure the yield from different types of tourists. Different types of tourists by origin country or by type (e.g. holiday, business, Visiting Friends and Relatives (VFR)) or by motivation (e.g. conventions, backpacker) systematically use different components of the tourism industry and they also draw on natural and public resources to a different degree. Determining the economic and sustainable yield for some tourist types at the company, regional and national level will allow consideration of tourist types and their effect on yield. These will allow further understanding of Australia's 'ideal tourist'. With the increasing sophistication of tourism data sets, such as the Tourism Satellite Account (TSA), and economic models, such as Computable General Equilibrium (CGE), it is now feasible to develop new and more useful measures of tourism yield. Some measures, such as sustainable yield, resist easy estimation and the difficulties in operationalising such a concept will be discussed.

The final objective involves discussion and analysis of the policy implications of the study. The results can help to develop strategies to achieve the highest sustainable yield. The implications for informed decision making by tourism stakeholders at the firm and wider levels will be discussed along with policy making to enhance destination competitiveness. An ability to focus on long term sustainable and profitable tourism products would secure a competitive advantage for Australia as a desirable tourist destination with benefits to all tourism stakeholders. This study is expected to improve the capacity for management decision making by tourism stakeholders to promote 'high yield' sustainable tourism. The report is structured as follows.

Chapter 2 identifies different concepts of yield. The discussion reveals that different concepts are appropriate according to whether the perspective adopted is that of the business firm or destination management. Yield concepts may be divided broadly into those that apply to the demand side (visitor yield) and those applicable to the supply side (GDP, Gross Value Added, etc.). They may also be classified into those that apply to business operations and those that are more relevant to the overall contribution of tourism to the destination. Moreover, narrow or wider concepts may be employed depending upon the objective function or goals of tourism firms and organisations. The report will highlight the different yield concepts, their relevance to firms and destination managers and their advantages and disadvantages in different contexts.

Chapter 3 provides an overview and critique of recent attempts by Tourism Research Australia to measure tourism yield. The purpose of this chapter is to illustrate how certain of the concepts defined in Chapter 2 are operationalised. The yield measures derived by TRA rely on the Australian TSA ignoring the economy wide effects of expenditure from the incremental tourist.

In Chapter 4 an attempt is made to estimate 'expenditure' measures of yield for different visitor markets. Two types of markets are highlighted; inbound tourism from fourteen countries and three regions, and eleven special interest markets. The limitations of expenditure measures are discussed.

In Chapters 5 and 6 'economy wide' yield measures are estimated. Chapter 5 develops these estimates for the fourteen major origin countries and three regional markets. Chapter 6 develops the same measures for the eleven special niche markets. The steps involved in estimating each type of yield are outlined. The different estimates will then be compared for their consistency. In particular, do the different measures of yield give different rankings for the same tourist types? Consistency in this respect is necessary for informed decision making as to which niche markets to target.

In Chapter 7, a framework is presented that can help in developing the concept of sustainable tourism and aid in its operationalisation. Different types of tourists tend to undertake different patterns of activities and will have different types and levels of social and environmental impact. It is hypothesised that the impacts that particular groups of tourists have on their host destination vary with four sets of variables: the characteristics of the tourists; the characteristics of the tourism activity; the characteristics of the destination; and the destination's management practices.

Chapter 8 explores the issues involved in incorporating social impacts into measures of tourism yield. A

method of operationalising the measurement of social yield is developed. This method involves four steps: profiling communities in terms of their robustness, socio-political values and the effectiveness of tourism management in the destination; examining the relationship between the characteristics of tourists and the activities they undertake; examining destinations in terms of the tourist groups they attract large proportions or greater than average proportions of; and analysing the activities associated with those groups in terms of their social impacts in that type of community.

In Chapter 9 measures of environmental yield are developed. The relevant environmental impacts include those on energy use, water use, greenhouse gas emissions and (in aggregate) 'ecological footprint'. For the eleven special interest markets, measures of the environmental impact are developed per dollar spent, per visitor night and per stay.

Chapter 10 discusses the advantages and limitations of 'sustainable yield', a broad notion of yield that incorporates social and environmental impacts alongside the financial and economic impacts that comprise the standard definition. While this has conceptual appeal there are difficulties in operationalising it.

Chapter 11 discusses the implications of the study for tourism operators and destination managers and also highlights challenges for further research. An outcome of the study is an enhanced capacity for tourism stakeholders to enact policies to enhance destination long term competitiveness. Enhanced destination competitiveness can be an outcome of planning initiatives, new product development, and marketing promotion strategies at both the 'macro' level by destination managers and also at the 'micro' level by individual operators. The research agenda tabled in this chapter can, once actioned, help to promote the sustainability of Australia's tourism industry.

**Chapter 2**

**CONCEPTS OF YIELD**

Concepts of yield can be classified in different ways. One type of classification concerns the nature of the variable being impacted upon by a tourism increase - it could be expenditure, profit, output, employment and so forth. Additional tourism impacts on a wide range of variables such as these, and the impacts will be of interest to firms, industry bodies and policy makers. Furthermore, we should not limit yield simply to economic or financial variables - social and environmental impacts are an important dimension of yield. This classification concerns what is affected by additional tourism.

Yield concepts can also be classified in terms of which level of activity is affected. The impacts of extra tourism on a firm, on the tourism industry as a whole, or the economy will be of interest to different stakeholders. Thus a firm will be interested in the impact on its profit and employment, while a government will be interested in the impact on profit and employment in the economy as a whole. This classification concerns who is affected by additional tourism.

Different stakeholders will emphasise different measures in their marketing and investment strategies, and, depending on what measure is employed, the marketing implications may be quite different.

The different measures, in terms of what variables are affected, may be classified under the following headings:

*Demand Side Measures*

- Visitor Yield

*Expenditure Measures*

- Yield as expenditure per trip or by night associated with different market segments

*Financial Measures*

- Yield as a rate of profit
  - at firm and industry level
  - at firm and industry level for different markets
- Yield as Rate of Return on Capital
  - as a rate of return at firm and industry level
  - as a rate of return for the firm and industry from a particular visitor market
- Yield as contribution to Gross Operating Surplus, for the firm, industry or economy

*Economic Impact Measures*

- Yield as contribution to value added
- Yield as contribution to employment
- Yield as contribution to net benefit

*Sustainability Measures*

- Yield as sustainable return to operator
- Return to destination on each of three forms of capital (financial, social, natural).

The different measures, in terms of who are affected, may be classified under the following headings:

*Firm Level Measures*

- Impacts on firms' profits, employment output etc

*Industry Level Measures*

- Impacts on industry profit, employment, output etc

*Economy Wide Measures*

- Impacts on economy wide profit, employment, GDP etc.

It would be possible to extend this classification further by considering other specific stakeholders affected by tourism (see below for more discussion).

Table 1 illustrates how the classifications of yield interact.

**Table 1: Cross Classifications of Yield Concepts**

Type/Level	Industry Level Yield	Economy Wide Yield
Financial Yield	Industry Profitability	National GOS
Economic Yield	Industry Value Added or Employment	GDP or Employment
Sustainable Yield	TBL reporting	Sustainable development

This table indicates that financial yield can be estimated for the level of the tourism industry, or for the nation as a whole. A government may be interested in the implications for profitability in the economy as a whole, though the tourism industry may be particularly interested in its own profitability. The economic yield concerns more than just financial variables. The industry will be interested in the impact on its employment, and the government will be interested in how additional tourism impacts on national output and employment.

Positive economic impacts not covered in these yield measures can include an increased government tax base, expansion of the economy's export base and the way that tourism can act as a catalyst for economic development. Tourism can assist in the development of remote areas and diversify and stabilize economic activity, offering additional livelihood opportunities for local communities. The economic impacts can have wider influences as well. For example, tourism can provide a self-financing mechanism for natural and heritage attractions and so serve as a tool for environmental preservation. It may also provide economic support for preservation of local culture, for example through the sale of culturally inspired handicrafts produced by local community.

Possible negative economic impacts of tourism not covered in these yield measures could include inflationary impacts on prices and shortages of goods and services; housing prices being placed beyond the affordability of local residents; increased demands on public services and facilities together with implicit subsidisation of tourist activities by local taxpayers and ratepayers; increases in property taxes; and increased economic dependency on a single industry. An over-dependence on tourism may lead to a region being economically vulnerable to decisions made by consumers and investors elsewhere. Other industries may also decline as resources are competed away from them for use by an expanding tourism industry (Dwyer, Forsyth and Spurr 2004). It has been argued that tourism can result in low level or unskilled jobs for locals, with an emphasis on seasonal, low wage, and part time employment with low annual earnings and little opportunity for advancement.

Clearly, no single economic measure of yield will cover all of the potential economic impacts, positive or negative. The profitability measures Gross Operating Profit (GOS) relate to the operator financial bottom line, while the economic measures relate to wider macroeconomic effects. The use of Computable General Equilibrium (CGE) models can estimate impacts such as the effects on Gross Domestic Product (GDP), government taxation revenues, employment, real wages, real price changes and the extent to which tourism acts as a catalyst for economic development compared to other sectors within the economy. However, in themselves, the models cannot help us to determine the extent to which tourism acts as a self financing mechanism

Whatever the yield measure, it is important to recognise that the yield from the existing segments will not remain at the same levels over time, since the market is likely to respond and bring high yields back to more normal levels. Accordingly, as fashions and demographics change, other segments will emerge that have high yield potential. Because of this dynamic, it is necessary to refine existing approaches and develop more innovative methodologies to identify these opportunities in advance of the international competition.

While financial yield can be estimated in several ways, there are two main methods of estimating yield as an 'economic impact', or 'sustainable' measure:

1. One method is to employ a TSA, enabling GDP/GSP, Gross Value added, GOS and employment measures of yield to be developed. This approach has been employed by the TRA in its recent estimates of tourism yield at the industry level.
2. The other method is to employ an economic model to estimate the economic impacts of tourist visitation. The STCRC view is that CGE models provide accurate measures of the economy-wide impact on economic variables from additional tourism than do Input-Output models.

While measures of yield, derived from the TSA, which show how the additional tourism expenditure impacts on the tourism industry value added or the industry profits are valuable, these do not tell us what the impact on the economy as a whole is. They are partial measures of yield. A destination manager, be it a national government, a state government or a local government, will be interested in what impact additional tourism from a source will have on overall economic activity within its borders, or what the net impact on employment might be. It will also be interested in the extent to which the residents of its economy are made better off. It may further be interested in the extent to which additional tourists from a particular market have impacts on industries other than tourism. What is needed are measures of the overall impact on economic variables from additional tourism. The impacts on the tourism industry GDP, value added, GOS and employment will typically be very different from the overall impact on the economy, because there will be impacts on other industries which need to be factored in. Simulations undertaken by the STCRC economic modelling team indicate that, following an injection of tourism expenditure into Australia, the net changes in real GDP, value added, and employment when interactive effects on other industries are taken into account, are substantially less than the gross increases in these variables within the tourism industry (Dwyer, Forsyth, Spurr & Ho 2005).

To estimate the impact of additional tourism expenditure on an economy, it is necessary to go beyond using a TSA. A TSA is simply a static set of accounts, which shows how large the tourism industry is in terms of value added, employment and other variables of interest. It does not tell how a change in spending will impact on other industries and therefore, on the economy as a whole. The appropriate way to assess how tourism spending will impact on an economy as a whole is to use a Computable General Equilibrium model. CGE models recognise

that resources are limited, and that more resources used by one industry will normally be at the expense of fewer resources being available for other industries. They incorporate a detailed industry structure (they can be made as disaggregated as data will permit), and they specify the links between the industries. They can incorporate the industries which tourism directly affects, such as transport and accommodation. They incorporate measures of input and output costs, prices, taxes and profits. They explicitly model the crowding out effects of one industry on another, and enable estimates of overall impacts on economic activity to be made. CGE models typically estimate smaller ‘impacts’ of a given change than do alternative techniques, such as Input-Output analysis or multiplier techniques. They are now widely accepted as the best practice method of estimating economic impacts of policy changes and external shocks in Australia, and they are increasingly used in analysing tourism issues in Australia, the UK and the US (Dwyer, Forsyth, Madden & Spurr 2000; Zhao et al. 1997; Blake, Durbarry, Sinclair & Sugiyarto 2000; Blake 2000; Sugiyarto, Blake & Sinclair 2002; Dwyer et al. 2004; Dwyer, Forsyth & Spurr 2005).

The results of a yield study done by using a TSA and those of a study using a CGE model can be consistent with, and complementary to, each other. A CGE model which has been adapted to analyse tourism issues by incorporating a tourism sector essentially has a TSA embedded in it. As such, it can be used to estimate the direct impacts on the tourism industry of extra spending, in the same way as a TSA based study can. The differences in the yield measures can be summed up in terms of a simple equation:

$$\begin{aligned} & \text{Impacts on the Tourism Industry (Industry Yield measured with TSA)} \\ & + \text{Impacts on Other Sectors (on balance negative usually) (measured using a CGE model)} \\ & = \text{Impacts on the Overall Economy (Economy Wide Yield).} \end{aligned}$$

The measures of impacts on the whole economy, as produced using a CGE model, will be of some interest to industry stakeholders, but they will be of primary interest to destination managers or government policy makers, at federal, state and local levels, along with peak bodies and agencies, such as, in the case of Australia, Tourism Australia. Destination managers will not be interested only in how the tourism industry is affected, but also in how other industries within their economic jurisdiction are affected.

When a CGE model is used to estimate the impact of a change on the economy, such as additional expenditure from a particular tourist market segment, it is necessary to specify how some key markets or sectors of the economy work. Thus, for example, it is necessary to state what the government is assumed to do with any additional taxes it receives. It is also necessary to specify how the labour market works - does increased economic demand result in higher employment or in increased wages? In the simulations in Chapters 5 and 6, a plausible set of assumptions about these behaviours is employed, though it should be recognised that there will be different results if alternative assumptions are used.

Thus different techniques will be used for estimating yield measures at different levels. Again, a simplified table can be used to illustrate this. Financial and Economic Yield concepts as outlined in Table 1 can be estimated using the techniques discussed above, as Table 2 shows.

**Table 2: Techniques for Estimating Different Yield Measures**

Type/Level	Industry	Economy Wide
Financial	TSA based analysis	CGE model
Economic	TSA based analysis	CGE model

The concepts of yield classifications based on ‘what’ and ‘who’ are affected by additional tourism have been identified, addressing both the negative and positive impacts. The report now goes on to look in detail at the classifications and looks at the variables and measurements that can be applied to each.

## Visitor Yield

The notion of ‘visitor yield’ has been raised in the literature recently. Northcote and Macbeth (2006) propose a concept of visitor yield that refers to visitor numbers. Thus a high ‘visitor yield’ market is one that attracts large numbers of tourists. This concept is consistent with the supply side approach adopted in this report. Many operators and destination managers do indeed seek greater numbers of tourists as this generally implies greater sales revenues from visitation. However, generally it is not the number of visitors *per se* that is the goal of tourism marketing but the expenditure associated with those visitors. Moreover, it is well recognised that greater numbers also generally imply greater social and environmental impacts. In this report we develop yield measures based on the financial and economic effects of visitor expenditure rather than visitor numbers.

There is another concept of ‘visitor yield’ that is relevant to the demand side rather than the supply side of the industry. This concept of tourism yield relates to the satisfaction or ‘value’ experienced by the visitor from the consumption of products and services. The concept of customer value is an important concept in consumer

behaviour (Gronroos 1997). Customer value 'takes the perspective of an organisation's customers, considering what they want and believe that they get from buying and using a seller's product' (Woodruff 1997:140). However, a review of the literature only provides a vague sense of what customer value actually means, with definitions revealing a diversity of meanings (Woodruff 1997). The concept of value appears to be one of the most overused and misused concepts in the literature, particularly in management (Khalifa 2004). The term is typically used synonymously with other terms such as worth, utility, benefits and quality, that too often are not well defined themselves (Parasuraman 1997).

In the marketing literature the delivery of value is considered to lead to customer satisfaction and is 'critical to establishing longer-term client relationships and winning repeat business' (Patterson & Spreng 1997:415). Thus, firms attempt to 'add value' to their products and services to enhance the consumption experience and to promote sales.

A study is currently being undertaken by Melsen (2005) to explore the implications of 'yield' as a demand side concept, one that relates to the perceived value of the tourist experience from the visitor viewpoint. In this task, Melsen is focussing on the marketing literature, wherein value is defined by the customer and not the supplier. She notes several common themes in the marketing and management literature. First, customer value is inherent in or linked to the use of some sort of product or service from which they form value perceptions (Woodruff 1997). Second, the majority of definitions refer to some sort of trade-off between what the consumer gives up in order to receive the product/service (sacrifices or costs, 'give' component) and what the consumer receives as a result of acquiring the product/service (benefits, 'get' component). Third, those customers evaluate value at different times of the consumption process and the criteria they use for this evaluation may differ accordingly (Woodruff 1997, Gardial et al. 1994). Fourthly, customers use preferred product attributes, attribute performance and consequences from using a product to form opinions regarding product selection, the actual performance of a product/service and the value they feel they have received (Gardial et al. 1994). These attributes are selected on the basis of achieving one's goals or satisfying the initial need or want. Accordingly, Melsen defines customer value as: 'the customer's overall assessment of the utility, benefits and sacrifices incurred in acquiring a product based on the attributes, attribute performance and desired consequences arising from use that enable customer end goals to be satisfied'.

Melsen supports the view (Zeithaml 1988) that researchers and organisations concerned, to articulate the meaning of customer value, should focus on consumer perceptions rather than actual product attributes. This means focusing on the relevant 'give' and 'get' components of consumers and how this affects their product/service choice. This is consistent also with the view of Huber, Herrmann and Morgan (2001) that the 'relevance of the means-end approach – its categorisation of value, benefits, and attributes may help marketers identify their target consumers central and peripheral needs' (2001:48). Melsen argues that a focus on customer value will promote an understanding of the tourist experience and enable organisations to provide what tourists want, need and expect.

The present report focuses on yield from the supplier (operator, destination manager) perspective rather than from the demand (visitor) perspective. It should be noted, however, that a comprehensive analysis of yield requires both supply side and demand side analysis. The more the tourism products and services on offer within a destination meet tourist needs, adding 'value' to the visitor experience, the more likely it is that tourism flows to the destination will increase over time via repeat visitation and favourable word of mouth publicity. The additional injected expenditure has the potential to increase the economic contribution of the tourism industry to the wider economy and profits to individual operators. The work of Melsen in exploring 'yield' from the demand side, may thus be regarded as complementary to the present study.

## **Yield as Tourist Expenditure**

Expenditure has been used as a standard shorthand measure of tourism yield (Dwyer & Forsyth 1997). Becken and Butcher (2004) develop their yield measures in terms of expenditure per day. Mazitelli (2003) contrasts overall gross expenditure as a measure of the yield from different visitor markets with that of gross expenditure per night. He points out that the profile of visitor segments, investment needs, regional and environmental and social impacts will be very different according to which measure is adopted. This is because the gross expenditure indicator is likely to skew the profile of preferred visitors towards long stay/low spending visitors while gross expenditure per night skews it towards short stay/high spending visitors. Mazitelli argues that each would affect the well-being of residents in very different ways.

Mazitelli proposes what he calls the 'Export Earnings by Market Segments Approach' (see Figure 1). A matrix of outcomes is developed on the basis of length of stay and level of daily spend, to better determine priority market segments at any specific point in time. The approach is based on TRA (formerly Bureau of Tourism Research) data on visitor spend per day and duration of stay in major market segments.

<b>DAILY SPEND</b> \$	High	(1)	(2)
	Low	(3)	(4)
		Short	Long

**LENGTH OF STAY**

**Figure 1: Market Segments by Daily Spend and Length of Stay (Source: IAG 2004)**

The matrix consists of four quadrants. The horizontal and vertical axes indicate, respectively, average Length of Stay (days) and Average Daily Spend (\$). Quadrant 1 comprises high daily spend, short stay travellers. Quadrant 2 comprises the highest yielding segments and comprises high daily spend, long stay travellers whose daily spend and length of stay lies above the average for Australian inbound as a whole. It is argued that segments that fall into this quadrant should carry a higher priority in terms of targeted marketing campaigns than other quadrants. Quadrant 3 comprises long stay/low spend markets while Quadrant 4 contains the least attractive markets of short stay/low spend.

This approach is claimed to meld the benefits of both the overall gross expenditure and gross expenditure per night measures of yield and to deliver a practical outcome that drives tourism planning, new product development and marketing towards the highest yielding niche markets, thus providing a better balancing of the interests of existing stakeholders and potential investors (Mazatelli 2003). The matrix is also considered to help establish yield growth targets. To assess the performance of the measures put in place to drive the growth of yield over the course of a Medium to Long Term Strategy for Tourism, marketing strategies need to have clear, measurable and achievable targets identified and incorporated.

An advantage of the approach is that it can be employed by tourism operators at the level of the individual firm and also by destination managers. Given that the TRA data are also disaggregated (broadly) into expenditure by item, an individual operator can use the matrix to determine those markets that generate the highest levels of daily sales revenue for their businesses (or business product), while the destination manager can use it to determine those markets that inject the highest total expenditure into the economy.

The Export Earnings by Market Segments Approach, as formulated, relates to yield from different inbound markets and neglects domestic tourism. However, it does not seem difficult to adopt the approach for domestic tourism markets also. Australia, for example, has detailed data on domestic tourism with respect to trips taken, length of stay, motives for travel, expenditure per day, etc. The same matrix format can be employed to highlight 'high yield' domestic markets. Such a matrix would be useful to both business operators and destination management.

As we will see, the matrix form is useful for displaying various yield concepts beyond the expenditure measure.

### **Limitations of Expenditure Measure**

There are several limitations with expenditure as a measure of 'yield' that must be noted at this time.

First, gross expenditure data does not in itself provide information on what goods and services tourists purchase and so gives no indication of the sectors of tourism or the wider economy that receive the sales revenues. For example, tourists from particular countries tend to spend proportionately more on accommodation than shopping (e.g. USA), while for other tourists (e.g. Koreans) the reverse is the case. Similarly, backpackers tend to spend relatively less on accommodation and more on entertainment than do New Zealand mature travellers. While the gross expenditure amount may be of interest to destination managers, it is of little value *per se* to operators since it provides no information on the sectors in which the money is spent.

Second, tourist expenditure is not an indicator of profitability to firms. As pointed out by Salma and Heaney 2004, profit comprises only a small proportion of visitor expenditure and is not uniform across industries (Salma & Heaney 2004:73). In the BTR report 'Show me the Money', it states that 'The bottom line for a tourism business is 'what do they (tourists) spend?' (2003a). However, sales revenues are not the bottom line since it is only one component of profitability.

Third, gross tourist expenditure is only a very partial indicator of the impacts on and benefits to the economy from the injected tourism expenditure because it includes the import content of the goods and services purchased by tourists. Since these imports must be paid for by the suppliers of tourism products, expenditure levels in

themselves do not indicate the sales revenues accruing to the suppliers of goods and services in a region net of imports. Any product that is not sourced locally may be regarded as an 'import' depending on the scope of the region under study. The issue is particularly important in the very context in which the Export Earnings by Market Segment Approach was formulated, since research shows that international tourist expenditure has relatively high import content.

Fourth, in emphasising expenditure injections, the approach ignores the economic impacts of tourist expenditure. These impacts include contribution to Gross Domestic (or regional) Product, Gross Value Added, and employment. Studies on the economic contribution to destinations made by different market segments (Dwyer et al. 2005; Collins, Salma & Surridge 2004) indicate that tourist expenditure is not directly proportional to its economic impacts. The size of the economic impacts depends on both the amount of expenditure incurred and the commodities and services on which the money is spent. Thus, ranking tourists by their daily expenditure may not produce the same result as a ranking by daily contribution to GDP or Gross Value Added. Highlighting the fact that gross value added per dollar of expenditure differs across industries, Salma and Heaney claim that ' - - if the expenditure composition of a particular niche market is inclined to higher value adding products, the niche market will generate a larger economic contribution to other markets, even if they spend the same dollar amount in aggregate' (2004:74). Of course, estimation of the economic impacts depends on the type of economic model employed. As will be discussed below, the net impacts may be low given that adverse impacts on non tourism industries may result from tourism related expenditure injections. These interactive effects can only be estimated using CGE models.

Fifth, since the focus is on sales revenues, the approach neglects the aggregate costs of providing the services to each segment. Becken and Butcher (2004) have acknowledged that the expenditure measure does not necessarily allow conclusions about the real economic benefit, because direct expenditure does not take into consideration effects such as consumption of intermediate products, the scale of flow-on impacts, or the generation of employment. Information on net outcomes is needed for decision making involving resource allocation. When funds are to be invested, either by private firms or by governments, it is necessary to estimate the net addition to the bottom line; to profit, in the case of the private firm, and on benefits to the community in the case of the government. Dwyer and Forsyth (1997) argue that the real costs of meeting the demands for goods and services may well differ between types of visitor. The expenditure measure of yield takes no account of this, either at the business operator level or at the destination level. In its focus on gross revenues rather than net revenues (net of the cost of goods and services sold), the approach could provide a misleading basis for marketing strategies at both the firm and destination level.

Sixth, the approach does not provide information on each segment's relative spread of impacts and economic and social benefit to the wider destination. Thus, for example, it may be useful to know where the visitors in each market segment spend their money. It may well be the case that the economic and social effects (on employment for example) will differ according to the location of the tourist expenditure. Thus expenditure in an urban area may have different impacts than the same expenditure in a remote area. Regarding regional dispersal, some market segments have a greater propensity to travel to rural and regional Australia and thus generate greater levels of economic activity and help sustain and diversify regional economies. The issues here are complex since the location of expenditure is often of lesser relevance to economic impacts than the location in which the goods purchased are sourced (Dwyer & Forsyth 1993). Nonetheless, for a nation such as Australia where enhancing regional economies is an explicit goal of government (White Paper 2004), tourism yield may need to encompass distributional issues at least at the destination management level.

As an aside, the level of detail in the data available in Australia can help to meet this limitation in the approach. TRA has proposed a methodology to estimate regional dispersal of a niche market to assess its contribution to regional Australia (Salma & Heaney 2004). In Australia, TRA's International Visitor Survey (IVS) from which reports are produced on a quarterly and annual basis, collects data on travel behaviour of international visitors. This covers many variables including number of nights spent in different locations, purpose of visit, type of accommodation used, type of transport used, activities undertaken and places visited during the trip, whether visitors are on a package tour, in a travel group and/or take part in organised tours, visitors' satisfaction with the trip experience etc. Once regional areas are identified, average nights spent in regional Australia can be estimated for each niche market. In addition, data are also collected on tourism expenditure and demographics of visitors. Cross-tabulation of variables offers many combinations from which a rich reservoir of niche markets can be formed. Some examples of niche markets may be; over 55 year old male Japanese business men, young backpackers staying in caravan parks and camps and dispersed in regional Australia, students from any selected country, British holidaymakers on package tours visiting the outback, etc. The possibilities are limited only by the sample size. Once regional areas are identified, an average weighted nights spent in regional Australia can be estimated for each niche market. Available data can be used to estimate an index of regional dispersal of tourism expenditure made by the group which can later be used to derive a ranking not only by economic contribution but also by ability to contribute to economic development in regional Australia (Salma & Heaney 2004:76)

Finally, expenditure injections *per se* tell us nothing about the social or environmental costs and benefits associated with different visitor market segments. There is widespread recognition of the need to develop the

notion of sustainable yield to a destination in acknowledgement of the fact that visitors who spend similar amounts of money in a destination may leave very different social and environmental (ecological) 'footprints'.

## **Yield as a Financial Measure**

A primary objective of private sector tourism organisations is to earn a profit from their operations. Thus one measure of 'yield' is profit per unit of sales. Tourism Research Australia define tourism yield as the 'rate of profit on tourism sales' (Salma & Heaney 2004:74). They measure this as the share of GOS in tourism consumption made by the tourism market. This measure of yield can apply to individual firms, the tourism industry as a whole, or to particular sectors of the industry (tourism characteristic or tourism connected industries), or to the economy as a whole. TRA employs the Australian TSA to measure GOS. The proposed concept of yield is argued to be both 'operational and practical'. This notion can apply to operators, to sales in an industry (e.g. accommodation) or a particular visitor market segment (e.g. backpackers).

A study of the financial dimension of tourism yield at the enterprise level is currently underway in New Zealand (Simmons 2005). The conception of 'yield' as employed in the New Zealand study differs from that employed in the present study. In the New Zealand conception, 'financial yield' applies not to the return on sales to different tourism markets, but to the firm's overall financial performance as a trading entity. A 'high yield' firm is one that delivers good profitability.

Given the substantial problems in estimating the profitability of individual firms, which requires extensive survey work, this report focuses upon profitability measures that can be estimated from ABS data.

We thus distinguish several indices relating to 'profitability'. It is first useful to distinguish the types of industries identified in the Australian Tourism Satellite Account (TSA). The TSA distinguishes *Tourism characteristic* and *Tourism connected* industries (ABS 2000:17)

*Tourism characteristic* industries are those industries that would either cease to exist in their present form, producing their present product(s), or would be significantly affected if tourism were to cease. In the Australian TSA, for an industry to be characteristic, at least 25% of its output must be consumed by visitors.

*Tourism characteristic industries* comprise:

- travel agency and tour operator services;
- taxi transport;
- air and water transport;
- motor vehicle hiring;
- accommodation; and
- cafes, restaurants and takeaway food outlets.

Other industries connected with tourism (but for which tourism demand is less significant) are described as tourism 'connected'. This definition refers to those industries not characterised as tourism characteristic, for which tourism related product is directly identifiable and consumed by visitors in volumes which are significant for the visitor and/or producer.

*Tourism connected industries* comprise:

- clubs, pubs, taverns and bars
- other road transport
- rail transport
- food manufacturing
- beverage manufacturing
- transport equipment manufacturing
- other manufacturing
- automotive fuel retailing
- other retail trade
- casinos and other gambling services
- libraries, museums and arts
- other entertainment services
- education
- ownership of dwellings

All other industries are classified as '*non-tourism industries*'.

## **Yield as a Rate of Profit at Industry Level**

The Australian TSA provides data on industry GOS and industry tourism consumption. GOS by industry is directly derived from industry gross value added which is the value of production minus the costs of material inputs used in the production. More specifically, GOS is a measure of the surplus accruing to owners from

processes of production before deducting any explicit or implicit interest charges, rents or other property incomes payable on the financial assets, land or other tangible non-produced assets required to carry on the production, and before deducting consumption of fixed capital. In the ABS terminology, GOS is the income from production of corporate enterprises (ABS 2000). However, on the TRA approach to yield measurement, GOS also includes mixed income which denotes the income from production of unincorporated enterprises. In the TSA GOS/Gross Mixed Income is estimated as follows:

$$\text{GOS} = \text{Total GVA (basic prices) - compensation of employees - other net taxes on production}$$

In the Australian TSA, GOS is estimated for tourism characteristic and tourism connected industries taken separately, for the tourism industry as a whole (tourism characteristic plus connecting industries), plus all other industry.

Yield, approximated by 'rate of profit' at industry level, is defined as:

$$\text{Yield}_{\text{at industry level}} = \frac{\text{GOS of the industry}}{\text{tourism consumption of the goods and services produced by the industry}}$$

Tourism consumption is the direct expenditure by tourists on goods and services. It is given in basic prices, net of imports, taxes and margins.

### **Yield as a Rate of Profit for the Industry or Industry Sector from a Particular Market**

This measure applies to the industry (or some part of it) associated with an additional tourist from a particular market (by origin, motivation or special interest).

The Australian TSA indicates expenditure by international and domestic tourists. This enables estimates to be made of the rate of profit associated with each tourism origin or niche market. To calculate the yield on expenditure from different markets, TRA uses visitor expenditure data from the IVS incurred by the different visitors to estimate the proportion of tourism expenditure due to the selected market. Yield for the market can be calculated as the ratio of GOS contributed by the niche market divided by tourism consumption by the niche market.

Yield as rate of profit for a particular niche market is defined as:

$$\text{Yield}_{\text{niche market}} = \frac{\text{GOS due to sales to the particular niche market}}{\text{tourism consumption by the niche market}}$$

The measure can be useful in providing information to firms on the average GOS by market segment for all firms comprising the industry (or industry sector).

At the business operator level, the equivalent measure is profit per unit of sales to each market segment. It is doubtful if such information is revealed in business balance sheets.

### **Yield as Rate of Return on Capital**

An alternative concept of 'yield' is approximated by 'rate of return' on capital that is, the net operating profit after tax over the capital employed.

### **Yield as a Rate of Return at Industry Level**

Yield can be estimated by dividing the GOS of a tourism industry by the tourism capital of the industry.

$$\text{Yield}_{\text{at industry level}} = \frac{\text{GOS of the industry}}{\text{tourism capital in the industry}}$$

The BTR study on tourism investment provides data on tourism capital in the industry (BTR 2003b).

### **Yield as a Rate of Return for the Industry from a Particular Visitor Market**

Tourism capital used in producing goods and services consumed by the tourism market is estimated by applying each industry's market share to the tourism capital used in the industry. By applying the industry-specific market shares to the GOS of the respective industry, and summing these, an estimate of the GOS generated by the visitor market can be made. Adding across industries will produce an estimate of tourism capital used for the tourism consumption of the particular market. Yield for the niche market can be calculated as the ratio of GOS contributed by the niche market divided by tourism capital used in producing for the market segment.

$$\text{Yield}_{\text{niche market}} = \frac{\text{GOS due to sales to the particular tourism market}}{\text{tourism capital used in producing the goods and services consumed by the market segment}}$$

At the business operator level, the equivalent measure is rate of return on the capital used to cater for each tourism market segment. It is doubtful if such information is revealed in business financial reports. The measure can be useful, however, in providing information to firms on the average rate of return on capital invested by market segment for all firms comprising the industry (or industry sector).

## **Yield as Profit at the Economy Wide Level**

The impact of additional tourism expenditure on the profitability of industries in general in the economy can also be estimated using techniques such as CGE models. Additional tourism can affect overall industry profitability, and this may be of interest to the government. The impact may not be large, relative to overall profitability, though the government may be interested in whether additional tourism adds to or subtracts from profitability of non tourism industries in general.

## **The Profitability Approach to Yield**

The 'profitability' approach can be applied to both domestic tourism data to measure yield from domestic niche markets as well as inbound tourism markets. It is indeed both 'operational' and 'practicable' as claimed by TRA. A major advantage over the expenditure approaches to yield is that the GOS measure used in the estimates is net of cost of goods and services sold to tourists. The TRA claims that this method of estimating yield is an improvement on alternative measures because its profit focus (GOS) takes both revenues and costs into account. Salma and Heaney (2004) claim that, from an industry point of view, the definition of yield is more closely related to the 'actual' rate of return earned in the industry.

While the TSA can be used to estimate GOS, it seems more appropriate to estimate GOS using a CGE model. This is because the CGE simulations take account of interactive effects between different industries. The GOS estimate from a CGE model is a net amount which factors in the reductions in GOS in industries which decline as a result of increasing tourist expenditure in certain industries and from certain markets.

Dwyer and Forsyth (1997) have argued that in a competitive market such as tourism, there is unlikely to be any difference, in the long term, in contribution to rate of return from different types of tourists. That is, over the long term, the rate of return from different tourists will tend to be the same, as market forces drive profits towards normal levels, and thus it is unlikely that there will be any systematic or predictable differences in the profitability of different types of tourists. In a competitive market situation prices would approximate marginal and average costs. If so, additional demand would be met at marginal cost and would neither add to, nor subtract from, profits. Dwyer and Forsyth have argued as follows:

'In a competitive market, resources will be employed at a level which reflects their opportunity cost. That is, they will be employed at a level which provides a sufficient return to investors for the cost of capital. If there are resources which provide above 'normal' profits they are quickly bid up in price and any abnormal profit is dissipated into the cost of capital. This is not to say that individual firms do not make a profit. It simply argues that those profits reflect the cost of providing a service, including the cost of physical and human capital' (1997: 227 )

However, it should be stressed that this is a long term result, and that rates of return in the short term could differ. Dwyer and Forsyth (1997) do not deny that it is possible to identify situations where the prices paid for some tourism inputs do not reflect their opportunity cost to the economy because of the presence of market power, but claim that this is likely to be a short-run phenomenon. In the long term, ease of entry and exit to the industry will enable new firms to compete with any market power existing firms may have, putting downward pressure on profits. Indeed, there could be an argument for attracting tourists to under used or currently unprofitable facilities in that if prices were above the marginal or variable costs of supply, profits would increase with additional demand. Measures of short term profitability are thus valuable in facilitating the adjustment process.

While yield in a purely competitive market will tend towards normal profits in the long term, distortions to a competitive market can result in net gains or losses for particular sectors. To measure the net gains from tourism, it is important to identify where there are distortions and assess how significant they are in influencing tourism yield. This is why a CGE model should be used to estimate yield in preference to the TSA. A recent study of the restrictive practices of inbound tour operators in Australia has argued that market imperfections will persist unless government intervention occurs (Dwyer et al. 2005).

## **Yield as Economic Impact**

The economic impacts refer to the effects of tourist expenditure on economic variables, such as output and employment. The expenditure of tourists stimulates economic activity, and creates additional business turnover, employment, household income and government revenue in the host destination. The initial injection of money has direct, production induced and consumption induced impacts on the local economy. This process continues

and money is circulated around the economy until it eventually leaks away through retained earnings, taxes and imports. This ripple effect in an economy is termed the 'tourism multiplier'. Any calculation of a tourism multiplier, however defined, involves a model describing the mechanisms by which economic impacts are transmitted through the economy.

Major types of economic impacts on the economy as a whole are Gross Domestic (Regional) Product, Gross Value added, employment and 'net benefit'. Firm or industry level impacts include Value Added or employment. Some preliminary measures have been published using the STCRC CGE model (Dwyer and Forsyth 2005).

## **Yield as Contribution to Gross Domestic Product at the Industry level**

Gross Domestic Product (GDP) is the total market value of goods and services produced in a country within a given period after deducting the cost of goods and services used up in the process of production, but before deducting allowances for the consumption of fixed capital. That is, GDP at 'market prices', is equivalent to gross national expenditure plus exports of goods and services less imports of goods and services (ABS 2000: 47).

The Australian TSA can be used to estimate tourism's contribution to GDP (or the regional equivalent, Gross Regional Product) at both the industry and niche market level. Note that this is not the impact on national GDP. The advantage of this measure over the expenditure measure of yield is that it deducts the supplier cost of providing the goods and services to tourists, but it is inclusive of taxes that must be paid to government.

We can identify a measure of yield at the industry level as follows:

**Yield<sub>at industry level</sub> = Contribution of industry to GDP / tourism consumption of the goods and services produced by the industry**

**Yield<sub>niche market</sub> = Contribution to GDP of sales to the particular niche market / tourism consumption by the niche market**

TRA has used the TSA to estimate yield measures using the above formula (Collins et al. 2004). TRA refer to this measure as the 'economic contribution' or 'total economic contribution' of an industry or visitor market. They argue that 'economic contribution' is a useful indicator of the relative weight of a particular inbound market segment but go on to claim that economic contribution per visitor or per night are better criteria to identify target market segments since they show the return to be gained from the investment required to attract one unit of visitor (trip) or one visitor night.

We consider the use of the terms 'economic contribution' and 'total economic contribution' to be misleading in this context. The measure of yield proposed by TRA is explicitly acknowledged to apply only to the direct effects of tourist expenditure. It does not take indirect effects into account. It is only a partial measure which does not take account for the net impacts on the economy. Although TRA acknowledges that, to appreciate the true potential of a particular market segment in terms of its economic contribution, ideally both direct and indirect economic contribution made by the market segment should be considered, much of the discussion ignores this important point. The TRA concept of 'economic contribution' is a separate concept from that of the yield concepts (e.g additional to the GDP of a nation) that we measure using the STCRC CGE model. It is the economy wide yield measures based on CGE modelling that is the measure of the 'value of a market segment to the Australian economy', and it is this measure that has real policy implications. In view of the importance of taking into account all inter-industry effects in estimating the net economic impacts of tourist expenditure from any market segment, the STCRC yield team would regard 'total economic contribution' as relating to the 'economy wide' yield measures which are the outputs of CGE modelling rather than the narrower TSA derived measure estimated by the TRA.

## **Yield as Contribution to Gross Value Added at the Industry Level**

Gross value added (GVA) is the value of output at basic prices minus the value of intermediate consumption at purchasers' prices. The term is used to describe gross product by industry and by sector. Tourism GVA measures the value of tourism gross output at basic prices by all industries which supply tourism products less the value of the inputs used in producing these tourism products, and exclusive of product taxes such as the GST. Conceptually it is the unduplicated output of the tourism industry. It is the preferred national accounts measure of the production of industries because it is free from distortions in prices caused by changes in tax rates or the introduction of new taxes over time. This measure is, in theory, the most comprehensive description of the industry's total output in a period, and hence is an excellent indicator of an industry's overall contribution to the economy. It is the standard way the ABS measures the value of production of different industry segments.

Tourism GVA is a key output of the Australian TSA. To measure yield as 'value added' the expenditure for different types of tourists is first allocated to standard industry categories. This allows an estimation of the direct contribution to value added generated by the identified industries. Total value added at the industry level or by the niche market can be represented as a percentage of tourism consumption:

**Yield** <sub>at industry level</sub> = **Value added of the industry / tourism consumption of the goods and services produced by the industry**

**Yield** <sub>niche market</sub> = **Value added due to sales to the particular niche market / tourism consumption by the niche market**

The value added measure of yield is informative of industry performance and thus can be an important input to policy making by destination management. An industry's value added reflects its contribution to the economy and thus can provide a basis for industry policy.

A CGE model, rather than a TSA, can be used to estimate real value added due to additional sales to tourists and this method is used in the STCRC estimates that are set out in Chapters 5 and 6.

It may be noted that gross value added is a concept that individual businesses have difficulty in relating to. For the individual operator, the profitability measures are likely to be more meaningful as a guide to business strategy formulation.

Further, Salma and Heaney (2004:74) also claim that if yield is conceived as a rate of return on investment then gross value added is not the appropriate concept to measure since it includes wages and salaries and indirect taxes such as payroll tax, land tax, and stamp duty, none of which have any direct relevance to rate of return. They also point out that industries with relatively high labour-intensity are likely to have larger wage bills and payroll taxes than industries with low labour intensity.

## **Yield as Contribution to Industry Employment**

Employment generation is frequently regarded as an objective of government policy. The ABS defines full-time equivalent employment as 'the number of full-time employed persons plus the number of part-time employed persons multiplied by the average hours worked by part-time workers as a proportion of the average hours worked by full-time workers' (2000:46). Yield can be estimated in terms of the change in tourism industry employment generated per visitor day (e.g. FTE per thousand visitor days) or, more typically, by employment per \$ million of tourist consumption.

Labour force augmentation has been argued to be relevant to yield (Becken & Butcher 2004; Mazitelli 2003). A range of occupation classifications have chronic shortfalls in available labour, particularly during peak seasonal demands. Mazitelli points out that the Working Holiday Maker Scheme (WHMS) and the working visa arrangements are attractive to the backpacker segment, for example, and facilitate the more efficient operation of specific industry sectors.

The measure of yield as employment is informative of industry performance and, same as with the value added measure, can provide important information to policy makers. In particular, destination managers may use such a measure in allocating resources to generate employment in the economy. At the level of the business operator, however, the measure is of little or no interest. Indeed, it seems fair to say that business operators do not seek to generate employment since wages are an expense of operations. Rather, businesses employ labour as a necessary input to production for the sake of producing goods and services and earning profits on the resulting sales.

While numbers of jobs generated may have particular value in the context of, say a regional destination where local employment may have particular significance for sustaining the existence of the community or creating jobs for its young, it is not necessarily the case that it should be relied upon at the national, state or even wider regional level. A focus on numbers alone, rather than wage and salary receipts would equate the benefits from expansion of a low return to earnings activity with a high earnings form of activity. It is also the case that, at state and national levels, employment is much more a result of macro economic policies and circumstances than it is of what happens to any individual industry sector. While an expansion of tourism industry employment is most likely to take place at the cost of employment numbers in some other sector of the economy, TSA based measures of employment yield take no account of this. Thus use of the TSA to estimate additional tourism jobs as a measure of the yield to the nation (or state) from tourism growth is likely to be highly misleading. For these reasons, employment may be better considered through the GVA measure, which includes earnings and which, in principle, can be calculated using a CGE approach which will take account of inter-industry effects on the economy.

This is not to deny that where employment is explicitly identified as an objective of policy for regional development reasons, or to generate particular types of jobs such as for the young, old, unskilled or jobs in a particular location, localised numerical measures of job creation might have some specific applications.

## **Economy Wide Yield Measures**

Measures of the impact on overall economic activity, as captured in measures such as contribution to GDP at the industry level or value added, are measures of gross, not net, effects. The benefits of tourism are different from its impacts, including the impact on economic activity (Dwyer & Forsyth 1993, 1997). The economic activity

imposes additional costs as well as benefits, for example, in additional use of scarce resources and in environmental externalities. The change in GDP or GVA can exaggerate how much better off the destination and, more precisely, its residents are.

By net benefits we mean a measure of how much better off, in economic terms, members of the community are in aggregate. Yield as 'net economic benefit' is a wider concept than yield as 'profitability', GDP, or 'value added' or the other impact measures. Changes in GDP or GVA do not tell us how much better off a destination is as a result of tourist consumption. Typically they overstate, by a considerable margin, the net gain to the destination (Dwyer & Forsyth 1993). Thus measures of impact on economic activity cannot be used as proxies for benefits. Yet this seems to be an implication of the standard measures of yield that have been proposed. Conceivably, tourism expenditure from some visitor markets could increase GDP yet generate negative net benefits. This will be more likely if there are negative externalities, not taken into account in the changes to economic activity, or if the project has to rely on subsidised provision of infrastructure.

With products such as tourism services, which are supplied in competitive markets, the prices charged for the outputs, and thus the value of the additional output, will tend to be close to the cost of supply, which in turn reflects the cost of the inputs used. To this extent, the net economic benefit from additional output will tend to be small, especially relative to the gross change in the value of output. There is no guarantee that this net economic benefit will be positive; it is perfectly possible that increased economic activity will lead to lower welfare for the community. This would be the case if the cost of supplying inputs to enable the increase in activity were greater than the value of the increased production. A situation in which this could occur would be where foreign tourists purchased the output of a highly subsidised product (e.g. a rail ticket). If additional tourism is to produce net economic benefits for the destination, there must be some divergence between the prices paid and the costs of provision, either directly in the tourism industry or in other industries indirectly affected by it. This will tend to be the case; typically, prices do not exactly equal costs, because of considerations such as taxation and other distortions (Dwyer & Forsyth 1997).

Impacts on GDP are a gross measure, and to obtain measures of benefits or welfare gain it is necessary to deduct the costs of the additional inputs used to generate this output. Benefits from additional tourism come about from different price-cost ratios in the economy, terms of trade effects, and from the stimulation of the economy resulting in additional employment of unemployed resources. These net benefits are likely to be positive but relatively small. It is possible to develop quantitative measures of how changes in tourism expenditure add to net economic benefits. This is helped by the availability of CGE models; indeed it is argued that it is necessary to take a general equilibrium perspective and that a partial perspective is inherently misleading (Dwyer et al. 2004, 2005).

If yield measures are to provide a sounder basis for policy making then these net economic benefits of tourist expenditure should be estimated. This can be done by taking the change in GDP as a measure of the gross economic benefit, and subtracting out additional costs. A measure of net benefits is generated by subtracting the costs of additional factors domestically supplied, valued at after tax prices, from the measure of the change in gross value of additional output less income payable abroad. The result will be a measure of the net gain to the community, leaving aside any externalities (see next section). Those market segments that produce the greatest net economic benefits for the destination may be regarded as the highest yield markets.

The advantage of this yield measure is that it can better inform public policy regarding tourism development than the narrower impact measures. Those market segments that generate positive net economic benefits are those that should be targeted in tourism development and promotion. It is the generation of net benefits that, ultimately, should guide public decision making on resource allocation. While this measure is somewhat narrower than a 'sustainable benefit' measure that includes externalities, since it only estimates how much better off people are in economic terms as a result of tourism activity it is a better indicator of yield than the traditional expenditure type measures and the other impact measures.

The net economic benefits concept is estimated at an aggregated (macro-economic) level. Individual operators would find it difficult to employ it as a guide to the markets that they should target.

The economic impacts refer to the effects of tourist expenditure on economic variables, such as output and employment. The expenditure of tourists stimulates economic activity, and creates additional business turnover, employment, household income and government revenue in the host destination. The initial injection of money has direct, production induced and consumption induced impacts on the local economy. This process continues and money is circulated around the economy until it eventually leaks away through retained earnings, taxes and imports.

Major types of economic impacts on the economy as a whole are Gross Domestic (Regional) Product, Gross Value added, employment and 'net benefit'. Firm or industry level impacts include impacts on firm or industry Value Added or employment. As indicated above impact measures of yield can be estimated from a TSA (for industry level impacts) or by application of a CGE model (for economy wide impacts). Some preliminary measures have been published using the STCRC CGE model (Dwyer & Forsyth 2005).

## **Yield as Contribution to Gross Domestic Product**

Gross Domestic Product (GDP) is the total market value of goods and services produced in a country (Australia) within a given period after deducting the cost of goods and services used up in the process of production, but before deducting allowances for the consumption of fixed capital. That is, GDP at ‘market prices’, is equivalent to gross national expenditure plus exports of goods and services less imports of goods and services (ABS 2000:47).

The Australian TSA can be used to estimate tourism’s contribution to GDP (or the regional equivalent, Gross Regional Product) at both the industry and niche market level. The advantage of this measure over the expenditure measure of yield is that it deducts the supplier cost of providing the goods and services to tourists, but it is inclusive of taxes that must be paid to government. We can identify a measure of yield at the industry level as follows:

**Yield**<sub>at industry level</sub> = **Contribution of industry to GDP / tourism consumption of the goods and services produced by the industry**

**Yield**<sub>niche market</sub> = **Contribution to GDP of sales to the particular niche market / tourism consumption by the niche market**

TRA has used the TSA to estimate yield measures using the above formula (Collins et al. 2004). TRA refer to this measure as the ‘economic contribution’ or ‘total economic contribution’ of an industry or visitor market. They argue that ‘economic contribution’ is a useful indicator of the relative weight of a particular inbound market segment but go on to claim that economic contribution per visitor or per night are better criteria to identify target market segments since they show the return to be gained from the investment required to attract one unit of visitor (trip) or one visitor night.

We consider the use of the terms ‘economic contribution’ and ‘total economic contribution’ to be misleading in this context. The measure of yield proposed by TRA is explicitly acknowledged to apply only to the direct effects of tourist expenditure. It does not take indirect effects into account. It is only a partial measure which does not take account for the net impacts on the economy. Although TRA acknowledges that, to appreciate the true potential of a particular market segment in terms of its economic contribution, ideally both direct and indirect economic contribution made by the market segment should be considered, much of the discussion ignores this important point. The TRA concept of ‘economic contribution’ is a separate concept from that of the yield concepts that we measure using the STCRC CGE model. It is the economy wide yield measures based on CGE modelling that is the measure of the ‘value of a market segment to the Australian economy’, and it is this measure that has real policy implications, not the measure proposed by TRA. In view of the importance of taking account of all inter-industry effects in estimating the net economic impacts of tourist expenditure from any market segment, the STCRC yield team would regard ‘total economic contribution’ as relating to the ‘economy wide’ yield measures which are the outputs of CGE modelling rather than the narrower TSA derived measure estimated by the TRA.

## **Yield as Contribution to Gross Value Added**

Gross value added (GVA) is the value of output at basic prices minus the value of intermediate consumption at purchasers’ prices. The term is used to describe gross product by industry and by sector. Tourism GVA measures the value of tourism gross output at basic prices by all industries which supply tourism products less the value of the inputs used in producing these tourism products, and exclusive of product taxes such as the GST. Conceptually it is the unduplicated output of the tourism industry. It is the preferred national accounts measure of the production of industries because it is free from distortions in prices caused by changes in tax rates or the introduction of new taxes over time. This measure is, in theory, the most comprehensive description of the industry’s total output in a period, and hence is an excellent indicator of an industry’s overall contribution to the economy. It is the standard way the ABS measures the value of production of different industry segments.

Tourism GVA is a key output of the Australian TSA. To measure yield as ‘value added’ the expenditure for different types of tourists is first allocated to standard industry categories. This allows an estimation of the direct contribution to value added generated by the identified industries. Total value added at the industry level or by the niche market can be represented as a percentage of tourism consumption.

**Yield**<sub>at industry level</sub> = **Value added of the industry / tourism consumption of the goods and services produced by the industry**

**Yield**<sub>niche market</sub> = **Value added due to sales to the particular niche market / tourism consumption by the niche market**

The value added measure of yield is informative of industry performance and thus can be an important input to policy making by destination management. An industry’s value added reflects its contribution to the economy and thus can provide a basis for industry policy.

A CGE model, rather than a TSA, can be used to estimate real value added due to additional sales to tourists

and this method is used in the STCRC estimates that are set out in Chapters 5 and 6.

It may be noted that gross value added is a concept that individual businesses have difficulty in relating to. For the individual operator, the profitability measures are likely to be more meaningful as a guide to business strategy formulation.

Further, Salma and Heaney (2004:74) also claim that if yield is conceived of as a rate of return on investment then gross value added is not the appropriate concept to measure since it includes wages and salaries and indirect taxes such as payroll tax, land tax, and stamp duty, none of which have any direct relevance to rate of return. They also point out that industries with relatively high labour-intensity are likely to have larger wage bills and payroll taxes than industries with low labour intensity.

## **Yield as Contribution to Employment**

Employment generation is frequently regarded as an objective of government policy. The ABS defines full-time equivalent employment as ‘...the number of full-time employed persons plus the number of part-time employed persons multiplied by the average hours worked by part-time workers as a proportion of the average hours worked by full-time workers’ (2000: 46). Yield can be estimated in terms of the employment generated per visitor-day (e.g. FTE per thousand visitor days) or, more typically, by employment per \$ million of tourist consumption.

Labour force augmentation has been argued to be relevant to yield (Becken & Butcher 2004; Mazitelli 2003). A range of occupation classifications have chronic shortfalls in available labour, particularly during peak seasonal demands. Mazitelli points out that the WHMS and the working visa arrangements are attractive to the backpacker segment, for example, and facilitate the more efficient operation of specific industry sectors.

The measure of yield as employment is informative of industry performance and, the same as with the value added measure, can provide important information to policy makers. In particular, destination managers may use such a measure in allocating resources to generate employment in the economy. At the level of the business operator, however, the measure is of little or no interest. Indeed, it seems fair to say that business operators do not seek to generate employment since wages are an expense of operations. Rather, businesses employ labour as a necessary input to production for the sake of producing goods and services and earning profits on the resulting sales.

While numbers of jobs generated may have particular value in the context of, say a regional destination where local employment may have particular significance for sustaining the existence of the community or creating jobs for its young, it is not necessarily the case that it should be relied upon at the national state or even wider regional level. A focus on numbers alone, rather than wage and salary receipts would equate the benefits from expansion of a low return to earnings activity with a high earnings form of activity. It is also the case that, at state and national levels, employment is much more a result of macro economic policies and circumstances than it is of what happens to any individual industry sector. While an expansion of tourism industry employment is most likely to take place at the cost of employment numbers in some other sector of the economy, TSA based measures of employment yield take no account of this. Thus use of the TSA to estimate additional tourism jobs as a measure of the yield to the nation (or state) from tourism growth is likely to be highly misleading. For these reasons, employment may be better considered through the GVA measure, which includes earnings and which, in principle, can be calculated using a CGE approach which will take account of inter-industry effects on the economy.

This is not to deny that where employment is explicitly identified as an objective of policy for regional development reasons, or to generate particular types of jobs such as for the young, old, unskilled or jobs in a particular location, localized numerical measures of job creation might have some specific applications.

## **Yield as ‘Net Economic Benefit’**

Measures of the impact on overall economic activity, as captured in measures such as contribution to GDP or value added, are measures of gross, not net, effects. The benefits of tourism are different from its impacts, including the impact on economic activity (Dwyer & Forsyth 1995, 1997). The economic activity imposes additional costs as well as benefits, for example, in additional use of scarce resources and in environmental externalities. The change in GDP or GVA is a gross exaggeration of how much better off the destination and, more precisely, its residents, are.

By net benefits we mean a measure of how much better off, in economic terms, members of the community are in aggregate. Yield as ‘net economic benefit’ is a wider concept than yield as ‘profitability’, GDP, or ‘value added’ or the other impact measures. Changes in GDP or GVA do not tell us how much better off a destination is as a result of tourist consumption. Typically they overstate, by a considerable margin, the net gain to the destination (Forsyth & Dwyer 1993). Thus measures of impact on economic activity cannot be used as proxies for benefits. Yet this seems to be an implication of the standard measures of yield that have been proposed. Conceivably, tourism expenditure from some visitor markets could increase GDP yet generate negative net

benefits. This will be more likely if there are negative externalities, not taken into account in the changes to economic activity, or if the project has to rely on subsidised provision of infrastructure.

With products such as many tourism services, which are supplied in competitive markets, the prices charged for the outputs, and thus the value of the additional output, will tend to be close to the cost of supply, which in turn reflects the cost of the inputs used. To this extent, the net economic benefit from additional output will tend to be small, especially relative to the gross change in the value of output. There is no guarantee that this net economic benefit will be positive; it is perfectly possible that increased economic activity will lead to lower welfare for the community. This would be the case if the cost of supplying inputs to enable the increase in activity were greater than the value of the increased production. A situation in which this could occur would be where foreign tourists purchased the output of a highly subsidised product (e.g. a rail ticket); the revenue from the additional output could be below the cost of the inputs used. If additional tourism is to produce net economic benefits for the destination, there must be some divergence between the prices paid and the costs of provision, either directly in the tourism industry or in other industries indirectly affected by it. This will tend to be the case; typically, prices do not exactly equal costs, because of considerations such as taxation and other distortions (Dwyer & Forsyth 1997).

Impacts on GDP are a gross measure, and to obtain measures of benefits or welfare gain it is necessary to deduct the costs of the additional inputs used to generate this output. Benefits from additional tourism come about from different price- cost ratios in the economy, terms of trade effects, and from the stimulation of the economy resulting in additional employment of unemployed resources. These net benefits are likely to be positive but relatively small. It is possible to develop quantitative measures of how changes in tourism expenditure add to net economic benefits. This is helped by the availability of CGE models; indeed it is argued that it is necessary to take a general equilibrium perspective and that a partial perspective is inherently misleading (Dwyer et al. 2004, 2005).

If yield measures are to provide a sounder basis for policy making then these net economic benefits of tourist expenditure should be estimated. This can be done by taking the change in GDP as a measure of the gross economic benefit, and subtracting out additional costs. A measure of net benefits is generated by subtracting the costs of additional factors domestically supplied, valued at after tax prices, from the measure of the change in gross value of additional output, less income payable abroad. The result will be a measure of the net gain to the community, leaving aside any externalities (see next section). Those market segments that produce the greatest net economic benefits for the destination may be regarded as the highest yield markets.

The advantage of this yield measure is that it can better inform public policy regarding tourism development than the narrower impact measures. Those market segments that generate positive net economic benefits are those that should be targeted in tourism development and promotion. It is the generation of net benefits that, ultimately, should guide public decision making on resource allocation. While this measure is somewhat narrower than a 'sustainable benefit' measure that includes externalities, since it only estimates how much better off people are in *economic* terms as a result of tourism activity it is a better indicator of yield than the traditional expenditure type measures and the other impact measures.

The net economic benefits concept is estimated at an aggregated (macroeconomic) level. Individual operators would find it difficult to employ it as a guide to the markets that they should target.

## **Sustainable Yield**

The above discussion of yield has focussed on the various methods of measurement from an economic perspective. The economic impacts of tourism have long been recognised and there is an understanding that different types of tourists have the potential to bring greater or fewer economic benefits depending on their spending patterns. On a wider perspective, the notion of 'yield' includes environmental and social value in addition to economic value (Dwyer & Forsyth 1997). Each tourism market segment is potentially associated with economic, social and environmental costs as a result of the mix of services utilised during their stay. These costs, or footprints, vary across market segments depending on the mix of services utilised by the tourist. According to the World Tourism Organization (WTO):

'Sustainable tourism development meets the needs of present tourists and host regions while protecting and enhancing opportunity for the future. It is envisaged as leading to the management of all resources in such a way that economic, social, and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems' (World Tourism Organisation in Agenda 21 for the Travel and Tourism Industry) (see details at web page: [http://www.world-tourism.org/frameset/frame\\_sustainable.html](http://www.world-tourism.org/frameset/frame_sustainable.html)).

Various international agencies (WTO, UNEP) have called upon the tourism industry to develop environmentally, socially and culturally compatible forms of tourism and to continue the development and implementation of voluntary initiatives in support of sustainable tourism development, bearing in mind that such forms of tourism and initiatives should meet, or preferably exceed, relevant local, national, regional or international standards.

The notion of sustainable yield incorporates social and environmental dimensions alongside economic measures. Regrettably, little research has been undertaken to develop the concept of 'sustainable yield' or to operationalise the social and environmental costs and benefits on a segment-by-segment basis notwithstanding the fact that the concept of 'sustainable tourism' has been current for more than a decade. It is thus difficult to draw any conclusions as to which market segments incur high environmental and social impacts (positive or negative) and which do not.

At its simplest level, sustainable yield incorporates the social, environmental and economic impacts of tourist activity. In a recent exploration of the concept of sustainable yield, Northcote and Macbeth (2006), argue that if development is sustainable there should be direct gains in all aspects, not merely financial ones.

In addition to these considerations, in their discussion of sustainable yield, Northcote and Macbeth (2006) include the issue of carrying capacity and the 'limits of acceptable change', visitor, financial, economic, social, environmental and cultural yield, but do not offer insights in the ways these concept may be measured.

The notion of sustainable yield would seem to apply at the operator level as well as at the destination level. At the operator level, an approach which holds out some promise of developing the notion of sustainable yield is Triple Bottom Line (TBL) reporting. TBL is becoming the accepted approach for organisations to demonstrate they have strategies for sustainable growth. In effect, TBL is a planning and reporting mechanism and decision-making framework used to achieve sustainable development in both private and public sector organisations - an internal management tool as well as an external reporting framework. An increasing interest in TBL is now evident across business and government internationally (Dwyer 2005). Increasingly, tourism operators want tourism to demonstrate their performance economically, environmentally and socially. This accords with the TBL approach that is increasingly being adopted by firms in all industries. The relevance of TBL reporting to the notion of yield in tourism has not been addressed to date. It is an objective of this report to help to develop standardised measurement and reporting methods of tourism yield which are consistent with the TBL approach.

When discussing the more holistic concept of sustainable yield, applicable at the destination level, consideration must be given to issues such as the quality of life for the host community as well as the social and ecological 'footprint'. The work by Becken and Simmons (2002) and Becken and Butcher (2004), for example, provides an introduction to understanding the impact of the tourist in their use of energy and the implications for various types of tourists on the environment. This work is important in moving away from the measurement of yield through visitor expenditure.

In attempting to address the issue of sustainability and its measurement, the Global Reporting Initiative (2002a) provides one potential option which aligns well with the approach taken by Becken et al. (2003). The GRI method refers to cross-cutting indicators – indicators that directly relate two or more environmental, economic or social performance as a ratio. The Global Reporting Initiative (GRI) suggests that the benefit in using this method is that it 'effectively demonstrates the positive or negative impact for each incremental change in another value' (GRI 2002a:48).

In this chapter the concepts of yield are discussed. The discussion reveals that these concepts can vary according to whether they are applied to the demand side (visitor yield) and supply side (GDP etc). This leads to classifying the yield concepts further and their application to business operations or more broadly the overall contribution to tourism in the destination. Chapter 3 goes beyond the conceptual and critiques the measure of tourism yield applied by TRA, to illustrate how the concepts defined can be operationalised.

Chapter 3

**MEASURING TOURISM’S ECONOMIC YIELD: RECENT RESULTS OF TOURISM RESEARCH AUSTRALIA**

This Chapter provides an overview and critique of some recent attempts by Tourism Research Australia to measure tourism yield. The purpose of this chapter is to illustrate how some of the concepts highlighted in Chapter 2 can be operationalised.

Tourism Research Australia has recently undertaken two studies that estimate aspects of tourism yield in Australia. Both appear in the Journal of Tourism Research Australia (Salma & Heaney 2004).

**Proposed Methodology for Measuring Tourism Yield**

The first study (Salma & Heaney 2004) estimated yield for eight selected niche markets. Three measures are used. The first is rate of profit on tourism sales; the second is tourism GOS per visitor; and the third is employment generated per thousand visitors from a niche market. The results are shown in Table 3.

**Table 3: Yield rates, GOS and Employment Generated in Selected Niche Markets, 2001/02**

Niche Market	Tourism consumption per visitor	Tourism GOS per visitor \$	Yield rate per cent	Employment generated per thousand visitors number
Japanese Honeymooners	3491	483	13.8	25
German Holiday Makers	5401	693	12.8	29
Backpackers	6158	773	12.6	54
NZ Mature	1374	173	12.6	11
Malaya first timers	1902	237	12.5	17
UK repeat	3662	432	11.8	29
Business	3020	353	11.7	23
Students	11872	1181	9.9	123
All Inbound Visitors	3484	427	12.2	29

Source: Salma and Heaney 2004 Table 1, ABS (2000) and IVS (2000/2001).

Yield rate = GOS divided by tourist consumption

The average yield rate for the total inbound visitor market is 12.2 per cent. Five of the selected markets had a rate of yield higher than the average, while three (Students, Business and UK repeats) produced a below average yield rate. Students were the lowest yielding visitors.

In terms of overall contribution to GOS, however, students generated the highest contribution per person (\$1181), and the highest employment generated per thousand visitors (123). This reflects the labour intensity of education. The second highest generator of GOS (\$773) and employment (54) is Backpackers.

TRA notes that the ‘yield’ from different niche markets changes according to the measure employed. German holidaymakers and Backpackers generate above average yield on both measures whilst Business travel and UK repeats generate below average yield on both measures. Other markets perform well on some measures but not on others.

The TRA argues that inclusion of a regional dispersal index would add content to their results. Markets which perform strongly on all three measures are the preferred markets from a national perspective.

**Expenditure Data**

Although detailed International Visitor Expenditure (IVS) data exists in Australia, such data do not accurately reflect the full amount of expenditure that is injected into the economy from inbound tourism. The expenditure data, ranging over eighteen types of goods and services, does not contain an estimate of the expenditure that

flows into Australia as a result of international airline operations. Although 'international airfare expenditure' is one of the eighteen items, this refers only to international airfares purchased within Australia. It does not include that proportion of international airfares, purchased overseas, that flows into Australia to pay for purchases made by the different airlines. An imputation for the international airfare component of tourist expenditure was made by TRA in its yield estimates. The TRA has adjusted IVS expenditure data to account for this. The formula used is as follows:

$$\text{Airfares allocated to Australia} = A \times B \times C$$

Where:

**A = 0.98.** This is an adjustment to balance 'the proportion of international airfare expenditure spent on Qantas (Ansett also included as 2001/02 data are used) compared to total international airfare expenditure' and 'Balance of Payments passenger service credits'.

**B = Proportion of airfare expenditure on Qantas.** This involves summing expenditure on Qantas airfares by that market segment and dividing by the total expenditure on airfares by that market segment.

**C = Total airfares.** International airfares purchases prior to arriving in Australia and international airfares purchased in Australia + 0.7 \* package tour expenditure either purchased in Australia or prior to arriving in Australia.

This imputation recognises that a proportion of the air fare paid on international carriers is spent by the airline in Australia on catering, advertising, office administration, fuel, taxes, and other expenses incurred in running the airline. Various assumptions underpin the formula and these may be tested for their accuracy.

The TRA results apply to total injection of expenditure from each of these markets. When expressed in items of contribution per visitor night the results will change (see below).

## Limitations

The authors point out a number of limitations which arise in the use of this approach to measuring yield.

First, the TRA paper acknowledges that the profitability measure they propose ignores the complexities of differential rate of profit by type of product within the same industry (Salma & Heaney 2004). In applying an average rate of profit to the industry it does not distinguish between the different product markets of an industry. This assumption that the rate of profit is the same across different types of product in an industry is a major limitation of this approach to yield measurement. The rate of profit in the accommodation industry, for example, is not uniform across all types of property. Caravan parks and five star hotels are likely to have very different rates of profit. The above approach to measuring yield does not consider this difference. Rather it assumes an average rate of profit for all types of accommodation. As a result, if a niche market is characterised by the overwhelming use of a particular type of accommodation, applying an average rate of profit in that case will give a yield rate which differs from the actual yield (and so also for all other industry sectors).

This limitation can be overcome by obtaining additional data on profit rates by types of product. In industries where market niche penetration is very high in particular product categories, and where the product categories are believed to differ greatly in rate of profit, research needs to be undertaken to obtain data on the prevailing rate of profit in these categories, e.g. backpackers and five star hotel accommodation, fast food outlets and high standard restaurants, or standard versus superior tours. This is a substantial task. A study similar to this is currently being undertaken in New Zealand (Simmons 2005).

Another limitation identified by the authors of the TRA paper involves expenditure on shopping (Salma & Heaney 2004). The IVS lumps all shopping expenditure together in one aggregate figure. At present there is no information available on the different types of items purchased by tourists. In the above estimations of yield, all shopping items were disaggregated across industries applying an average rate obtained from the tourism supply and use table provided by the ABS. Thus, for example, while it is likely that students have a very different purchasing pattern regarding shopping items than do business travellers, the yield estimates make no distinction between visitor shopping preferences. This limitation could be overcome through surveys of tourist shopping patterns as is done for Singapore.

A limitation that we would highlight is that the TRA analysis is only a partial equilibrium analysis. No attempt has been made to consider the economy wide effects of the tourist expenditure. In particular, the GOS per visitor and the employment generated per visitor will be substantially lower once industry effects are recognised. Proper acknowledgement of these effects would require CGE modelling of the tourism expenditure associated with each market segment.

## Economic Contribution by Inbound Market Segments

The second study undertaken by the TRA estimates what is called 'the economic contribution' made by various inbound market segments and ranks them in order of their economic contribution. The report by Collins, Salma and Suridge (2004) details the findings of the study.

This study begins by acknowledging the limitations in using visitor expenditure as a measure of visitors' economic value. It is claimed that economic worth is better understood by indicators of economic contribution, such as gross value added (GVA) and employment generation. They state that:

'Visitors with a relatively higher propensity to consume products with higher employment generating capacity and higher GVA will make a larger economic contribution compared to those who spend more on products associated with a lower employment generating capacity and smaller GVA. Depending on the composition of consumption of the visitors within a market segment, economic contribution made by different market segments will vary despite their aggregate expenditure amount being the same' (Collins et al. 2004:2).

TRA argue that 'economic contribution' or 'total economic contribution' is a useful indicator of the relative weight of a particular inbound market segment but go on to claim that economic contribution per visitor or per night are better criteria to identify target market segments since they show the return to be gained from the investment required to attract one unit of visitor or visitor night.

For this study, TRA has developed a model that identifies the economic contributions made by international visitors to Australia. The estimates are decomposed into the various market segments enabling an assessment of inbound visitors to be made in relation to the value of each market segment to the Australian economy (Collins et al. 2004:3-4).

For the TRA project market segments within five different categories were examined including:

- Country of residence – Fourteen individual countries were examined including Japan, New Zealand, UK, USA, Canada, Malaysia, Indonesia, Singapore, Thailand, Hong Kong, Korea, China, Taiwan, and Germany.
- Purpose of visit – Five major purpose of trip were examined including travel for a holiday, to visit friends and relatives (VFR), education, business and employment
- Age group – Six age groups were examined including 15–24, 25–34, 35–44, 45–54, 55–64 and 65 years and over
- Gender
- Whether the international visitor arrived in Australia on a travel package or not.

## **Results**

The study finds that segments which make a relatively high economic contribution per visitor night do not necessarily make an equally important economic contribution per visitor stay. This is because different visitor markets are associated with different expenditures in total, different expenditure patterns and different length of stay. The report also notes that a relatively high economic contribution per visitor is usually associated with inbound market segments composed of visitors who tend to stay for longer periods of time such as students and the younger age groups. That is, the longer the duration of stay the greater the expenditure injection into Australia. On the other hand, a relatively high economic contribution per visitor night is a characteristic of visitors who stay for shorter periods of time such as the Japanese and Business visitors. These results are not unexpected given the issues addressed above in Chapter 2 of the present report.

The results are for 2001/02. The key findings are:

- Among the source markets, the USA and Indonesia made the highest economic contribution per visitor while the USA and Japan had the highest economic contribution (GVA) per night.
- Within the purpose of visit category, visitors travelling for education purposes contributed the most in terms of GVA per visitor and visitors travelling for business purposes contributed the highest on a per night basis.
- Out of the selected 42 segments in the inbound holiday market, only seven segments made a contribution higher than the average rate, both on a per night and per visitor basis. They included: mature age cohorts of 35 years or over from Canada, Germany, Hong Kong and the United Kingdom (UK), visitors aged 25 years and over from the USA, and visitors in the younger age cohort of 15–24 from Hong Kong. Among them, the mature age groups from the USA market did the best, both in terms of a per visitor and per night basis.
- Within the holiday cohort, the economic contribution made by the more mature age groups aged 35 years and above, exceeded the contribution made by other age groups. Among visitors in this age group, the USA market did well, both in terms of economic contribution per visitor and per night.
- Comparing different market segments across the inbound holiday market, the report finds that on average the more mature age groups aged 35 and above, performed better than the rest (both on a per visitor and per night basis).
- Males made a slightly higher economic contribution than females on both a per visitor and per night basis.
- Non-package visitors made a higher economic contribution per visitor compared to package visitors while visitors on package tours contributed more on a per night basis than non-package visitors.

**Table 4: Visitors, average consumption per visitor, GVA per \$1 of tourism consumption and employment per \$1million of tourism consumption, by country, 2001/02**

Origin	Visitors '000	Average consumption per visitor	GVA per \$ of consumption	Direct employment generated per \$ million of consumption
Canada	88	4834	0.37	7.0
China	162	4162	0.48	8.6
Germany	132	5806	0.39	7.0
Hong Kong	134	5029	0.47	8.2
Indonesia	84	4834	0.51	8.8
Japan	614	3295	0.40	7.2
Korea	165	4043	0.46	8.5
Malaysia	136	3283	0.49	8.8
NZ	713	1664	0.38	7.4
Singapore	256	2904	0.47	8.5
Taiwan	90	3115	0.46	8.1
Thailand	72	4032	0.50	8.8
UK	590	4644	0.37	6.9
USA	397	6129	0.40	7.0
Total	4390	3891	0.41	7.5

*Source: Collins et al. 2004, Table 1.*

Table 4 indicates that visitors from Malaysia, Taiwan and Singapore, each consumed less than the average for total inbound travel (\$3891), but produced higher GVA per \$1 of tourism consumption and employment per \$1 million of tourism consumption than the average for total inbound travel (0.41 and 7.5 respectively). In fact, all visitors from the listed Asian countries except Japan generated higher than average GVA per \$1 of tourism consumption and employment per \$1 million of tourism consumption. Visitors from Canada, Germany, Japan, New Zealand, the UK, and the USA produced less than average GVA and employment per dollar of tourism consumption.

As argued in Chapter 2 we consider the use of the terms ‘economic contribution’ and ‘total economic contribution’ to be misleading, since the concept ignores the indirect effects of tourist expenditure.

The importance of being clear as to what really comprises the ‘total economic contribution’ of a visitor market segment becomes particularly evident when exploring the implications for destination marketing activity. While acknowledging the importance of factors such as market saturation, consumer preferences and future potential which need to be considered to get the best returns from marketing investments, TRA highlights the implications of the results for tourism marketing. Noting that the gains from tourism marketing can be approximated by visitors ‘economic contribution’, they point out that this can be viewed either as ‘total economic contribution, economic contribution per visitor or economic contribution per night’ and that the three concepts have different ranking outcomes. Emphasising the need to maintain a balance between economic contribution per night and per visitor, TRA claims that the findings highlight the market segments which have the largest potential to maximise the economic contribution from visitors. However, since the ‘Economic Contribution’ covers only the direct effects of tourist expenditure on GVA and employment, it would be inappropriate to draw policy conclusions from this alone. While the tourism industry private sector may not be particularly mindful of the effects of additional tourism numbers and expenditure on other industries, governments that are required to support destination marketing and promotion may well be interested in the net impacts and net benefits of such activity taking into account the overall effects on industry balance. It is only by taking account of indirect effects (positive and negative) that changes in industry balance can be determined and the use of a CGE model is essential for this.

The research on yield undertaken by TRA is an important step beyond the simplistic expenditure measures that have been developed to date. The study finds that segments which make a relatively high economic contribution per visitor night do not necessarily make an equally important economic contribution per visitor stay. As was noted, since the ‘Economic Contribution’ covers only the direct effects of tourist expenditure on

GVA and employment it would be inappropriate to draw policy conclusions from this alone. If the yield estimates are to inform policy making they will need to be based on CGE modelling. Preliminary to this task, we develop some expenditure measures of yield for the fourteen country and three region markets and the eleven niche markets.

Chapter 4

**STCRC EXPENDITURE YIELD ESTIMATES**

The previous chapter studied of the economic contribution made by various inbound tourism segments by looking at the; rate of profit on tourism sales; GOS per visitor; and employment generated from a niche market, conducted by TRA using the TSA and without incorporating the economy wide effects. The following is a discussion of expenditure measures for inbound tourism from fourteen countries, three regions and eleven niche markets.

**International Visitors by Origin**

Simple expenditure measures of yield were estimated using International Visitor Survey (IVS) data. The team has developed measures of tourism yield using data purchased from Tourism Research Australia (formerly BTR). The comprehensive data contain estimates of visitor numbers, expenditure per visit, expenditure per night, expenditure patterns, distinguishing visitors to Australia on package tours, not on package tours and in total. The data were for the years 2001/02, 2002/03 and 2003/04, taken separately and also averaged over the three year period. The data in this report applied to fourteen countries and three regions, and to eleven special interest and demographic markets. The expenditure data include international and domestic airfares purchased within Australia on Australian owned airlines but does not include any other imputation for the international airfare component that goes to Australian owned airlines or to foreign owned airlines but spent in Australia.

The figures in Table 5 reflect the average expenditure and duration of stay for the past three years (2001/2002- 2003/2004). The table includes expenditure on total tourism (the sum of expenditure by all visitors whether or not on a tour package).

**Table 5: Expenditure per night and duration of stay by night from selected inbound markets for total tourism (average 2001/02 - 2003/04)**

Origin	Total Tourism (package plus non package)				
	Total injected expenditure (\$m)	Number of visitors '000	Total number of visitor nights	Duration of stay (nights)	Spend per night
Canada	256.733	86.295	3,084,122	35.74	83
China	672.491	179.192	7,011,318	39.15	96
Germany	461.795	132.921	5,395,337	40.59	86
Hong Kong	503.567	127.231	3,566,266	28.03	122
Indonesia	324.575	80.894	3,134,926	38.75	104
Japan	1030.215	623.655	9,317,136	14.94	111
Korea	541.940	179.303	5,590,675	31.18	97
Malaysia	422.918	138.679	3,678,696	26.53	115
NZ	972.046	757.482	10,554,144	13.93	92
Singapore	627.025	233.568	4,520,264	19.35	139
Taiwan	200.525	86.621	1,980,421	22.86	101
Thailand	247.189	70.919	2,428,727	34.25	102
UK	1837.742	613.454	23,593,791	38.46	78
USA	1157.715	399.081	10,509,293	26.53	110
Other Asia	319.296	110.132	4,466,904	40.56	71
Other Europe	1,346.918	388.253	16,008,743	41.23	84
Other World	582.229	244.274	7,248,248	29.67	80
<b>Total</b>	<b>11,435.658</b>	<b>4,451.853</b>	<b>122,089,011</b>	<b>27.42</b>	<b>94</b>

Based on the dollar values in Table 5, Figure 2 (a) indicates that the tourists who inject the most expenditure into Australia in total come from the UK, other Europe, USA and Japan, with those from Taiwan, Thailand, Canada and other Asia injecting the least. We display visitor spending per night in Figure 2 (b). The highest spending per visitor night is associated with visitors from Singapore, Hong Kong, Malaysia and Japan, with lowest daily expenditure associated with visitors from Other Asia, UK, Other Countries and Canada.

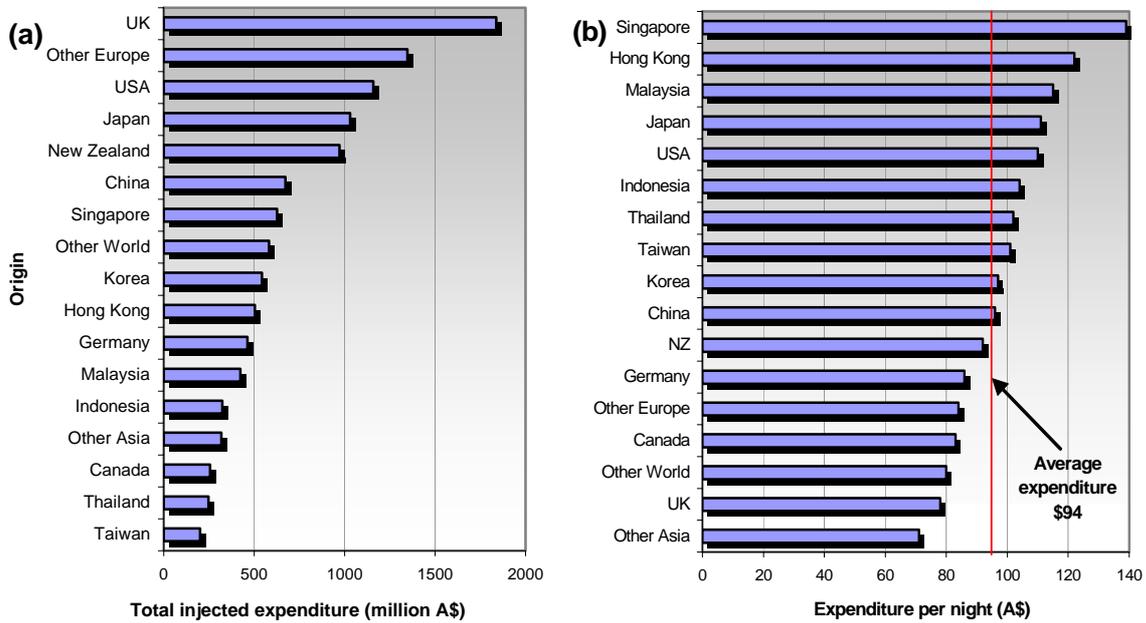


Figure 2: (a) Expenditure by Country of Origin; (b) Expenditure per night by visitor origin

Since the injected amounts depend upon total numbers of tourists by origin, their daily expenditure, and their length of stay, it is more informative to consider expenditure per night in association with duration of stay. We display this information in matrix form in Figure 3.

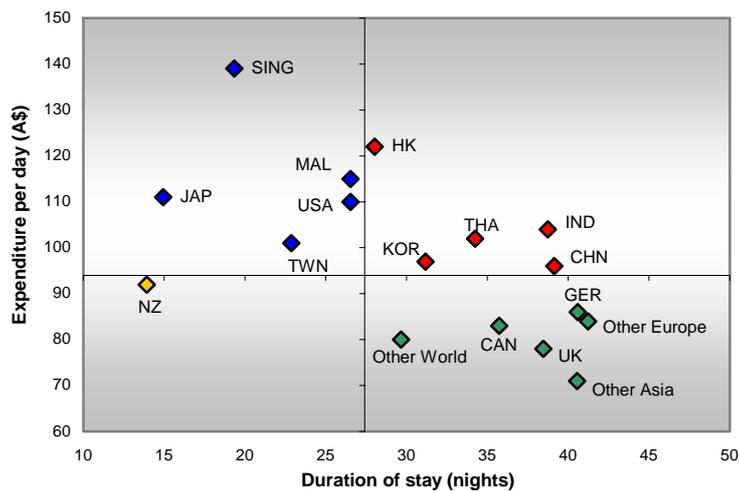


Figure 3: Matrix for Total Tourism, average 2001/2002- 2003/2004

Five markets (Hong Kong, Korea, Thailand, Indonesia and China) are in the North East Quadrant. Each of these markets has daily visitor expenditure in excess of \$94, which is the average daily expenditure of all tourists, and has an average duration of visitor stay in excess of 27.42 nights, the average length of stay for all tourists.

Five markets are located in the North West Quadrant. These are Japan, Singapore, Malaysia, Taiwan and USA. Visitors from these markets spend more per day than the average tourist but spend less time in Australia.

Six markets are located in the South East Quadrant. These are Canada, UK, Germany, other Europe, other

Asia and other World. Tourists from these markets spend less than \$94 per day but tend to stay in Australia for longer than 27.42 days.

One market, New Zealand, occupies the South West Quadrant. New Zealanders tend to stay for a shorter time in Australia than the representative tourist and spend less per day.

For reasons given in Chapter 2 expenditure measures have limited relevance for policy making to enhance tourism yield.

In summary:

- Gross expenditure data do not provide information on what types of goods and services tourists purchase and so gives no indication of the industry sectors that receive the sales revenues.
- Gross tourist expenditure includes the import content of the goods and services purchased by tourists. Since these imports must be paid for by the suppliers of tourism products, expenditure levels in themselves do not indicate the sales revenues to domestically based firms' net of imports.
- Since the focus is on sales revenues, the approach neglects the aggregate costs of providing the services to each segment. The expenditure measure of yield takes no account of this, either at the business operator level or at the destination level.
- Gross expenditure *per se* does not provide information on the relative spread of expenditure in the wider destination.
- The gross expenditure measure does not tell how the expenditure will impact (sometimes adversely) on other industries and what its net impacts on the economy will be.

Given these limitations we now develop alternative measures of tourism yield for Australian inbound tourism.

## Special Niche Markets

Table 6 indicates total expenditure, expenditure per night and duration of stay for visitors from a selected group of special interest and demographic markets. These markets were the same as those studied by Mazitelli (2003) as discussed in Chapter 2. The table includes expenditure on total tourism (the sum of expenditure by all visitors whether or not on a tour package). The expenditure data include international and domestic airfares purchased within Australia on Australian owned airlines but does not include any other imputation for the international airfare component that goes to Australian owned airlines or to foreign owned airlines but spent in Australia.

**Table 6: Expenditure per night and length of stay, selected niche markets, average of three years – June 2002 - June 2004**

Niche Market	Total Tourism				
	Total injected expenditure	Number of Visitors '000	Total number of visitor nights	Duration of stay (nights)	Spend per night
Backpacker	2,382,163	468.417	31,164,905	66.53	76
Business	1,118,146	550.747	6,490,123	11.78	172
Canadian mature (+55)	60,831	27.083	710,949	26.25	86
Convention	169,927	106.075	856,227	8.07	198
Hong Kong first timers	82,941	34.834	724,334	20.79	115
Japanese honeymooners	105,401	87.986	490,994	5.58	215
Malaysia first timers	74,532	41.266	701,454	17.00	106
Malaysian mature (+55)	27,456	19.253	368,678	19.67	73
Malaysian repeaters	348,386	97.413	2,977,241	30.56	117
NZ mature (+55)	243,796	202.281	3,121,136	15.43	78
UK repeaters	903,527	344.040	11,631,521	33.81	78
<b>TOTAL</b>				<b>27.42</b>	<b>94</b>

Visitors from six of these niche markets inject an amount into Australia greater than the overall daily average of \$94. These are Business, Japanese Honeymooners, Convention visitors, Malaysian repeaters and Hong Kong and Malaysian first timers. These results are displayed in Figure 4.

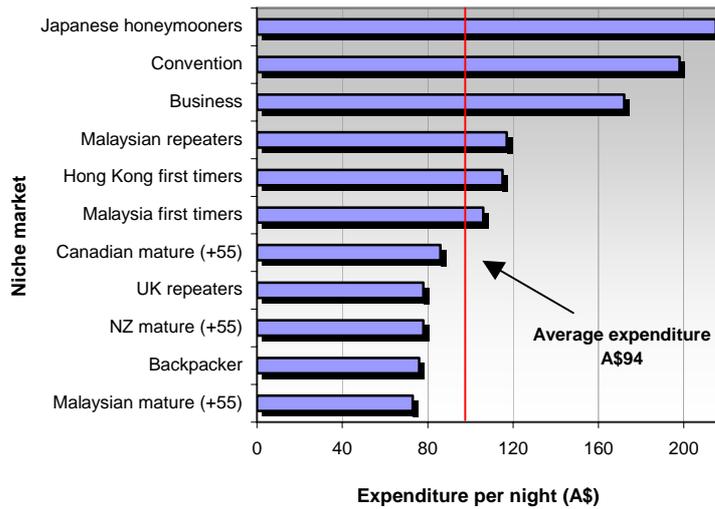


Figure 4: Expenditure by Niche market

The total amounts of expenditure injected into Australia depend upon the numbers of visitors in each niche market and their duration of stay. We can display these results in Matrix form also.

Figure 5 indicates that only one market, Malaysian repeaters lies in the high performance North East Quadrant. This is the only market of those selected which has expenditure per night above the average (\$94) and a duration of stay above the average (27.42 nights). Five markets (Conventions, Business, Japanese Honeymooners, Hong Kong and Malaysian first timers) are in the North West Quadrant.

Only two markets (UK repeaters and Backpackers) occupy the South East Quadrant. Three mature (over 55) markets (NZ, Malaysia and Canada) are located in the low yield South West Quadrant.

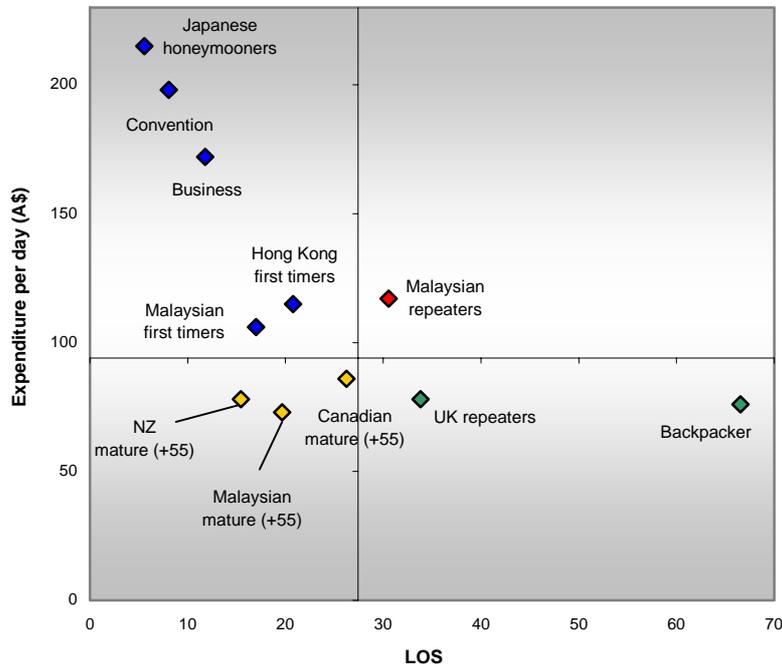


Figure 5: Matrix for Selected Niche markets, average 2001/2002- 2003/2004

This chapter has focussed on estimating expenditure yield measures for fourteen country and three regional markets and eleven niche markets. While we have highlighted problems with expenditure measures of yield per se, the expenditure associated with different visitor markets is the basis upon which more sophisticated measures are developed.

Chapter 5

**STCRC ECONOMY WIDE YIELD MEASURES: INTERNATIONAL VISITORS BY ORIGIN**

The STCRC has developed measures of economy wide yield. For this purpose, the team has used a CGE model called M2RNSW developed by the STCRC Economic Modelling Group (Peter Forsyth, Larry Dwyer, Ray Spurr and Thiep Van Ho). M2RNSW is an adaptation of the standard Monash Multi-regional Forecasting (MMRF) model which is one of a number of CGE models that have been widely used in Australia (Dixon & Parmenter 1996). The basic structure of the M2R model (excluding the 12 tourism industries created by Madden and Thapa 2000) is an adaptation of the standard MONASH Multi-regional Forecasting (MMRF) model. Additional useful equations were added into the standard MMRF version of the M2R model including the development of consistent equations for explaining the percentage deviations in gross state products (GSP) from both income and expenditure sides of national accounts.

IVS expenditure data were used to estimate simple expenditure yield measures. This can be referred to as the ‘unadjusted expenditure data set’. This data include the expenditure of all tourists to Australia, including package tourists. The advantage of using this data set is that it facilitates comparisons between the different yield measures through use of the same expenditure data as input.

Another set of expenditure data, not employed in the present study, involves a revision of the IVS data to account for the fact that travel to Australia on Australian owned carriers (e.g. Qantas) represents an additional injection of expenditure into the country that is not captured within the IVS data and also that foreign owned carriers spend money within the Australia on various aspects of their operations. Such additional expenditure injections must be recognised in an overall accounting of the ‘yield’ from different markets. In contrast, published IVS data covers only expenditure of visitors within Australia, excluding expenditure on international airfares purchased overseas.

Tables 7 and 8 present the results of the CGE model simulations using IVS data, with no adjustment for the international airfare component of visitor expenditure overseas but injected into Australia. As in the simple expenditure yield measures above, the annual expenditure data fed into the model was the average for the three year period. The tables contain several yield measures, estimated as outcomes of applying the CGE model to the expenditure data.

**Table 7: Economic Impacts of Selected Origin Market Expenditure (annual average period 2001/02-2003/04, unadjusted data, \$ millions)**

Origin	Total injected expenditure (\$m)	Number of jobs	Real GDP (change)	Real value added	Real GOS	Total real benefit (change)
Canada	256.733	1620	33.01	33.56	21.10	23.69
China	672.491	4202	85.88	85.40	36.79	49.49
Germany	461.795	2758	60.26	62.06	39.05	43.05
Hong Kong	503.567	2681	55.23	55.25	24.58	32.27
Indonesia	324.575	2043	41.30	40.95	16.38	22.91
Japan	1030.215	5770	134.40	131.73	73.42	90.77
Korea	541.940	3259	70.12	69.33	31.57	41.86
Malaysia	422.918	2546	54.08	53.56	20.63	29.43
NZ	972.046	6328	128.74	126.80	83.73	96.52
Singapore	627.025	3936	82.90	79.25	36.83	51.15
Taiwan	200.525	1225	25.83	25.61	11.88	15.55
Thailand	247.189	1587	31.08	31.36	12.50	16.96
UK	1837.742	11415	238.48	240.53	160.32	178.49
USA	1157.715	7264	147.31	148.59	81.53	97.13
Other Asia	319.296	2039	39.99	40.47	18.05	23.22
Other Europe	1,346.918	7941	173.91	176.61	107.63	122.31
Other World	582.229	3525	76.92	75.84	43.30	52.57
<b>Total</b>	<b>11,435.658</b>	<b>70,139</b>	<b>1479.52</b>	<b>1480.9</b>	<b>819.28</b>	<b>987.37</b>

Source: STCRC Economic Modelling Group

Table 8: Economic Impacts of Total Country Expenditure Continued (annual average period 2001/02-2003/04, unadjusted data)

Origin	Real GVA per visitor \$	Real value added per visitor night (\$)	Real GOS per visitor \$	Real GOS/visitor night (\$)	Real GOS/expenditure (%)	Real benefits per visitor \$	Real benefit per visitor night (\$)	Number of jobs per \$m spend
Canada	388.90	10.88	244.51	6.84	8.22	274.52	7.68	6.31
China	476.58	12.18	205.31	5.25	5.47	276.18	7.06	6.25
Germany	466.89	11.50	293.78	7.24	8.46	323.88	7.98	5.97
Hong Kong	434.25	15.49	193.19	7.84	4.88	253.63	9.05	5.32
Indonesia	506.22	13.06	202.49	5.23	5.05	283.21	7.30	6.29
Japan	211.22	14.14	117.73	7.88	7.13	145.54	9.74	5.60
Korea	386.66	12.40	176.07	5.65	5.83	233.46	7.49	6.01
Malaysia	386.22	14.56	148.76	5.61	4.88	212.22	8.00	6.02
NZ	167.40	12.01	110.54	7.93	8.61	127.42	9.15	6.51
Singapore	339.30	17.53	157.68	8.15	5.87	218.99	11.32	6.28
Taiwan	295.66	12.93	137.15	6.00	5.39	179.52	7.85	6.11
Thailand	442.19	12.91	176.26	5.15	5.06	239.15	6.98	6.42
UK	393.09	10.19	261.34	6.80	8.72	292.59	7.57	6.21
USA	372.33	14.14	204.29	7.76	7.04	243.38	9.24	6.27
Other Asia	367.47	9.06	163.89	4.04	5.65	210.84	5.20	6.39
Other Europe	454.88	11.03	277.22	6.72	7.99	315.03	7.64	5.89
Other World	310.47	10.46	177.26	5.97	7.44	215.21	7.25	6.05
<b>Total</b>	<b>332.65</b>	<b>12.13</b>	<b>184.03</b>	<b>6.71</b>	<b>7.16</b>	<b>221.18</b>	<b>8.09</b>	<b>6.13</b>

Source: STCRC Economic Modelling Group

## Employment

The second column of Table 7 indicates the number of jobs associated with total expenditure from each of the origin markets. It is estimated that, annually, 70,139 jobs in Australia are generated/maintained by the inbound tourist expenditure. The highest job creation is associated with the UK, other Europe, USA and New Zealand, while the smallest job creation is associated with visitation from Taiwan, Canada, Thailand and Other Asia. The employment generated/maintained by the expenditure associated with the different country markets is displayed in Figure 6 (a).

Table 8 shows that, in terms of jobs created or maintained per \$1 million expenditure, origin markets above the average (6.13 jobs) were: New Zealand, Thailand, other Asia, Canada, Indonesia, Singapore, USA, China and UK. This information is displayed in Figure 6 (b).

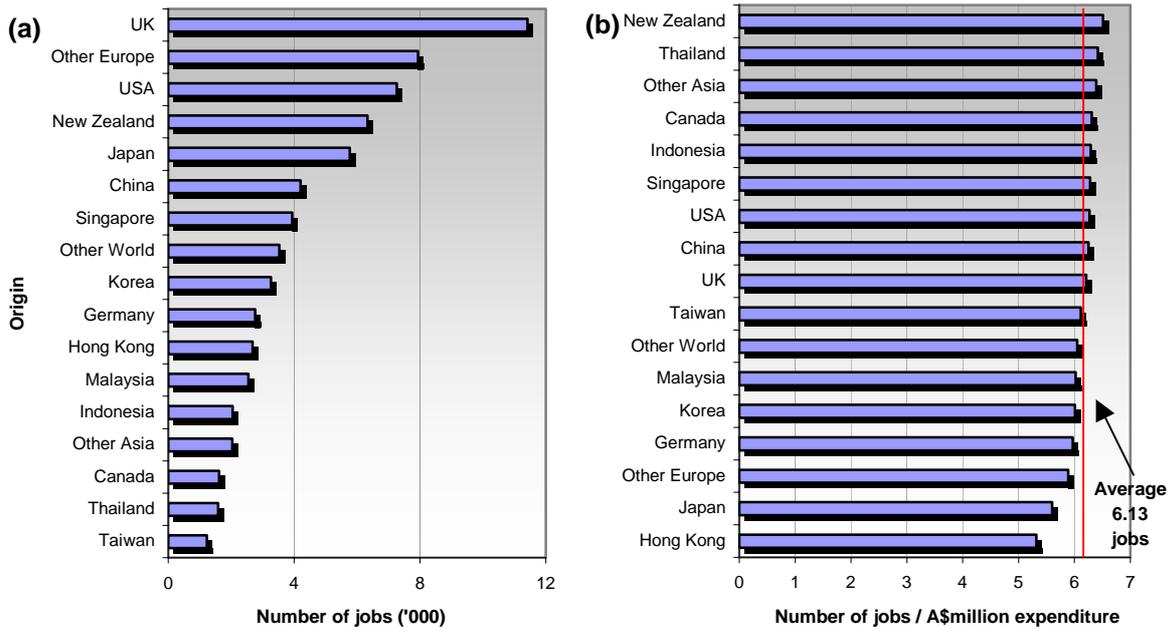


Figure 6: (a) Total Job Creation annually by Origin Country. (b) Jobs Created per \$million expenditure by Country Origin

### Real Value Added

Table 7 shows that the greatest contribution to Real Value Added came from visitation from the UK, other Europe, USA, and Japan, with the lowest contributions from Taiwan, Thailand and Indonesia. This information is displayed in Figure 7 (a).

Table 8 shows Real Value added per visitor night. Origins with above average contribution on this measure (\$12.13) are: Singapore, Hong Kong, Malaysia, Japan, USA, Indonesia, Taiwan, Korea, Thailand, and China. With the obvious exception of the USA, these are all Asian origin markets. Country origins with the lowest contributions are Other Asia, UK, Other World and Canada.

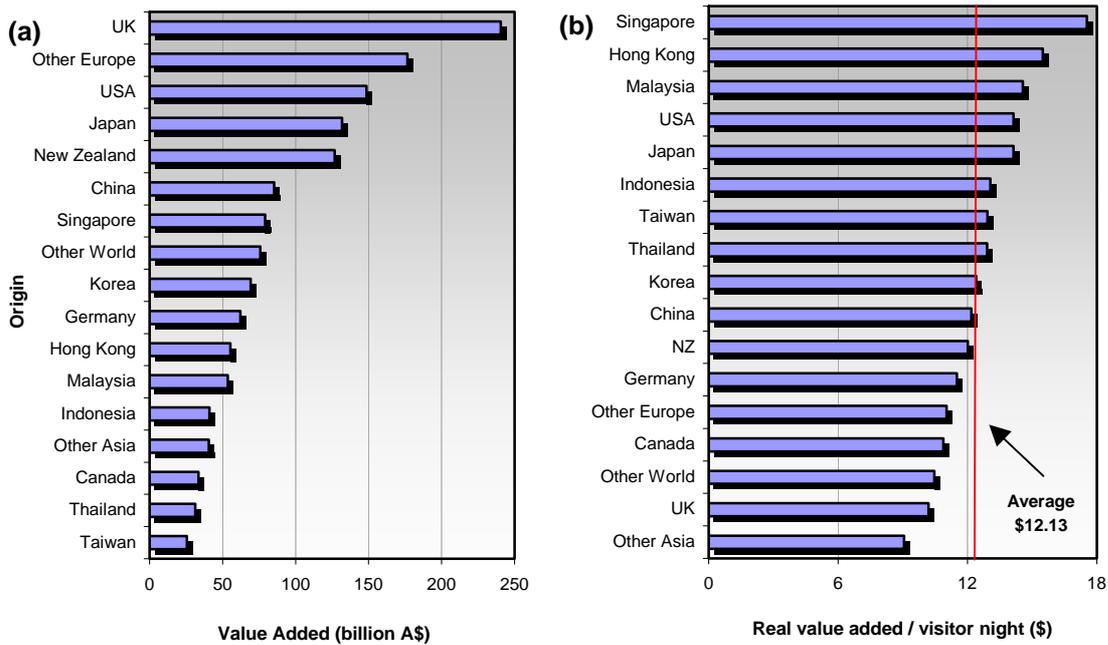


Figure 7: (a) Real Value added p.a. by Origin Country; (b) Real Value added per visitor night by Country Origin

Real value added as a proportion of tourist expenditure for each country origin is displayed in Figure 5.3 (a). The German market (0.134) has the highest proportion of real value added per dollar of expenditure, followed by Other Europe, Other countries, New Zealand, Japan, Taiwan and USA. The results indicate that the spending pattern of these visitors is such as to result in a greater value added per dollar spent in Australia than for the other markets. The smallest contribution to real gross value added per dollar spent is associated with visitors from Hong Kong, Indonesia and Singapore.

The results can be displayed in Matrix form as Figure 8 (b). The axes cross at the average value added per day for all markets (\$12.13) and average real value added per visitor (\$332.65). The North East Quadrant indicates above average value added per visitor (over total trip) and above average value added per visitor day. Origin markets located in this quadrant are Singapore, Korea, Indonesia, Malaysia, Hong Kong, Thailand and USA. Other Asia and New Zealand are located in the South West Quadrant, indicating below average value added per visit and below average value added per day.

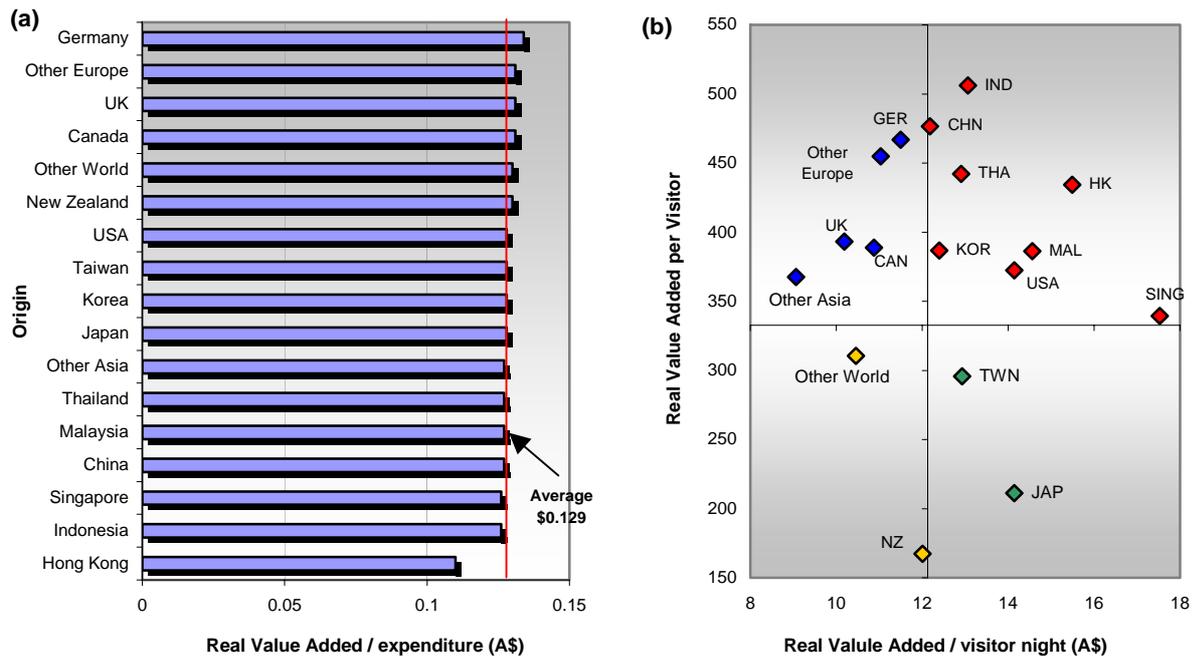


Figure 8: (a) Real Value added per expenditure dollar by Country Origin; (b) Real Value added per visitor trip and per visitor night by Origin Country

### Gross Operating Surplus

Gross operating surplus (GOS) associated with different tourism market segments is a measure of particular interest to tourism operators. Table 7 indicates that the greatest contributions to GOS came from the UK, other Europe, New Zealand and USA, while the smallest contributions were again from Taiwan, Thailand and Indonesia, and other Asia.

Table 8 also provides information on GOS as a percentage of the amount injected from the different origin markets. Those markets above the average (7.16%) include UK, New Zealand, Germany, Canada, Other Europe, and Other World. Origins above average in contribution to Real GOS per visitor night (average \$6.71) were, in order, Singapore, New Zealand, Japan, Hong Kong, USA, Germany, Canada, UK and other Europe. Those below average included Other Asia, Thailand and Indonesia.

This information is displayed in Figure 9 (a & b).

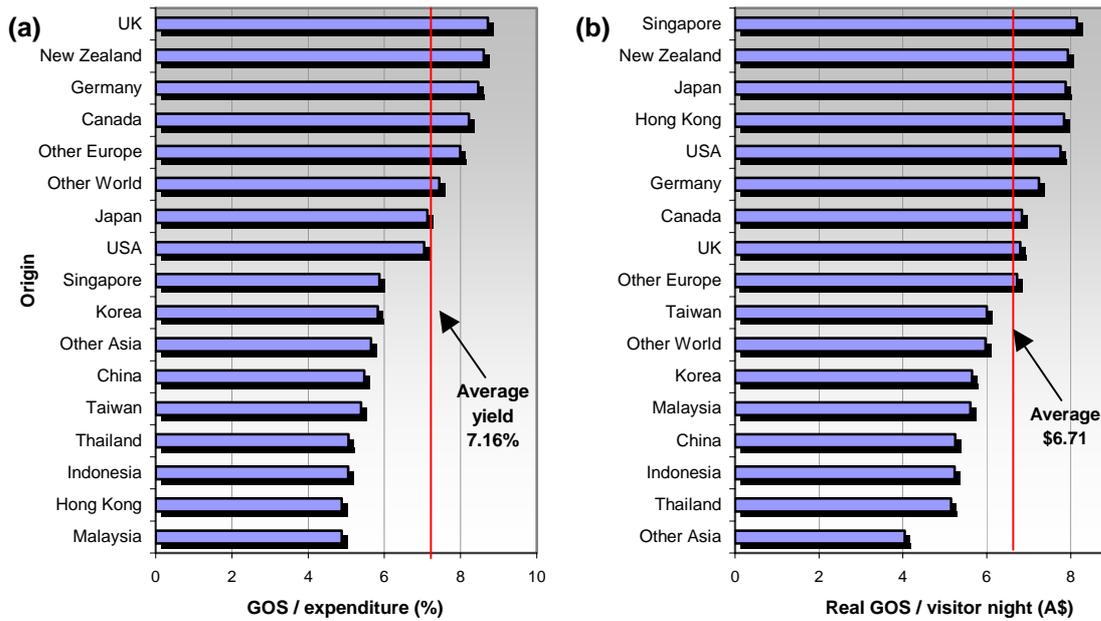


Figure 9: (a) GOS as proportion of expenditure by Origin Country; (b) Real GOS per visitor night by Origin Country

The relationship between Real GOS per visitor and per visitor night is displayed in Matrix form in Figure 10. The axes cross at the average GOS per day for all markets (\$6.71) and average real GOS per visitor (\$184.03). The North East Quadrant indicates above average GOS per visitor (over total trip) and above average GOS per visitor day. Origin markets comprising this quadrant are Germany, UK, Canada, USA, Hong Kong, and Other Europe. Several origin countries – Thailand, Korea, Malaysia, Taiwan, Other World and Other Asia, are located in the South West Quadrant, indicating below average GOS per visit and below average contribution to GOS per day.

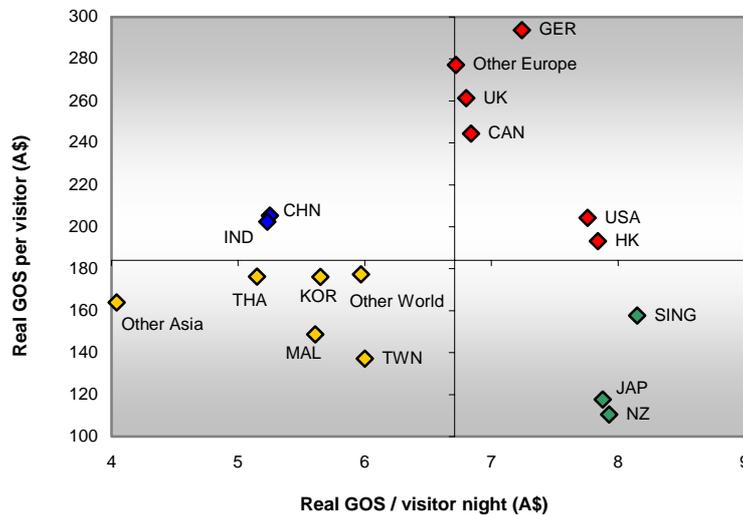
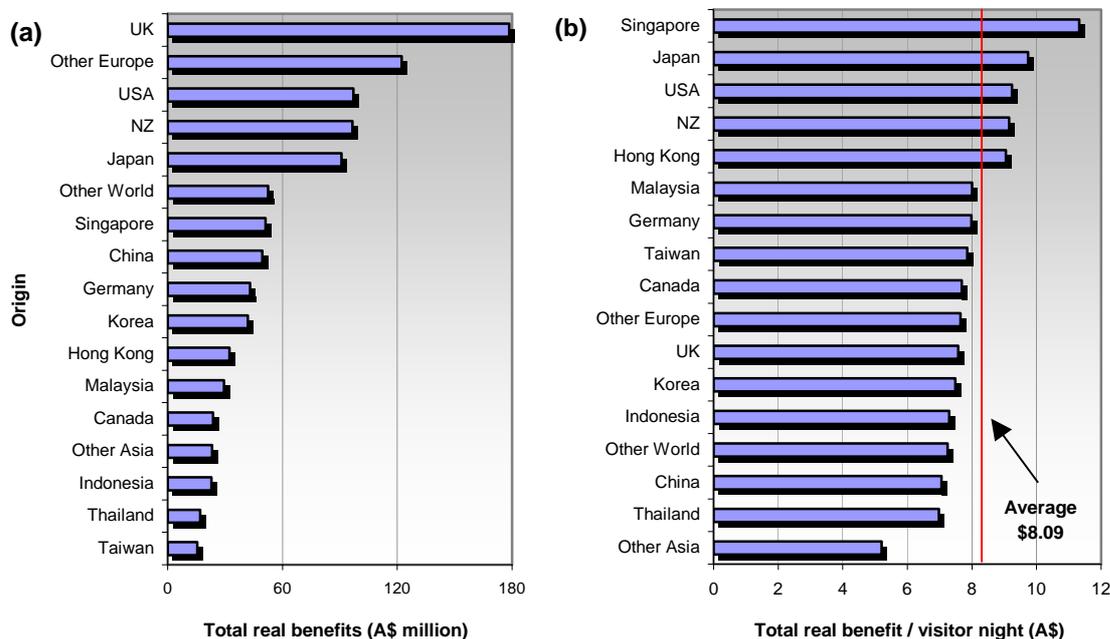


Figure 10: GOS per visitor trip and per visitor night by Origin Country

### Net Benefits

Table 7 indicates that the greatest annual contribution to net benefits comes from the UK, other Europe and the USA, just ahead of New Zealand. The smallest contribution to net benefits comes from Taiwan, Thailand and Indonesia. This information is displayed in Figure 11 (a).

Table 8 shows Net Benefits per visitor night. Origins above average (\$8.09) were: Singapore, Hong Kong, Malaysia, Japan, USA, Indonesia, Taiwan, Korea, Thailand, and China, as depicted in Figure 11 (b). With the obvious exception of the USA, these are all Asian origin markets.



**Figure 11: (a) Net Benefits annually by Origin Country; (b) Real Benefits per visitor night by Country Origin**

Origins above average in contribution to net benefits per visitor night (\$8.09) are, in order, Singapore, Japan, USA, New Zealand, and Hong Kong. The majority of the selected origin markets deliver a below average level of net benefits per visitor night, with the poorest contributions coming from Other Asia, Thailand and China.

The relationship between real benefit per trip and per visitor night is displayed in matrix form in Figure 12 (a). The axes cross at the average net benefits per day for all markets (\$8.09) and average net benefits per visitor (\$221.18). The North East Quadrant indicates above average net benefits per visitor (over total trip) and above average net benefits per visitor day. Origin markets located in this quadrant are Hong Kong and USA. Malaysia, Taiwan, Other Asia and Other World are located in the South West Quadrant, indicating below average net benefits per visit and below average net benefits per day.

The relationship between real benefits per visitor night and employment per thousand visitors is displayed in Matrix form in Figure 12 (b). The axes cross at average net benefits per night (\$8.09) and average employment generated per thousand visitors (15.75). The North East Quadrant indicates above average real benefits per visitor night and above average employment per thousand visitors. Origin markets comprising this quadrant are USA and Hong Kong. Several origin countries – Malaysia, Taiwan, Other World and Other Asia, are located in the South West Quadrant, indicating below average real benefits per night and below average employment per thousand visitors.

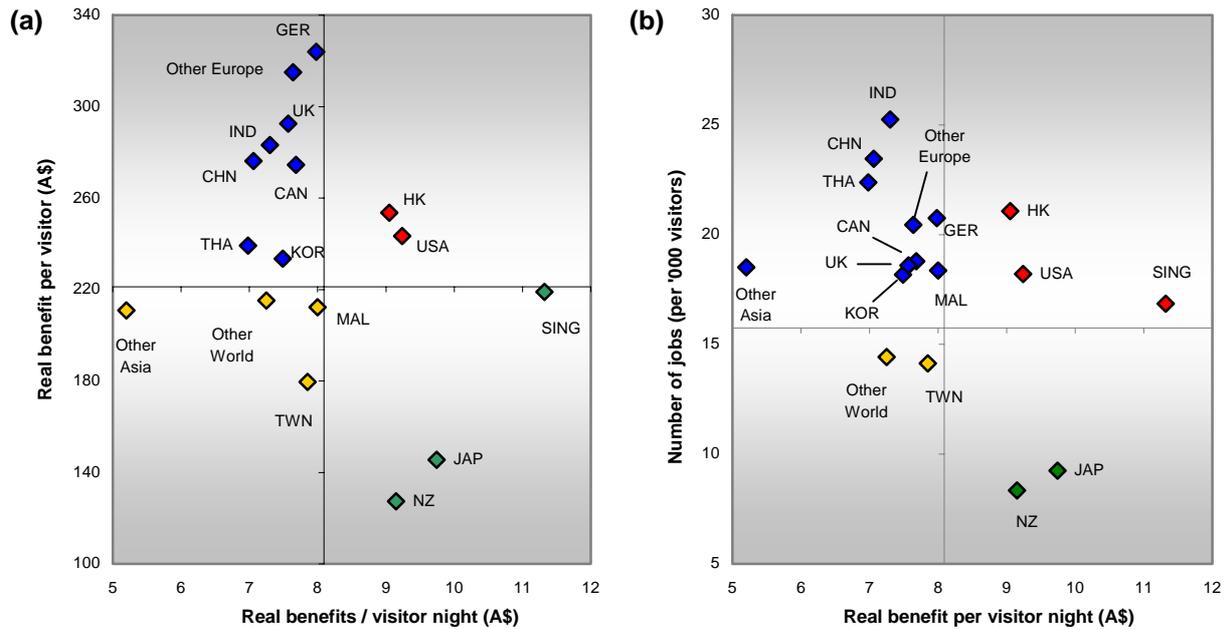


Figure 12: (a) Real Benefits per visitor and per visitor night by Origin market; (b) Real Benefits per visitor night, and employment per thousand visitors

### Consistency of Rankings

Since yield measures have consequences for decision making by both private and public sector organisations it is important to compare the rankings of the selected origin markets on the different measures. Tables 9 and 10 provide a summary.

Table 9 ranks country origin markets from best to worst performance on five different yield measures. The different measures of yield do not provide generally consistent rankings for the origin markets. Only one country origin, Singapore has above average yield performance on all of the measures. High expenditure per visitor day markets- Singapore, Hong Kong, Japan, and USA, generate high GVA, GOS and Real benefits per day. Hong Kong, however, the second greatest daily spending market is the lowest employment generator of all of the origin markets. Malaysia, the third highest expenditure per day origin, while generating above average daily GVA, generates below average GOS per visitor day, Real Benefits per visitor day and employment generated per \$1 million expenditure.

Several markets with below average daily expenditure, such as New Zealand, Other Asia, Canada and UK, generate above average employment per dollar spent. New Zealand also generates relatively high net benefits per day.

Table 9: Rankings of Origins, selected yield measures

	Expenditure per Visitor Day	Value added per Visitor Day	GOS per Visitor Day	Net Benefits per Visitor Day	Employment per \$ 1 million
<b>High Yield Markets</b>	1 Singapore 2 Hong Kong 3 Malaysia 4 Japan 5 USA 6 Indonesia 7 Thailand 8 Taiwan 9 Korea 10 China	1 Singapore 2 Hong Kong 3 Malaysia 4 Japan, USA 6 Indonesia 7 Taiwan 8 Thailand 9 Korea 10 China	1 Singapore 2 NZ 3 Japan 4 Hong Kong 5 USA 6 Germany 7 Canada 8 UK 9 other Europe	1 Singapore 2 Japan 3 USA 4 NZ 5 Hong Kong	1 NZ 2 Thailand 3 other Asia 4 Canada 5 Indonesia 6 Singapore 7 USA 8 China 9 UK
<b>Low Yield Markets</b>	11 NZ 12 Germany 13 other Europe 14 Canada	11 NZ 12 Germany 13 other Europe 14 Canada	10 Taiwan 11 other world 12 Korea 13 Malaysia	6 Malaysia 7 Germany 8 Taiwan 9 Canada	10 Taiwan 11 other world 12 Malaysia 13 Korea

	Expenditure per Visitor Day	Value added per Visitor Day	GOS per Visitor Day	Net Benefits per Visitor Day	Employment per \$ 1 million
	15 Other world 16 UK 17. Other Asia	15 other world 16 UK 17 other Asia	14 China 15 Indonesia 16 Thailand 17 other Asia	10 other europe 11 UK 12 Korea 13 Indonesia 14 other world 15 China 16 Thailand 17 other Asia	14 Germany 15 other Europe 16 Japan 17 Hong Kong

High yield market = above average; low yield market = below average

From the operator viewpoint, markets such as Germany, Canada and Other Europe which offer above average daily GOS may be preferred over other markets, such as Malaysia, China and Indonesia which provide above average GVA to the wider economy (this may vary somewhat among operators – e.g. accommodation providers might place a slightly higher value on number of nights, and hence on total GOS per visitor, an international airline would be interested in numbers of visitors rather than their length of stay).

In the discussion above we used matrix diagrams to display the different Quadrants associated with the origins on different measures. This information is summarized in Table 10. The North East Quadrant indicates high performance on any yield measure.

Table 10: Summary of Quadrant location, selected origins on selected yield measures

Quadrant	Expenditure Measure	Value added Measure	GOS Measure	Net Benefits Measure	Net Benefit/ Employment Measure
<b>North East</b>	Hong Kong Thailand Indonesia Korea China	Hong Kong USA Singapore Thailand Indonesia Korea China Malaysia	Hong Kong USA Canada UK Other Europe	Hong Kong USA	Hong Kong USA Singapore
<b>North West</b>	Singapore Japan Malaysia Taiwan USA	UK Canada Germany Other Europe Other Asia	Indonesia China	Indonesia China UK Canada other Europe Germany Thailand	Korea China Thailand Indonesia Malaysia Other Asia Other Europe
<b>South East</b>	Germany Canada UK Other Europe Other Asia Other world	Taiwan Japan	Singapore Japan New Zealand	Singapore Japan New Zealand	Japan New Zealand
<b>South West</b>	New Zealand	New Zealand Other world	Thailand Korea Taiwan Malaysia Germany Other Asia Other World	Malaysia Taiwan Other Asia Other World	Other World Taiwan

Expenditure measure: based on Figure 3  
Real GVA measure: based on Figure 8 (a)

Real Benefits measure: based on Figure 12 (a)  
Real GOS measure: based on Figure 10

Hong Kong is located in the North East Quadrant on each of the five measures, while USA is located in this Quadrant on four measures. In the low performance South West Quadrant, Other World is located there on four measures, Taiwan three measures, with New Zealand, Malaysia and Other Asia figuring in two each.

This chapter has focussed on estimating economic yield measures for fourteen country markets and three regions. The measures, estimated through use of a CGE model ranged over employment, real value added, gross operating surplus and net benefits. A comparison of the different measures revealed that their policy implications are not always consistent. The following chapter develops the economy wide yield measures as used in this chapter for s yield measures for the special niche markets.

Chapter 6

**STCRC ECONOMIC YIELD ESTIMATES: INTERNATIONAL VISITORS BY NICHE MARKET**

Tables 11 and 12 present the results of the CGE model simulations using IVS expenditure data, with no adjustment for the international airfare component of visitor expenditure overseas but injected into Australia. The annual expenditure data fed into the model was the average for the three year period. The tables contain several yield measures, estimated by applying the CGE model to the expenditure data.

**Table 11: Economic Impacts of Selected Niche Market Expenditure (annual average period 2001/02-2003/04, unadjusted data, \$ millions)**

Niche Market	Total Injected Expenditure	Number Of Jobs	Real GDP (Change)	Real Value Added	Real GOS	Total Real Benefit (Change)
Backpackers	2,382.163	14491	306.164	314.326	182.595	207.610
Business	1,118.146	8189	142.599	143.875	94.519	105.693
Canadian mature (+55)	60.831	386	7.897	7.914	5.321	5.958
Convention	169.927	1187	20.362	20.702	11.532	13.500
Hong Kong first timers	82.941	474	10.317	10.382	4.443	5.871
Japanese honeymooners	105.401	481	14.702	13.632	8.574	10.917
Malaysia first timers	74.532	456	9.450	9.465	3.872	5.264
Malaysian mature (+55)	27.456	155	3.589	3.523	2.099	2.523
Malaysian repeaters	348.386	2090	44.632	44.093	16.757	24.166
NZ mature (+55)	243.796	1573	32.099	31.802	21.316	24.256
UK repeaters	903.527	5595	118.179	118.138	79.013	88.918

Source: STCRC Economic Modelling Group

**Table 12: Economic Impacts of Selected Niche Market Expenditure Continued (annual average period 2001/02-2003/04, unadjusted data)**

Niche	Real GVA per visitor \$	Real GVA per visitor night (\$)	Real GOS per visitor	Real GOS/visitor night (\$)	Real GOS/expenditure (%)	Real benefit per visitor	Real benefit/visitor night (\$)	Number of jobs/\$million expenditure
Backpackers	671.04	10.09	389.81	5.86	7.67	443.22	6.66	6.08
Business	258.92	22.17	261.23	14.56	8.45	191.91	16.29	7.32
Canadian mature (+55)	294.91	11.13	292.21	7.48	8.75	219.99	8.38	6.35
Convention	191.96	24.18	108.72	13.47	6.79	127.27	15.77	6.99
Hong Kong first timers	296.18	14.33	127.54	6.13	5.36	168.54	8.11	5.71
Japanese honeymooners	167.09	27.76	97.45	17.46	8.13	124.08	22.23	4.56
Malaysia first timers	229.00	13.50	93.83	5.52	5.20	127.56	7.51	6.12
Malaysian mature (+55)	186.41	9.56	109.02	5.69	7.64	131.04	6.84	5.65
Malaysian repeaters	458.17	14.81	172.02	5.63	4.81	248.08	8.12	6.00
NZ mature (+55)	158.69	10.19	105.38	6.83	8.74	119.91	7.77	6.45
UK repeaters	343.50	10.16	229.66	6.79	8.74	258.45	7.64	6.19

Source: STCRC Economic Modelling Group

**Employment**

The second column of Table 11 indicates the number of jobs associated with total expenditure from each of a number of selected special niche markets. The highest job creation is associated with Backpackers, Business and UK repeat visitors, while the smallest job creation is associated with visitation from Malaysian and Canadian mature travellers. This information is displayed in Figure 13 (a). Table 12 shows that, in terms of jobs created or maintained per \$million expenditure, the niche markets above the average (6.13 jobs) were: Business, Convention visitors and New Zealand matures. This information is displayed in Figure 13 (b).

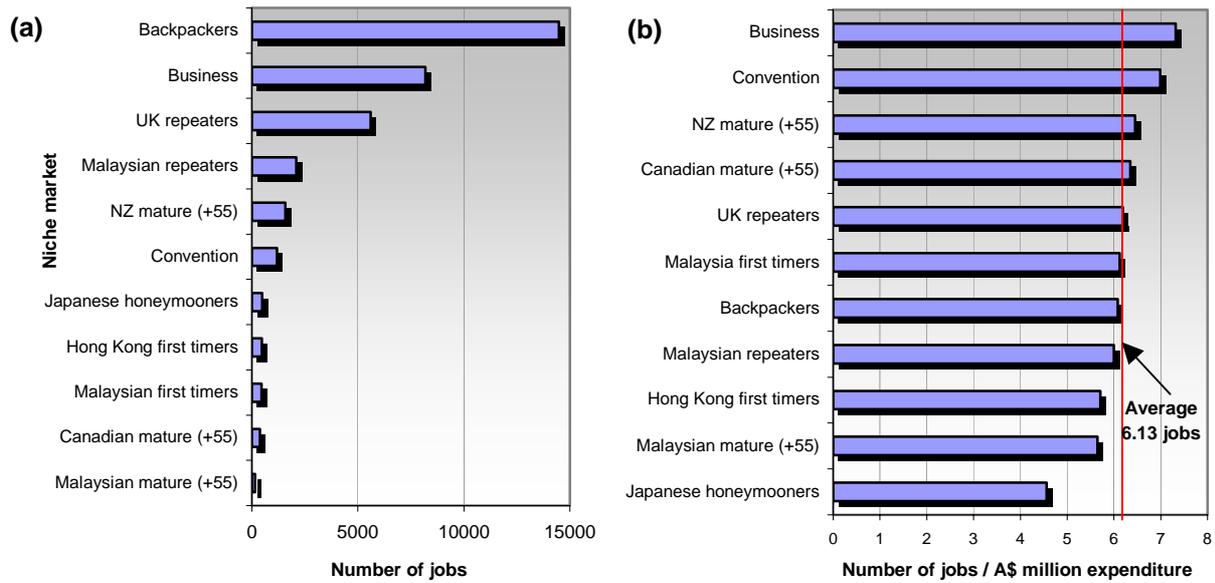


Figure 13: (a) Total Jobs Created/maintained annually, by Niche market; (b) Jobs Created/maintained per \$ million expenditure by Niche market

### Real Value Added

Table 11 indicates that the greatest contribution to Real Value Added, came from Backpackers, Business and UK repeat visitors, with the lowest contributions again from Malaysian and Canadian mature travellers. This information is displayed in Figure 14 (a).

Real value added as a proportion of tourism expenditure for each niche market is displayed in Figure 14 (b). The Backpacker market has the highest proportion of value added per dollar of expenditure followed by UK repeaters, New Zealand mature, Canadian mature, Japanese honeymooners and Business travellers. The lowest proportion of value added per dollar of expenditure is associated with Convention visitors and Hong Kong and Malaysian first timers.

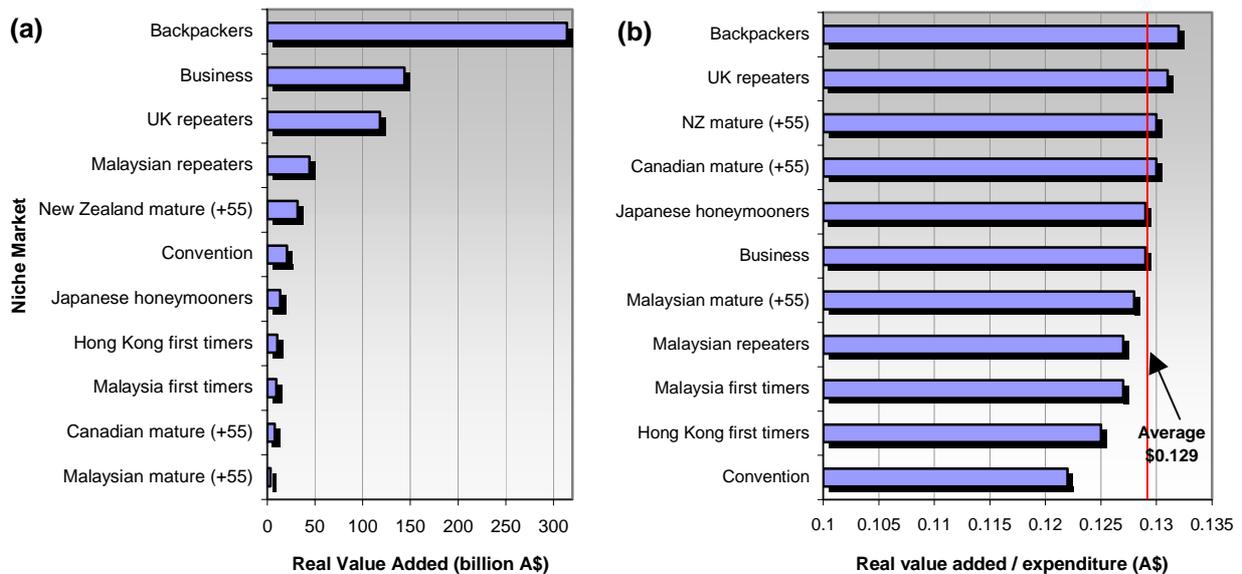


Figure 14: (a) Real Value added annually, by Niche market; (b) Real value added per expenditure dollar by Niche market

Table 12 shows Real value added per visitor night. This is displayed in Figure 15. Origins above the average (\$12.13) were: Japanese Honeymooners, Convention attendees, Business travellers, Malaysian repeaters, Hong Kong first timers, and Malaysian first timers.

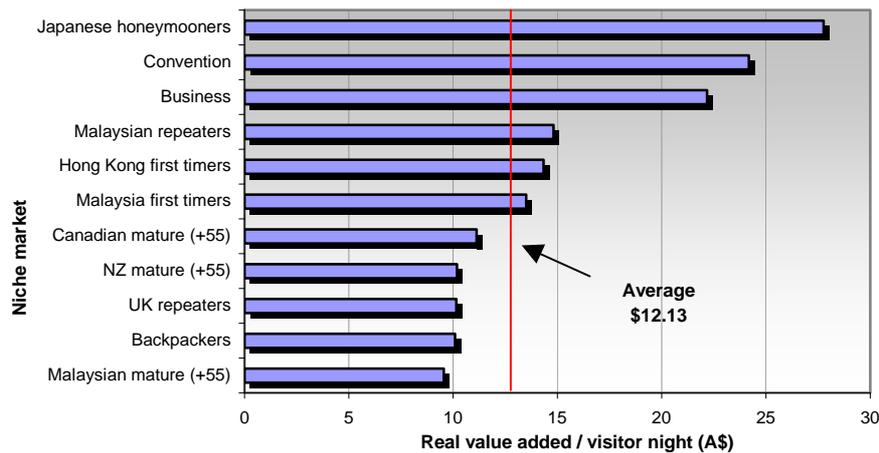


Figure 15: Real value added per expenditure dollar by Niche market

The results can be displayed in Matrix form as Figure 16. The axes cross at the average value added per day for all markets (\$12.13) and average real value added per visitor (\$332.65). The North East Quadrant, indicating above average value added per visitor (over total trip) and above average value added per visitor day has only one niche market- Malaysian repeaters. Canadian matures, Malaysia matures, New Zealand matures and Business travellers are located in the South West Quadrant, indicating below average value added per visit and below average value added per day.

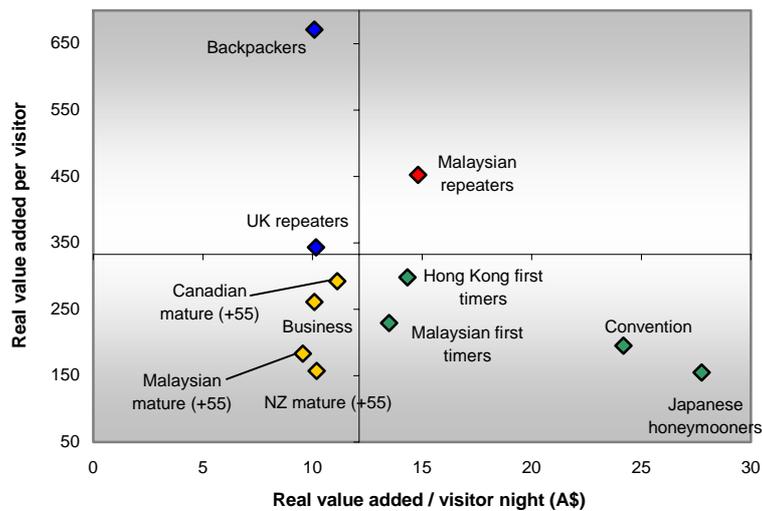


Figure 16: Real value added per visitor trip and per visitor night by Niche market

### Gross Operating Surplus

Table 11 indicates that the greatest contributions to GOS came from Backpackers, Business and UK repeat visitors, while the smallest contributions were from Malaysian matures, Malaysian first timers and Hong Kong first timers.

Table 12 provides information on GOS as a percentage of the amount of expenditure injected from the selected niche markets. Those markets above the average (7.16%) are: Canadian matures, UK repeaters, New Zealand matures, Business travelers, Japanese honeymooners, Backpackers, and Malaysian matures. Below average contributions to GOS as a percentage of injected expenditure are associated with Malaysian repeaters, Malaysian first timers, Hong Kong first timers and Convention visitors. This information is displayed in Figure 17 (a).

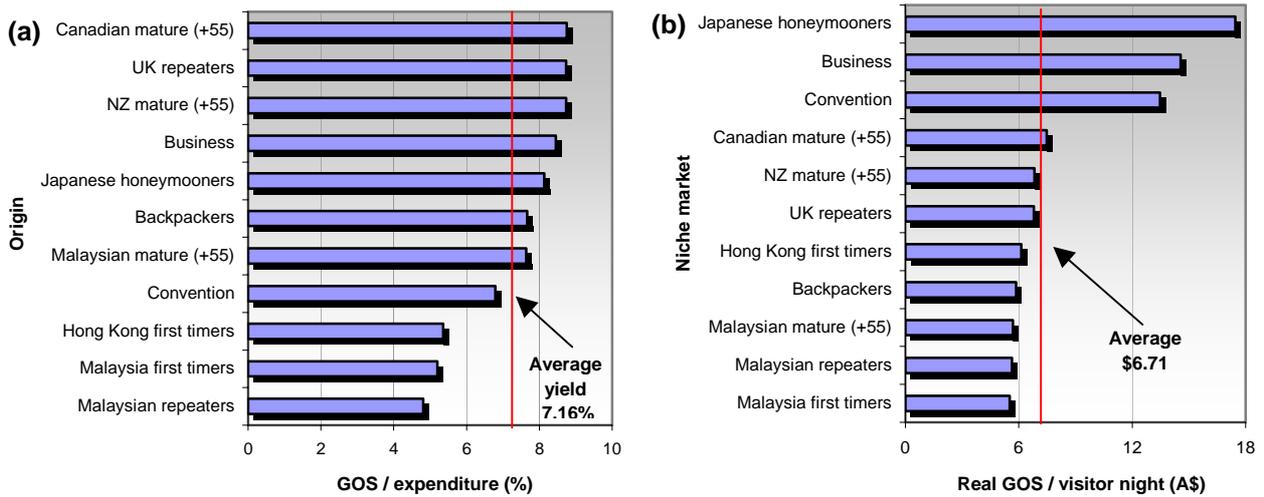


Figure 17: (a) GOS as proportion of expenditure by Niche market; (b) Real GOS per visitor night by Niche market

The relationship between Real GOS per visitor and per visitor night is displayed in Matrix form in Figure 18. The axes cross at the average GOS per day for all markets (\$6.71) and average real GOS per visitor (\$184.03). The North East Quadrant indicates above average GOS per visitor (over total trip) and above average GOS per visitor day. Origin markets located in this Quadrant are UK repeaters, Canadian matures and Business travelers. In the South West Quadrant, indicating below average GOS per visit and below average contribution to GOS per day are located Malaysians (repeaters, matures, first timers) and Hong Kong first timers.

Niche markets above average in contribution to Real GOS per visitor night (average \$6.71) were, in order, Japanese honeymooners, Business travellers, Convention visitors, Canadian matures, New Zealand matures and UK repeaters, as depicted in Figure 17 (b). Of these markets, the former three were well above the average. Markets that make a below average contribution to real GOS per visitor night are Malaysian markets (matures, first timers, repeater), Backpackers and Hong Kong first timers.

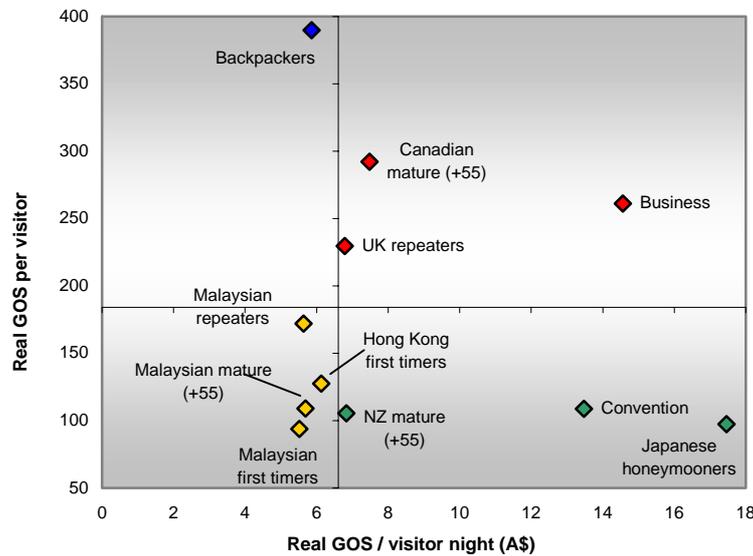


Figure 18: GOS per visitor trip and per visitor night by Niche market

### Net Benefits

Table 11 indicates that the greatest contribution to net benefits came from Backpackers, Business and UK repeat visitors. The smallest contribution to net benefits comes from Malaysian matures, Malaysian first timers and Hong Kong first timers. This information is displayed in Figure 19 (a).

Table 12 shows Net Benefits per visitor night. Niche markets above average in contribution to net benefits per visitor night (\$8.09) were, in order, Japanese honeymooners, Business travellers, Convention visitors, Canadian matures, Malaysian repeats and Hong Kong first timers, as depicted in Figure 19 (b). Most of the special niche markets fall below the average on this measure. The lowest benefits per visitor night are associated with Other Asia, China and Thailand.

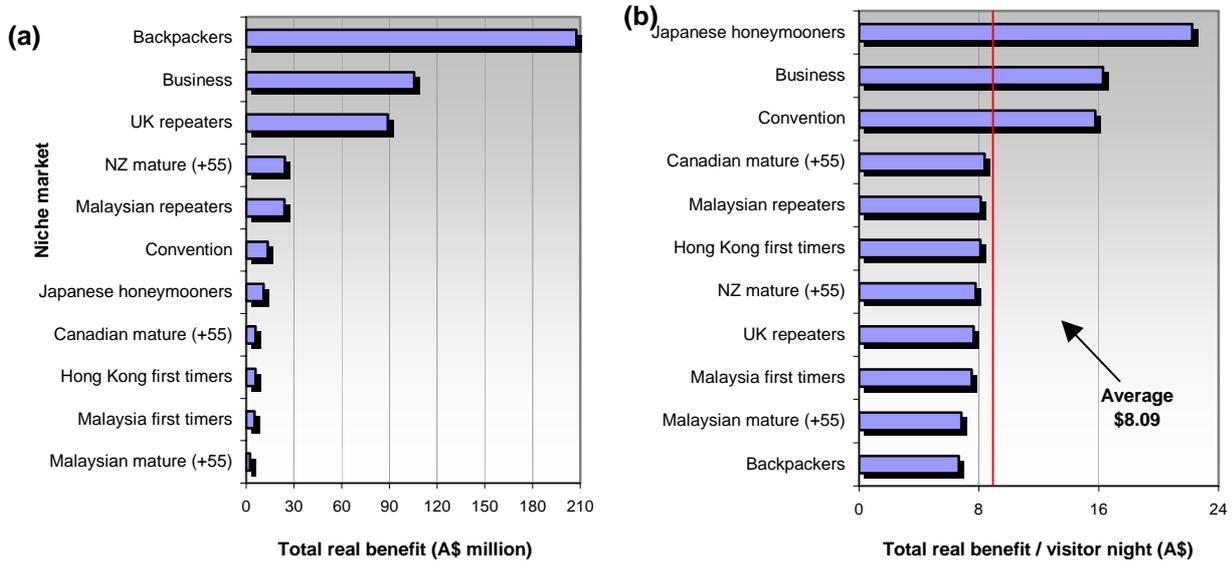


Figure 19: (a) Net Benefits annually, by Niche market; (b) Real Benefits per visitor night by Niche market

The relationship between real benefit per trip and per visitor night is displayed in matrix form in Figure 20. The axes cross at the average net benefits per day for all markets (\$8.09) and average net benefits per visitor (\$221.18). The North East Quadrant indicates above average net benefits per visitor (over total trip) and above average net benefits per visitor day. The only selected niche market located in this quadrant is Malaysian repeaters. However, Malaysian first timers and Malaysian matures are located in the South West Quadrant along with New Zealand matures, indicating below average net benefits per visit and below average net benefits per day.

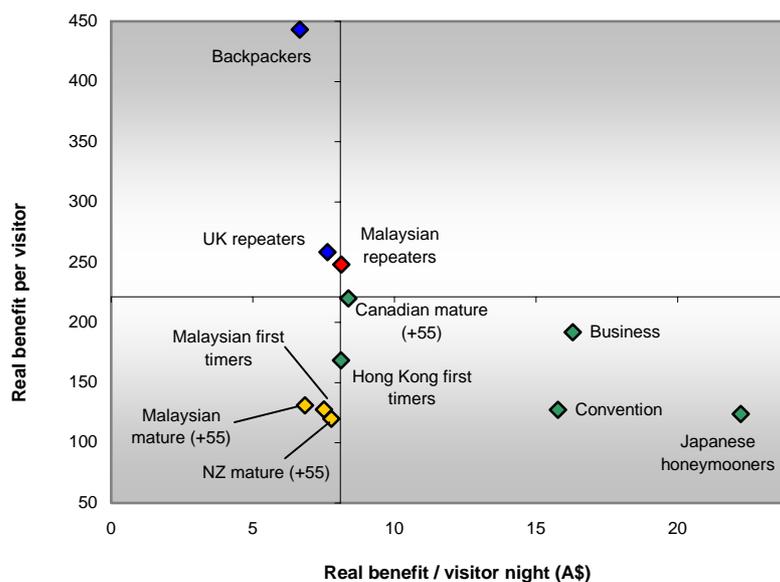


Figure 20: Real Benefits per visitor and per visitor night by Origin market

The relationship between real benefits per visitor night and employment per thousand visitors is displayed in Matrix form in Figure 21. The axes cross at average net benefits per night (\$8.09) and average employment generated per thousand visitors (15.75).

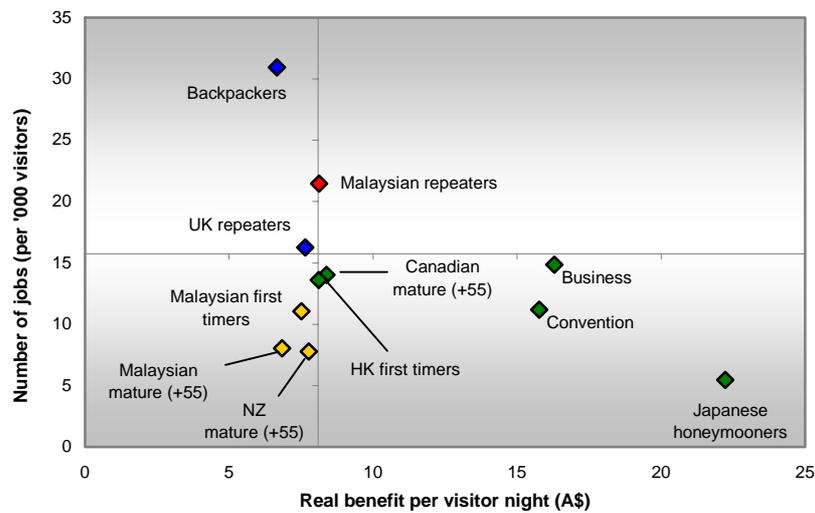


Figure 21: Real Benefits per visitor night, and employment per thousand visitors

The North East Quadrant indicates above average real benefits per visitor night and above average employment per thousand visitors. Only Malaysian repeaters occupy this quadrant. Malaysian matures, Malaysian first timers and New Zealand matures are located in the South West Quadrant, indicating below average real benefits per night and below average employment per thousand visitors.

### Consistency of Rankings

Since yield measures have consequences for decision making by both private and public sector organisations it is important to compare the rankings of the selected niche markets on the different measures. Tables 13 and 14 provide a summary.

Table 13: Rankings of Niche markets, selected yield measures

	Expenditure per Visitor Day	Real GVA per Visitor Day	GOS per Visitor Day	Net Benefits per Visitor Day	Employment per \$ 1 million
<b>High Yield Markets</b>	1 Japanese honeymooners	1 Japanese honeymooners	1 Japanese honeymooners	1 Japanese honeymooners	1 Business
	2 Convention	2 Convention	2 Business	2 Business	2 Convention
	3 Business	3 Business	3 Convention	3 Convention	3 NZ +55
	4 Mal repeater	4 Mal repeaters	4 Can +55	4 Can +55	4 Can +55
	5 HK first timer	5 HK first timer	5 NZ +55	5 Mal repeater	5 UK repeater
	6 Mal first timer	6 Mal first timer		6 HK first timer	
<b>Low Yield Markets</b>	7 Can +55	7 Can +55	6 HK first timer	7 NZ+55	6 Mal first timer
	8 NZ +55	8 NZ +55	7 Backpackers	8 UK repeaters	7 Backpacker
	8 UK repeater	9 UK repeater	8 Mal +55	9 Mal first timers	8 Mal repeater
	10 Backpacker	10 Backpackers	9 Mal repeater	10 Mal +55	9 HK first timer
	11 Mal +55	11 Mal +55	10 Mal repeater	11 Backpackers	10 Mal +55
					11 Japanese honeymooners

High yield market = above average; low yield market = below average

The different measures of yield do not provide generally consistent rankings for the origin markets. High expenditure per visitor day markets - Japanese Honeymooners, Convention and Business visitors, generate high GVA, GOS and Real benefits per day. Only two niche markets, Conventions and Business have above average yield performance on all of the measures. Japanese Honeymooners have the highest yield on four measures but generate the lowest employment per dollar of expenditure. Three other high spend markets - Malaysian repeaters, Hong Kong first timers and Malaysian first timers, generate below average employment per

expenditure dollar. On the other hand, two relatively low spend markets – Canadian and New Zealand Matures, generate above average GOS and Real Benefits per visitor night and also above average employment

From the operator viewpoint, markets such as Canadian and Malaysian Matures, which offer above average daily GOS will be preferred over other markets, such as Malaysian and Hong Kong first timers which provide above average spend and above average GVA to the wider economy.

**Table 14: Summary of Quadrant location, selected niche markets on selected yield measures**

<b>Quadrant</b>	<b>Expenditure Measure</b>	<b>Value added Measure</b>	<b>GOS Measure</b>	<b>Real Benefits Measure</b>	<b>Net benefits/ Employment Measure</b>
<b>North East</b>	Malaysian repeaters	Mal. repeaters	Canadian +55 UK Repeater Business	Mal repeaters	Mal repeaters
<b>North West</b>	Convention Japanese honeymooner Business HK first timers Mal. First timers	Backpackers UK repeaters	Backpackers	UK repeaters Backpackers	UK repeaters backpackers
<b>South East</b>	UK repeaters Backpackers	HK first timers Mal. First timers Conventions Jap. honeymooner	NZ +55 Convention Jap. Honeymooner	Convention Jap. honeymoon Business Can +55 HK first timer	Jap. Honeymooner Business Can +55 HK firsttimers Convention
<b>South West</b>	Mal. +55 Can. +55 HK +55	Can. +55 Mal +55 NZ +55 Business	Mal +55 Mal repeaters HK+55 HK first timers	Mal +55 NZ +55 Mal first timers	Mal first timers Mal +55s NZ +55

Expenditure measure: based on Figure 5

Real GVA measure: based on Figure 16

Real GOS measure: based on Figure 18

Real Benefits measure: based on Figure 20

Employment measure: based on Figure 21

It is also useful to consider the consistency of the measures displayed in Matrix form above. Malaysian repeaters are located in the North East Quadrant for four measures - Expenditure, Value Added, Real Benefits, and Real Benefits/ Employment, while UK repeaters are located in the North East Quadrant for the GOS and GOS/Employment measures. The South West Quadrant, locating the least preferred visitor segments on each measure, is dominated by mature markets. Malaysian matures are located in this quadrant on all five measures, with New Zealand matures on three measures.

This chapter has focused on estimating economic yield measures for the 11 special niche markets. The measures, estimated through use of a CGE model ranged over employment; Real Value Added, Gross Operating Surplus and Net Benefits. A comparison of the different measures revealed that their policy implications are not always consistent. Thus far, the yield measures that have been developed have been quantifiable in dollar terms. We now turn to develop measures that recognise the relevance of a wider concept of yield that incorporates social and environmental dimensions.

The next section presents a framework to assist in the development of the concept of sustainable tourism and to aid in its operationalisation. This framework is designed to take into account the varying characteristics of tourists, who undertake differing patterns of activities which leads to differing levels of tourism impact, both social and environmental, on a host destination.

*Chapter 7*

## **A FRAMEWORK FOR ANALYSING THE SOCIAL AND ENVIRONMENTAL IMPACTS OF TOURISM**

Thus far, this scoping study has focussed on the economic dimensions of visitor yield. Given the variety of impacts of tourism however, it follows that, when assessing the yield of various tourists groups, the economic, social and environmental impacts of each group (both positive and negative) should be taken into account in assessing the overall 'value' of a particular market segment. Since visitors to any destination have social and environmental impacts, in addition to economic impacts, it is appropriate to consider how such impacts may be incorporated into yield measures and operationalised. The issues addressed in this chapter also serve as an introduction to the concept of 'sustainable yield' considered in Chapter 10.

Socially, it has been suggested that tourism can contribute to the removal of social or national prejudices, the promotion of better understanding and positive social change. It can encourage civic involvement and local pride in a destination and can play a supportive force for peace, foster pride in cultural traditions and help avoid urban relocation by creating local jobs. Tourism can facilitate intercultural understanding and global communication (MacCannell 1976). It can promote cultural exchange and facilitate meeting visitors.

Tourism can preserve the cultural identity of the host population, increase the demand for historical and cultural exhibits, and can lead to the preservation and revitalisation of local ethnic and cultural identity. Possible adverse social impacts of tourism include increased prostitution, drug taking and crime. Tourism may also contribute conflict between tourists and residents for available services, facilities, and recreational opportunities. Tourism can turn local cultures into commodities when religious rituals, traditional ethnic rites and festivals are reduced, sanitised and performed on demand to conform to tourist expectations, resulting in what has been called 'reconstructed ethnicity'. This can also lead to a skilling down of traditional crafts. The commercialisation and bastardisation of traditional cultural events, arts and crafts, can reduce or destroy their cultural value to both host and guest (Ap & Crompton 1998). Damage to cultural resources may arise from vandalism, littering, pilferage and illegal removal of cultural heritage items. Degradation of cultural sites may occur when historic sites and buildings are unprotected, the traditionally built environment is replaced or virtually disappears, or structures or places of religious/spiritual significance are displaced or desecrated to make way for tourist facilities.

Environmentally, tourism can be a relatively 'clean' industry and can foster conservation and preservation of natural resources. Work by Brown (2005) argues that, depending on the place attachment and place value that the community allocates to the landscape, conservation and preservation of the environment is an important part of community activity. Brown (2005) provides a means of measuring the value placed on the landscape and the areas of the landscape they are willing to allow tourists to use. Tourism can encourage community revitalisation and beautification, and can raise revenues for establishing administrative and planning controls to maintain quality of environment. Tourism development though, can also involve many activities that can have adverse environmental effects. These include impacts on: the range and number of flora and fauna species, water quantity, quality and use, air quality, waste production, recycling practices, efficiency of resource use, scenery degradation, and degraded quality of natural sites, introduction of non-native species, toxins and pollutants, habitat destruction, and direct impact on individual wildlife.

Given the variety of impacts of tourism it therefore follows that, when assessing the yield of various tourist groups, the economic, social and environmental impacts of each group (both positive and negative) should be taken into account in assessing the overall 'value' of particular market segments.

The effects listed above are, of course, not related exclusively to tourism. There are various powerful external and internal forces leading to changes in the natural environment from industrialisation and urban development. There are also cultural changes worldwide, from sources such as television, cinema, internet and written media that act independently of the tourism industry. When developing a measure of sustainable yield, however, it is important to identify the tourism induced impacts. We need, therefore, to develop a framework to investigate the different impacts of different types of tourists.

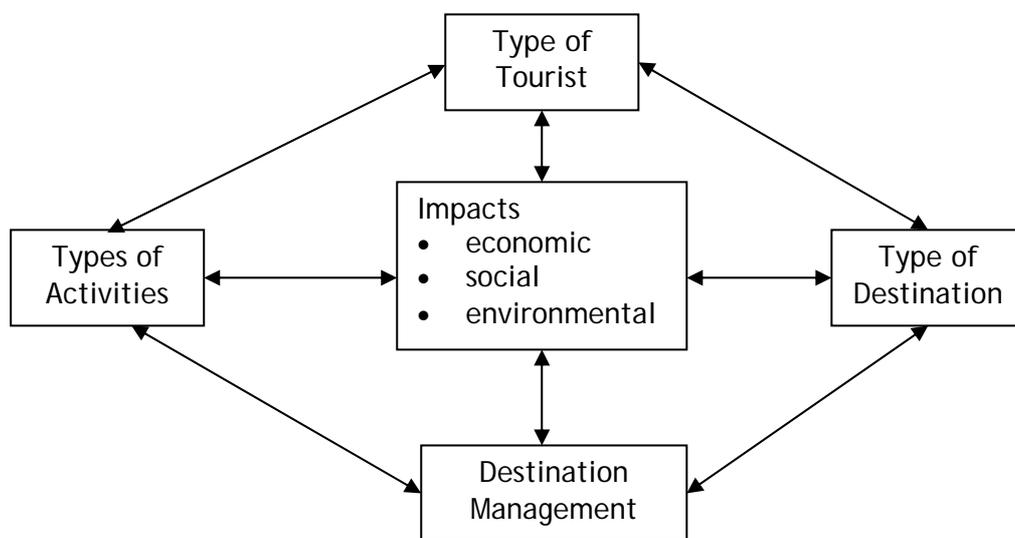
### **The Framework**

Different types of tourists, who tend to undertake different patterns of activities, will obviously have different types and levels of impact on a destination. But the same group of tourists doing the same things may have a differential impact depending on the characteristics of the community they are visiting. Some communities are far more robust than others, while others have specific needs that tourism can help address. Since the environmental and social impacts associated with a tourist will depend not only on the characteristics of the tourist but on activities undertaken and characteristics of the destination visited, a framework needs to include all of these dimensions.

The impacts that particular groups of tourists have on their hosts appear to vary with four sets of variables.

1. The characteristics of the tourists
2. The characteristics of the tourism activity
3. The characteristics of the destination
4. Destination management practices

Although destination management practices could be considered under characteristics of the destination, for our purposes we treat these as a separate category. The extent of the impacts, positive or negative, will depend in large measure on the framework of policies, regulations and instruments that comprise destination management. In the model presented a distinction is made between destination management activities undertaken by the public sector and destination management undertaken by the private sector. Included among the activities of the public sector we would find the development of national tourism strategies, marketing by the National Tourism Organisation, national and regional manpower programs, environmental protection legislation, etc. Included among the activities of the private sector we would find those of tourism/hospitality industry associations, industry involvement in and funding of destination marketing programs, industry training programs, industry adoption of 'green' tourism operations, etc. Figure 22 outlines the framework being considered.



**Figure 22: The proposed framework**

## **Characteristics of Tourists**

### **Tourist Motivations Values and Attitudes**

The motives for travel are likely to affect the impacts associated with various types of traveller, especially to the extent that motives are associated with activities undertaken. For example, business tourists are likely to have a quite different pattern of activities than tourists on holiday. The characteristics of various activities are discussed in Table 15.

Segmentation of tourists has been well researched in the area of understanding how and why tourists behave as they do. Tourists can be segmented by their travel career behaviour (Pearce 2005) where destinations are considered as different travel experiences according to the tourist's lifestyle, personality and motivational profile. More recently, however, tourist segmentation has focused on the lifestyle motivation for travel. Gonzalez and Bello (2002) for example use the application of attitudes, interests and opinions (AIO) to segment tourists. They suggest that tourist can be clustered into those who are Home-loving, Idealistic, Autonomous, Conservative and Hedonistic. Each cluster is characterised by particular preferences and behaviours that have application in studying the yield from tourists.

Tourists who are truly interested in the authentic local cultural experiences and meaningful interaction with local residents may contribute to the removal of social or national prejudices and the promotion of better understanding and positive social change. They may also support the preservation of local culture (Lankford 1994).

With regard to environmental impacts, tourists who have 'green attitudes' are more likely to behave in an environmentally sensitive manner when they travel. They can also foster conservation and preservation of natural resources and can encourage community revitalisation and beautification. Gonzalez and Bello (2002)

suggest that the Conservative type of tourist would most likely look after the environments they visit so that they have the opportunity to do so again in the future.

**Number of Tourists, Composition of Travel Party and Length of Stay**

The number of visitors obviously plays an important role in determining the nature of impacts on the natural environment and on communities within the host destination. Depending on management practices in the destination, tourism can raise revenues for establishing administrative and planning controls to maintain quality of environment. The expenditure associated with increased tourism numbers can enhance the contribution of tourism to a destination including the preservation of flora and fauna, historic areas, and cultural activities as a result of increased revenues for admission tickets to nature reserves, tourism attraction and facilities, historical and cultural exhibits and increased availability of recreation facilities/opportunities (Ap & Crompton 1998).

In general, increased numbers can be expected to magnify any adverse environmental and social impacts of tourism. A small number of visitors to an area with a large population may have minimal impact environmentally or socially while the higher the number of tourists to an area the more chance there is of adverse environmental effects and that the host community will be inconvenienced through increased prices and competition for shared amenities and attractions. Negative social and cultural impacts include increased prostitution, drug taking and crime, an increasingly hectic community and personal life, as well as competition and conflict between tourists and residents for available services, facilities, and recreational opportunities (Jurowski, Uysal & Williams 1997).

The more fragile the natural environment, the greater the degree of despoliation that can result from a given number of tourists. Adverse environmental impacts include the effects of pollution (air, water, noise, littering); loss of natural habitat including agricultural and pastoral lands; destruction of flora and fauna and vandalism; degradation of landscape and of historic sites and monuments; effects of conflicts over land use; effects of competition for scarce resources .

A concentration of large numbers relative to resident population, especially when also concentrated at one time, can lead to adverse social impacts such overcrowding of attractions and place excessive demands on existing infrastructure such as roads, public transport systems, water and electricity supply, and sewage disposal (Lankford 1996). Traffic congestion leads to loss of amenity; loss of leisure time; increased accidents, fuel consumption, and pollution in all of its forms. Increasing tourism numbers can magnify tensions between visitors and residents.

The length of a visitor’s stay also has an impact on the host community. The longer a tourist stays at a particular destination, the greater chance for tourists to penetrate more deeply into an area in environmental, economic and social terms.

**Relative Economic Status of Residents and Tourists**

Differences in economic status between tourists and residents can foster resentment by locals as well as raising their aspiration levels beyond that which is realistically achievable. A ‘demonstration effect’ can increase aspiration levels beyond the destination norm. This occurs where residents seek to copy tourist behaviour and spending patterns. These differences are likely to be less noticeable in developed countries than in less developed countries where the ‘demonstration effect’ can act to increase resident’s aspirations above what they can realistically attain.

**Table 15: Variables associated with the characteristics of tourists**

Variable	Examples of impacts and issues
Tourist Motivations, Values and Attitudes	Business travellers, leisure traveller, and those visiting friends and relatives are likely to have quite different activity patterns and therefore have different social and environmental ‘footprints’ on the host community.
	Differing values and attitudes of tourists may affect the extent to which they attempt to minimise their negative impacts on the destination. For example, a tourist who has strong environmental values may behave in a way that minimises damage to the local environment e.g. not littering, not venturing off site hardened tracks
	Visitors who are very culturally different (especially if they tend toward being psychocentric) are likely to have quite different activity patterns from their hosts. They may also encourage the development of infrastructure which is not consistent with the socio-cultural milieu of the destination e.g. McDonalds.

Number of Tourists, Composition of Travel Party and Length of Stay	Tourists who travel in large groups (e.g. coach parties, cruise ships, etc) make a bigger impact in many instances. For example they are likely to contribute more to crowding, but they may have less impact on traffic, parking etc than small groups who each take individual cars.
	Groups travelling with children may have quite different activity patterns than adults travelling alone or together. Single gender groups may also be quite different e.g. sporting groups.
	Long stay tourists e.g. backpackers and educational tourists become more like short term residents. Their activity patterns are likely to become more like those of their hosts. They may also seek employment which may deny jobs opportunities to locals
Relative economic status of tourists and residents	Relative affluence is an issue, in some destinations where visitors are substantially more affluent than their hosts, particularly in terms of demonstration effects.

## **Characteristics of Tourism Activity**

### **Infrastructure**

The type of facility involved in the activity has implication for the social impacts. If activities take place in areas which comprise the activity space for locals there is a danger of congestion reducing the amenity of these areas for local residents. However, if the activities require the development of new infrastructure then this may represent an additional resource which can enhance the quality of life of locals.

Activities which use infrastructure which is already used by locals for their own purposes may cause congestion and deny residents access especially in the case of natural resources where the infrastructure cannot be further developed, for example, the beach (Jurowski, Uysal & Williams 1997). Where infrastructure can be further developed including roads, parking spaces, shopping and dining facilities, the impact of the activity will depend on the effectiveness of management strategies.

Conversely, activities which promote the development of new infrastructure, for example cafes and restaurants, attractions and retail outlets may bring benefits to a community if the infrastructure is desirable and accessible to locals and if supply keeps up with demand.

The types of transport used will also determine the types of environmental impacts from tourism. Tourists on a bicycle or hiking vacation are likely to generate less carbon emissions than those on a fly-drive vacation (Becken & Simmons 2002).

### **Demonstration Effect**

The demonstration effect referred to earlier, with regard to variation in economic status of hosts and guests can also relate to other behaviours, both positive and negative, depending on whether the behaviours which locals adopt from tourists are desirable in the context. For example, the adoption of a new sporting activity introduced by tourists may be seen as desirable; however, clearly delinquent behaviours such as drug use can have a very negative demonstration effect.

### **Activities Relating to Local Culture**

As mentioned earlier with regard to tourists' values, those who seek genuine cultural experiences in their travels provide a market for nurturing and supporting the local culture. However, where tourists are perceived to have particular expectations, the activities of local operators can lead to a gradual change or loss of local identity and values, brought about by several closely related influences. Thus, tourism can turn local cultures into commodities when religious rituals, traditional ethnic rites and festivals are reduced, sanitised and performed on demand to conform to tourist expectations, resulting in what has been called 'reconstructed ethnicity'. This can also lead to a skilling down of traditional crafts. The commercialisation and bastardisation of traditional cultural events, arts and crafts, can reduce or destroy their cultural value to both host and guest (Twining-Ward & Butler 2002).

Destinations risk standardisation in the process of satisfying tourists' desires for familiar facilities. Tourists often look for recognisable facilities in an unfamiliar environment, such as well-known fast-food restaurants and hotel chains. Further, there are many examples internationally of 'staged authenticity' - local operators adapting cultural expressions, rituals, performances to the tastes of tourists yet presenting them as if they were authentic (Stronza 2001).

## Level of Interaction

Activities vary in the extent to which they encourage interaction between hosts and guests. Fully integrated resorts (tourism enclaves) can minimise contact between residents and tourists with possible lower social impacts, but can also alienate sites from local access, reduce possibilities for meaningful interactions between hosts and guests, reduce local involvement in the industry, and reduce the economic contribution of tourism to resident population.

## Seasonality

Clearly a highly seasonal tourism sector has substantially different social impact on the host community than a seasonally stable industry. Workers and service providers do not have a stable source of income and demand on local infrastructure is not consistent. Table 16 lists the variables of infrastructure, demonstration effect and level of interaction as discussed above and demonstrates with examples.

**Table 16: Variables associated with tourist activity type**

Variable	Examples of impacts and issues
Activities which use existing infrastructure	Activities which use infrastructure which is already used by locals for their own purposes may cause congestion and deny residents access especially where the infrastructure cannot be further developed e.g. the beach. Where infrastructure can be further developed e.g. roads, parking spaces, etc, the impact of the activity will depend on the effectiveness of planning and management
Activities which promote the development of infrastructure	Activities which promote the development of new infrastructure e.g. cafes and restaurants, attractions, retail opportunities, etc may bring benefits to a community if supply keeps up with demand, and the infrastructure is desirable to locals.
Activities with a demonstration effect	Some activities may expose locals to new experiences (demonstration effect) and the impact of this will depend on whether these activities are desirable e.g. promotion of sporting activity may be a positive outcome, while exposure to delinquent behaviour would be a negative outcome
Activities which promote and /or commodify local culture	Activities which celebrate local culture have the potential to support and promote local culture or to commodify it, depending on the effectiveness of management
Level of interaction	Various activities are more or less likely to encourage interaction between hosts and guests which can be either good or bad
Seasonality	Seasonal tourism activity concentrates the impacts of tourism over a short period of time

## Characteristics of the Destination

### Environmental and Heritage Features of the Destination

Typically, the aesthetically pleasing environments to which tourism is linked are among the least resilient, including fragile natural areas and ecosystems, historic cities, heritage sites and ancient monuments.

Depending on the destination characteristics, tourism development involves many activities that can have adverse environmental effects. These include impacts relating to: species demographics; water quantity, quality and use; air quality; waste production; recycling practices; efficiency of resource use; scenery degradation; and degraded quality of natural sites. The introduction of non-native species, toxics and pollutants, habitat destruction may also direct impact on individual wildlife.

Elements of culture at a destination include: handicrafts; language; traditions; gastronomy; dress; art; architecture; leisure activities; music; dance; belief systems; and types of work engaged in and technology used. Certain types of society (small, unsophisticated, isolated) are much more vulnerable to the pressure for cultural change brought about by tourism.

## **Social and Cultural Characteristics of Destination**

The strength of the local culture and the political and nationalistic feelings of residents will also affect the level of impacts on a community. The strength of local culture and general education levels can help cushion adverse socio-cultural impacts and reinforce the positive impacts of tourism development. The social and cultural characteristics of the tourists are also an influencing factor effecting social impacts on the host community. The more alike the host community and the tourist are in their social and cultural characteristics, the less chance for clashes to occur.

Similarly, political, religious and nationalistic feelings among local population can cause hostility to tourism development particularly projects involving foreign ownership. Residents may also develop hostile attitudes towards immigrant labour which may expand in the tourist season. A number of studies have examined the impact of tourism on the community from a range of perspectives. Gursoy, Jurowski and Uysal (2002) found six main components that contribute to a community's perspective. Host community support for tourism development was affected by the level of community concern of local residents; the use of the tourism resource base by local residents; the level of ecocentric values of local residents; the state of the local economy; the perceived cost; and the perceived benefits of the tourism development.

## **Stage of Economic Development of Destination**

The more economically 'developed' a destination is prior to tourism development in general, the smaller the economic, environmental and socio-cultural impacts of any given expansion of tourist facilities. A similar argument could be made about the level of tourism development in the region. Incremental increases in impact are likely to be smaller as the tourism industry develops. The Tourism Destination Life Cycle Model (Butler 1980) describes how changes in the number and type of tourist over time are associated with changes in infrastructure, environmental assets, and the competitive environment. It is suggested that at the more advanced stages of tourism development, which are characterised by high volume mass tourism, impacts will reach a level which will annoy local residents and result in more negative perceptions of tourism. Doxey's Irridex Model (1975) similarly suggests that the residents' responses to tourism will pass through a series of stages (euphoria, apathy, irritation, and antagonism) as continued exposure to tourism's (often intensifying) negative impacts is reflected by increasing annoyance. However, there are many examples where this is not the case. There are examples of destinations with advanced tourism industries where high levels of resident support can be observed such as Hawaii, USA (Liu & Var 1986) and the Gold Coast, Australia (Faulkner & Tideswell 1997). A possible explanation for the apparent robustness of these communities is that they have a higher tourism carrying capacity.

## **Carrying Capacity of Destination**

Each destination, and sites within destinations, has a carrying capacity that determines a visitation demand ceiling. Carrying capacity is '...the point beyond which further levels of visitation and development would lead to an unacceptable deterioration in the physical, and social environment and of the visitor experience' (Archer & Cooper 1994: 73-74).

There are at least two dimensions of carrying capacity within this definition, physical and social-psychological carrying capacity. The physical capacity of a destination or site is determined by availability of space, the form of the landscape and the carrying capacity of the land. It recognises that there are physical limits to increasing tourism numbers. This notion is related to that of ecological capacity which focuses on the demands on the landscape, and requires tourism levels which do not damage the soil, plants or animals. At some point reduced environmental quality occurs due to overuse of environmental resources, resulting in adverse impacts such as increasing pollution (noise, water, waste discharges), wear and tear on historic sites, loss of flora and fauna, degradation of scenery, destruction of wildlife habitat etc. Physical/biological carrying capacity methods determine the attributes of a physical environment that will be affected by tourism use and the amount of use that can be absorbed without significant degradation of an area.

Social-psychological capacity is determined by resident lifestyles and interests and their attitudes towards tourism, as well as the possible activities, behaviour, and attitudes of visitors. This notion of capacity recognises that there is a limit based on the tolerance of visitors by the host population. At some point, increasing visitor numbers can lead to resentment or even hostility by residents.

It is important to decide 'How many visitors are wanted', rather than 'How many can be attracted' (O'Reilly 1986:254). From the visitor perspective also, large numbers of tourists may reduce the quality of their visitation experience (crowding, congestion etc). Additionally, the seasonal nature of tourism can promote immigrant workforce and attendant social problems.

There are no satisfactory indicators of carrying capacity or the ability of environments to sustain tourism. Johnson and Thomas (1991:129) state that the Socially Optimal Visitor Flow will occur where marginal social benefits are equal to marginal social costs, that is, where the net social gain from visitors is maximised. This

optimal visitor flow is difficult to measure however.

The Limits of Acceptable Change process allows everyone affected by tourism development to be involved in deciding the scale and type of development wanted in a destination area.

### **Type of Tourism Products at Destination**

Cultural sites and natural sites are particularly sensitive to use by tourists and can only sustain low density developments, but recreation sites such as beaches, can sustain higher levels of use.

Firms emphasising short term profit maximising behaviour are likely to invest for maximum capacity and density as close to environmentally valued attractions as possible, with low expenditure on repairs and maintenance and resulting deterioration of tourism plant.

Firms that emphasise long term profits are more likely to take account of environmental considerations in their decision making. Recognising that long term profitability depends on preservation of attractive features of environment, these firms are likely to undertake lower density tourism development and aim for less than capacity usage with less adverse environmental impacts. Smaller scale projects have better potential to blend more harmoniously with socio-cultural and environmental features. Smaller development can also be designed with sufficient flexibility and variety to meet changing demand.

Table 17 illustrates with examples of impacts and issues of the points discussed for characteristics of destination.

**Table 17: Variables associated with Characteristics of the Destination**

<b>Variables</b>	<b>Examples of impacts and issues</b>
Environmental and heritage features of destination	Typically, the aesthetically pleasing environments to which tourism is linked are among the least resilient, including fragile natural areas and ecosystems, historic cities, heritage sites, and ancient monuments.
Social and cultural characteristics of Destination	The strength of the local culture and the political and nationalistic feelings of residents will also affect the level of impacts on a community.
Stage of tourism development	Residents in destinations in the earlier stages of tourism development are likely to be more accepting of social impacts but also more vulnerable.
Speed of tourism develop	Communities which pass through the stages of tourism more rapidly have less time to acclimatise to the impacts and are therefore more vulnerable
Social carrying capacity – tourists resident ratio	Higher tourist resident ratios would likely increase social impact but this needs to be considered in light of the social carrying capacity of the destination.
Type of community	The size, remoteness etc of a destination are likely to affect social carrying capacity.
Stage of economic development	A community which has alternate industrial bases is likely to be less tolerant of tourism than one which is economically reliant on tourism, especially as the latter type of community is likely to have substantial proportions of the population employed in tourism. A more reliant community may be more vulnerable because they would feel the need to tolerate the negative social impacts in order to maintain the positive economic impacts
Types of Tourist products	The type of tourism development will influence the resulting impacts from tourist activity
Socio-political values / community vision	Whether the residents actually want tourism or not, and what level of tourism they feel is appropriate is clearly going to be important in the perception of social impact.

## **Destination Management Practices**

Tourism can encourage community revitalisation and beautification, with its capacity to raise revenues for establishing administrative and planning controls to maintain quality of environment.

Carrying capacity is an important planning concept that can be prescriptive in assigning a preferred type and amount of use to a tourism site. The determination of optimal levels of development can help in planning and managing the degree and direction of environmental change. Once the carrying capacity for an area has been established, management policies and control systems can be enacted to restrict unhampered growth. These can include the use of visitor management techniques such as user fees, management of visitor flows, traffic restrictions etc.

The expenditure associated with increased tourism numbers can enhance the economic contribution of tourism to a destination including the preservation of flora and fauna, historic areas, and cultural activities as a result of increased revenues for admission tickets to nature reserves, tourism attraction and facilities.

The category includes the activities of destination management organisation, destination marketing management, destination policy, planning and development, human resource development and environmental management (Ritchie & Crouch 2000).

In this chapter the framework presented explored the social and environmental impacts that tourism and particular groups of tourists have on their host destination using a set of four variables: characteristics of tourists; characteristics of tourism activity; characteristics of destinations; and destination management practices. The next step is incorporating and operationalising these impacts into tourism yield measurements. The following two chapters discuss the issues with incorporating the social impacts and develops a model for their operationalisation.

This framework underpins the discussion of the social and environmental aspects of yield in Chapters 8 and 9.

*Chapter 8*

## **INCORPORATING SOCIAL IMPACTS INTO A MEASURE OF TOURISM YIELD**

The aim of this chapter is to translate the framework discussed in the previous chapter into a operational measurement of the social impacts associated with different types of tourism. Substantial empirical research will be necessary to more solidly underpin this process, and modification may be required along the way; however, the following five stage procedure is proposed at present.

1. Profile destinations based on their characteristics
2. Identify the characteristics which define the key market segments of tourists attracted to each destination.
3. Identify the types of activities that each market segment undertakes
4. Identify the social impacts associated with various activities and travel behaviours
5. Consider the management practices of each destination and how effective they are in promoting positive impacts and ameliorating negative impacts associated with the tourists and their activities.

### **Profiling the Destination**

In chapter seven, a wide array of variables was identified as characteristics of the destination. Operationally though, a framework has to be simple in order to be effective, so the number of variables to be considered needs to be limited to the key issues. Many of the variables associated with community type could be aggregated into an indicator of destination robustness. A checklist, as shown in Table 18, could be used to classify destinations into three levels of robustness. A destination which scores predominantly in the first column would be considered vulnerable, while one that scored predominantly in the third column would be considered robust. In this way, case studies could then be undertaken on destinations which fit into each category to promote the external validity of the results and therefore the usefulness of the finding in drawing conclusions about similar destinations.

**Table 18: Destination robustness checklist**

Community size	Small	Medium	Large
Stage of Tourism Development	Early	Mid	Late
Tourist Resident Ratio	Low	Medium	High
Remoteness	Highly remote	Moderately remote	Not remote
No of industrial bases	No other industry	1-2 other industries	Many other industries
Seasonality	Highly seasonal	Moderately seasonal	Not seasonal
Environmental vulnerability	Vulnerable	Mid	Robust
Cultural vulnerability	Vulnerable	Mid	Robust
Level of resident support for tourism	Low	Medium	High

### **Identifying the Characteristics of Tourists**

With regard to the characteristics of tourists, it is similarly important to simplify the range of variables when developing a measurement tool. Notwithstanding the obvious importance of values and attitudes in predicting the behaviour of tourists, these are not readily observable characteristics. Therefore, in the first instance at least, it would be simpler to look at readily identifiable special niche market segments such as those introduced in Chapter 4. These groups are easily identified in the Tourism Research Australia surveys and their activities and infrastructure usage preferences can be averaged across the group, assuming an appropriate level of homogeneity is observed. Clearly these are just examples and investigation is possible of any segment that can be defined by

the full range of demographic and travel behaviour characteristics measured in the secondary data. These variables are also summarised in Table 19.

**Table 19: Segmenting tourists based on characteristics**

Example market segment	Potential segmenting variables
Japanese Honeymoon	Country of residence
Business Travellers	Age
Backpackers	Reasons for travel
Hong Kong First Timers	First or repeat visit
Malaysian Repeaters	Travel party
New Zealand Matures	Accommodation used
Conference attendees	Transport used
Malaysian Matures	Identification with particular segment e.g. ecotourist, backpacker
Canadian Matures	Activities undertaken
Malaysian First Timers	
UK Repeaters	

### Identifying the Activities of Market Segments

Once the key market segments for each destination are identified, the activities and travel behaviours of the segment can be examined as shown in Table 20. The value associated with each activity for each segment represents the factor above average participation rates for all tourists. For example, the percentage of Japanese Honeymooners who go snorkelling is 3.5 times higher than the average for all visitors to Australia. Other travel behaviours such as accommodation and transport usage can also be examined in this way.

**Table 20: Top 5 (or less) factors for each niche market (activities where participation rates are above average)**

Japanese Honeymoon		Conference attendees		Business Travellers		Malaysian Matures	
Snorkelling	3.52	Visit casinos	1.19	Business travellers have below average participation rates for all activities		Play golf	2.11
Visit amusement or theme parks	3.24	Visit history or heritage buildings or monuments	1.16			Visit farms	1.40
Tourist trains	2.93					Go to markets (e.g. street, arts & crafts)	1.22
Go on guided tours or excursions	2.84					Go shopping (for pleasure)	1.05
Scuba diving	2.09						
Hong Kong First Timers		Malaysian First Timers		Malaysian Repeaters		UK Repeaters	
Visit farms	2.34	Visit farms	3.03	Visit farms	1.35	Attend an organised sporting event	2.24
Visit amusement or theme parks	1.99	Visit amusement or theme parks	1.67	Play golf	1.22	Visit art/craft workshops/studios	1.89
Visit casinos	1.52	Visit wineries	1.61	Visit casinos	1.11	Go whale/dolphin watching in the ocean	1.83

Go fishing	1.47	Go whale or dolphin watching in the ocean	1.43	Go fishing	1.08	Visit wineries	1.83
Tourist trains	1.32	Visit wildlife parks/zoos/aquariums	1.34	Go to markets (e.g. street, arts & crafts)	1.04	Go fishing	1.73
<b>Backpackers</b>		<b>Canadian Matures</b>		<b>New Zealand Matures</b>			
Scuba diving	4.86	Visit an Aboriginal site/community	2.93	Visit art/craft workshops/studios	1.71		
Visit the outback	4.56	Experience Aboriginal art/craft and cultural displays	2.61	Visit pubs, clubs and discos	1.12		
Visit an Aboriginal site/community	4.34	Visit wineries	2.50	Play golf	1.07		
Go whale/dolphin watching in the ocean	3.87	Visit the outback	2.14				
Experience Aboriginal art/craft and cultural displays	3.67	Visit art/craft workshops/studios	1.97				

The factors represent the number of times more likely the segment is to participate in the activity than average.

### **Identifying the Social Impacts Associated with Various Activities**

The previous steps in the process were relatively easy given that appropriate secondary data sources exist to provide evidence. However, there is little to no empirically tested evidence of the link between various activities (and other travel behaviours) and a measure of social impact. This empirical testing must be undertaken to advance the development of social yield measures. Table 21 provides a matrix of a range of activities and a range of social impacts. The matrix could be completed through a survey, perhaps using a Delphi technique, with a small expert sample of tourism stakeholders in the destination under examination. Preliminary secondary data analysis would be used to identify the key market segments and their dominant activities and travel behaviours. The expert panel could then rate the social impact of each group in terms of each specific impact.

The social impacts included in the matrix are those which have been used in an instrument developed by the STCRC to measure host community perceptions of the impacts of tourism. The items are presented to respondents, comprising a sample of local residents of the tourist destination, and they are asked to rate the impact on quality of life. The full wording of the items is shown in Table 21, along with a summary descriptor which is used in the matrix for simplification. Other social impacts can be included if deemed appropriate for the specific destination.

**Table 21: Social impact items**

<b>New entertainment opportunities</b>	Because of tourism, there are more interesting things to do in the region (e.g. attractions to visit, events to attend)
<b>Waste of public money</b>	Too much public money is spent on developing facilities for tourists that would be better spent on other public activities.
<b>Disruption</b>	Tourism disrupts the lives of local residents and creates inconvenience. Problems like traffic congestion, parking difficulties and excessive noise are worse when there are lots of tourists around.
<b>New public facility development</b>	Tourism promotes the development and better maintenance of public facilities such as roads, parks, sporting facilities, and / or public transport.
<b>Delinquent behaviour</b>	Tourism is associated with some people behaving inappropriately, perhaps in a rowdy and delinquent way, or engaging in excessive drinking or drug use or other criminal behaviour.
<b>Pride</b>	Tourism makes local residents feel more proud of their town and makes them feel good about themselves and their community.
<b>Regional showcase</b>	Tourism showcases our region in a positive light. This helps to promote a better opinion of our region and encourages future tourism and/or business investment.
<b>Prices</b>	Tourism leads to increases in the prices of some things such as some goods and services and/or property values and/or rental costs.
<b>Justice</b>	The distribution of the costs and benefits of tourism are distributed unfairly across the community.
<b>Deny access</b>	Tourists deny local residents access to public facilities, that is, roads, parks, sporting facilities, public transport and/ or other facilities were less available to local residents because of overcrowding.
<b>Change character</b>	The character of the region has changed because of tourism.
<b>New infrastructure</b>	There are better shopping, dining, and /or recreational opportunities in the region, because of tourism.

In addition to the activities listed in the matrix, other travel behaviours such as accommodation and transport usage patterns associated with the market segments could also be evaluated for their social impact which are shown as a matrix in Table 22.

**Table 22: Social impact by type of tourist activity**

Activity	New entertainment	Waste of public money	Disruption	New public facility development	Delinquent behaviour	Pride	Regional showcase	Prices	Justice	Deny access	Character	New infrastructure
Go to the beach (incl swimming, surfing, taking a picnic etc)												
Visit national and/or state parks												
Visit botanical gardens or other public gardens												
Go whale/dolphin watching in the ocean												
Visit the outback												
Visit farms												
Go fishing												

<b>Activity</b>	<b>New entertainment</b>	<b>Waste of public money</b>	<b>Disruption</b>	<b>New public facility development</b>	<b>Delinquent behaviour</b>	<b>Pride</b>	<b>Regional showcase</b>	<b>Prices</b>	<b>Justice</b>	<b>Deny access</b>	<b>Character</b>	<b>New infrastructure</b>
Play golf												
Attend theatre, concerts or other performing arts												
Visit museums or art galleries												
Visit art/craft workshops/studios												
Attend festivals/fairs or cultural events												
Experience Aboriginal art/craft and cultural displays												
Visit an Aboriginal site/community												
Visit history/heritage buildings or monuments												
Visit amusements/theme parks												
Visit wildlife parks/zoos/aquariums												
Go on guided tours or excursions												
Go to markets (e.g. street, arts & crafts)												
Tourist trains												
Visit wineries												
Visit pubs, clubs and discos												
Visit casinos												
Attend an organised sporting event												
Go shopping (for pleasure)												
Scuba diving												
Snorkelling												
Go on a charter boat/cruise/ferry ride												
Visit a health spa												
Undertake a short educational course												
Go on bushwalking and/or rainforest												

## **Destination Management Practices**

As previously discussed, destination management practises are integral to determining the level of impact on a community and they also form the link between impacts and the ultimate effect on yield. Good management can ameliorate the negative impacts and therefore expenditure on management practices provides an indication of the social yield. For example, if destination management practices completely ameliorate the negative social impacts of tourism, the cost of doing so represents the amount that must be subtracted from the economic yield of tourism to calculate a measure of sustainable yield. Destination management practices can also promote social benefits. In theory, some estimate of the dollar value of this benefit (minus the expenditure used to derive it) should be added to economic yield measures, although this is far more difficult exercise because many of the benefits of tourism, such as community pride, have no objective dollar value.

## **Conclusion**

The consideration of social yield is new to tourism research and thus little of the work described above has been completed. However, much of the recent work that the STCRC has done in social impact assessment is valuable in underpinning the progression of the development of social yield measures. The framework presented in this chapter provides one model for examining the social effects of tourism and a potential measure for determining the costs and benefits of each of these effects and impacts.

The discussion above has explored the issues involved in incorporating social impacts into measures of tourism yield. A method of operationalising the measurement of social yield is developed. This method involves four steps: profiling communities in terms of their robustness, socio-political values and the effectiveness of tourism management in the destination; examining the relationship between the characteristics of tourists and the activities they undertake; examining destinations in terms of the tourist groups they attract large proportions or greater than average proportions of; and analysing the activities associated with those groups in terms of their social impacts in that type of community.

We now proceed to discuss issues involved in incorporating environmental impacts into measures of tourism yield. The discussion consists of methodology, applicability and results of measuring environmental performance indicators and sustainable yield of tourism in host destinations.

Chapter 9

## INCORPORATING ENVIRONMENTAL IMPACTS INTO A MEASURE OF TOURISM YIELD

Governments, NGOs and corporations have shown great interest in identifying ways to apply the concept of sustainability. Practical examples include the notions of corporate citizenship or corporate social responsibility (CSR). CSR is currently dominated by the concept of the triple bottom line (TBL) (Elkington 1999) which has been referred to in earlier sections of this report.

The main practical problem associated with TBL reporting by a business operator is the quantification and incorporation of supply chain impacts (so-called system boundary problem). The boundary of environmental management indicators is generally identifiable as the extent over which the company can influence environmental management (Dey, Lenzen, Foran & Bilek 2002), for example:

‘It is critical that the boundaries adopted for the purposes of reporting are clearly defined and obvious to readers of reports. Careful boundary definition also ensures a report can be verified and meaningful comparisons can be made between information from different reporting periods.’  
(Environment Australia 2003)

For example, the boundary for environmental performance indicators is however, much more difficult to define than for environmental management indicators. This is due to the complexity of the modern economies in which companies operate (see Foran et al. 2005; Suh et al. 2004 for more details). In a total upstream approach, or life cycle view, there are an infinite number of (diminishing) inputs that supply the economic entity<sup>1</sup> of interest, and for which there will be environmental performance consequences. Most audit approaches do not extend above the first level of suppliers, such as on-site emissions of a company and emissions from a coal-fired power plant that supplies electricity to the company, and identifying a clear boundary for the analysis across all indicators is impossible. Whilst important local or on-site effects are captured by the audit, the considerable economy-wide effects are not accounted or reported. This is of great importance for the tourism industry, in particular as tourists have manifold impacts which go far beyond the accommodation facilities and tour operators. For example, a company may be heavily reliant on a component bought from a supplier. A competitor may produce the component for themselves. The TBL assessment of companies will therefore be very different, since a reporting company does not include the TBL effects of its suppliers (see Nichols 2003). An audit approach to TBL assessment typically only reports on local or on-site indicators, since the assessment of the wider implications of operations is simply not tractable (Foran et al. 2005). The investigation of the primary supply chain can only be obtained from extended company audits. Further off-site (or so-called upstream) processes of the supply chain are left out. The boundary issue is the same for environmental, economic and social indicators. This has been identified by the Global Reporting Initiative (GRI) as a major methodological weakness in its current reporting framework. Therefore, the GRI has formed a ‘system boundary working’ in order to further investigate and solve this issue (GRI 2002b).

In addition, there are several other requirements of TBL reporting. The reporting methods should:

- Be reasonably simple in output terms and able to be understood and accepted by company management, investors, public policy makers and the public.
- Produce indicators that are based on a common unit of understanding (a metric).
- Be able to be used at a number of levels such as for economic sectors, individual firms or government institutions.
- Reflect the complexity of modern economic systems and be rigorous enough to meet economic challenge.
- Be able to report the direct effects that exist in the immediate requirements of a particular sector or company, as well as indirect effects that account for the range of goods or services obtained from other sectors or companies.
- Provide a stimulus to management change and innovation if the particular sector or company report details a number of issues that are at odds with economy wide expectations or norms (see Foran et al. 2004 for details).

In order to overcome the above listed limitations in general and the limited approach with ‘narrow system boundaries’ in particular, an alternative approach is proposed and applied to the tourism industry as tourists have wide economic, environmental and social impacts on many entities.

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<sup>1</sup> An economic entity might be an individual, a company, an organisation or a region.

## Methodology

### Background

The methodology for 'triple bottom line' analysis, grounded in a quantitative economic methodology input-output analysis, has been developed by the authors. In this paper it is extended to accommodate the wide range of scales and institutions implicated in sustainable chain management. The authors and others have developed a generalised analytical approach to whole economy analysis (Lenzen 2001), energy and greenhouse (Lenzen 1998), water (Lenzen & Foran 2001), building design (Treloar, Love & Holt 2001), ecological footprinting (Lenzen & Murray 2001), life cycle analysis (Lenzen 2002), consumer choice (Lenzen & Dey 2002) and triple bottom line reporting (Lundie & Lenzen 2005; Dey et al. 2002).

Boundary issues are fundamental to most of the underlying principles of sustainable chain management. They are central to the TBL reporting principles of completeness, consistency, accuracy, and neutrality. They apply to products and organisations of all types and sizes, and any comparison between different entities is only valid if the boundaries of the analysis are handled with a complete and transparent methodology.

For organisations and individuals, such as tourists, operating in national economies within an increasingly global framework, the economic, social and environmental impacts do not recognise borders. The boundaries of impacts may be local, regional, transnational, or global. For example, physical boundaries such as those involved in the land for a factory, the direct fuel combustion at a factory and the resulting local emissions, and so on, are valid for covering some impacts of an organisation. However, many other impacts, in fact, often the majority, occur beyond clearly identifiable physical boundaries.

This total upstream approach - encompassing all inputs - thus removes the boundary problem for assessing economic entities and /or consumers. To illustrate this, consider the case of the supply of a service to a tourist who travels by train to a tourist attraction. In the provision of this journey there is a myriad of upstream inputs, as depicted schematically in Figure 23. In this hypothetical five-sector economy there is a hierarchy of production layers. For example, the most immediate environmental impact that comes to mind, is that of the generation of electricity for powering the train. But, what of the further upstream process of the energy involved in the production of the train itself? As shown in Figure 23, this production tree extends indefinitely in production layers upstream in an increasing complex combination of the five sectors. This can accumulate to many thousands upstream suppliers as an analysis seeks to account for more than 95% of the total effects (Lenzen & Trelor 2002; Suh et al. 2004). Techniques used in process analysis, conventional life cycle analysis and sustainable chain management may encompass the zero, first and second order effects depicted in Figure 23, but few methods are able to expand the boundary of analysis out to a full system boundary (Foran et al. 2004).

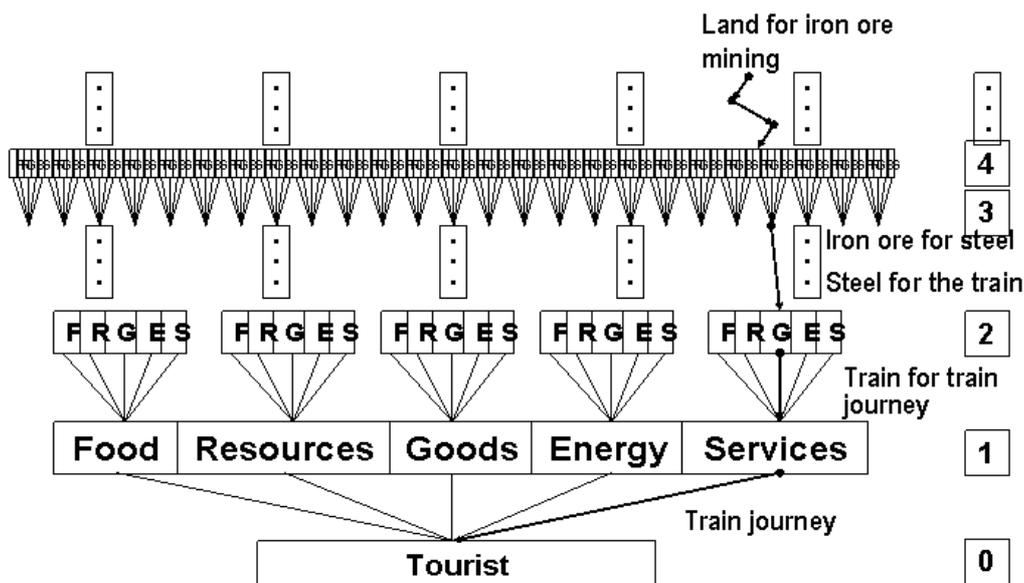


Figure 23: Industrial interdependencies in a modern economy (Foran et al. 2005)

## Applicability

The essential output of the analytical approach is that it gives a range of intensity values that relate key reporting issues against one unit of GDP (see Table 23). Its application to the concept of triple bottom line accounting for 135 sectors of the Australian economy allows a range of indicators to be developed that include both the direct effects (that a process analysis undertakes on a traditional activity, product or firm) as well as the full chain of indirect effects through to the full system boundary. Available data allow calculating environmental, economic and social indicators:

- *Environmental*: Environmental issues are described in terms of kilograms of greenhouse gas generated, litres of water used and square metres of land disturbed for each dollar of GDP.
- *Economic*: In economic terms the intensities are expressed in terms of dollars of exports generated per dollar of value added in that sector.
- *Social*: Social issues are quantified such as minutes of employment generated per dollar of GDP.

**Table 23: List of ten TBL indicators developed by ISA and their data sources**

Macro Indicator (and unit)	Brief description	Data Source
Primary energy (MJ)	Combustion of all non-renewable fossil fuels	ABARE Energy Statistics
Greenhouse gas emissions (kg CO <sub>2</sub> -e)	Carbon dioxide equivalent impact of all gases affecting climate	National Greenhouse Gas Inventory
Water use (L)	Consumption of all mains and self-extracted surface water	ABS Australian Water Accounts
Land disturbance (hectares – ha)	Land use, weighted by intensity of impact	Various, including CSIRO
Imports (\$m)	Value of all goods and services purchased from foreign residents	ABS Input-Output Tables
Exports (\$m)	Australian production destined for consumption outside Australia	ABS Input-Output Tables
Surplus (\$m)	Operating profits and expenditure on fixed capital	ABS Input-Output Tables
Government revenue (\$m)	All taxes less subsidies	ABS Input-Output Tables
Employment (hours)	Full time equivalent employment	ABS Australian Labour Statistics
Income (\$m)	Total compensation for employees	ABS Input-Output Tables

## Input-Output Analysis

In this study, a hybrid approach is employed, combining input-output analysis with an on-site audit for tourist accommodation. In this approach, the direct (on-site) requirements of different tourists are assessed, while all remaining higher-order requirements (for materials extraction, manufacturing, and services) are covered by input-output analysis. An example for a higher-order requirement is the land mined by iron ore mining operators to provide the iron ore for the steel to manufacture construction machinery used for building a hotel for tourists. Hybrid techniques have been applied previously in a number of life-cycle assessments (compare Bullard, Penner & Pilati 1978, Lave et al. 1995, Treloar 1997, Hondo & Sakai 2000, Joshi 2001, Lenzen 2001a).

Input-output analysis is a top-down economic technique, which uses sectoral monetary transaction data to account for the complex interdependencies of industries in modern economies. Generalised input-output frameworks have been applied extensively to environmental analysis since the late 1960s (see for example Isard et al. 1967; Leontief & Ford 1970). The result of generalised input-output analyses is a  $f \times n$  matrix of *factor multipliers*, that is embodiments of  $f$  production factors (here: primary energy, greenhouse gas emissions, water use and land disturbance) per unit of final consumption of commodities produced by  $n$  industry sectors. A

multiplier matrix **M** can be calculated from a  $f \times n$  matrix **F** containing sectoral production factor usage, and from a  $n \times n$  direct requirements matrix **A** according to:

$$\mathbf{M} = \mathbf{F} (\mathbf{I} - \mathbf{A})^{-1} \quad (1), \text{ where } \mathbf{I} \text{ is the } n \times n \text{ unity matrix.}$$

The  $f \times 1$  primary energy, greenhouse gas emissions, water usage and land disturbance inventory  $\Phi$  of the tourist is then determined by multiplying the tourists' expenditure (represented by a  $n \times 1$  commodity inputs vector **y**) with the multiplier matrix **M**, and adding a  $f \times 1$  vector  $\Phi_d$  of direct (on-site) primary energy, greenhouse gas emissions, water usage and land disturbance:

$$\Phi = \mathbf{M} \times \mathbf{y} + \Phi_d \quad (2)$$

An introduction into the input-output method and its application to environmental problems can be found in papers by Leontief and Ford (1970), Duchin (1992), and Dixon (1996). The mathematical formalism used to derive Equations 1 and 2, and some of the results presented in this article is described in detail in a previous article (Lenzen 2001a).

## Data Sources and Calculation

The calculation of the environmental impacts of tourists proceeded in two steps, i.e. direct and indirect impacts of tourist.

### Direct Impacts from Tourists - Data Sources and Calculation Procedure

An attempt was made to quantify direct impacts of tourist activity on primary energy and water consumption, greenhouse gas emissions and land disturbance (see Table 24). Average primary energy consumption and water usage figures were calculated for four types of accommodations, i.e. vacation hotels, motels, bed and breakfast establishments and hostels, by using two data sources:

1. Energy and water demand for different types of accommodation depending on the latitude (Earthcheck, 2005); and
2. Number of visitors to Australia per State and Territory (ABS, 2000a). Thereafter, tourists were classified into the four types of accommodation based on their daily expenditure.

However, no reliable data found for greenhouse gas emissions and land disturbance for accommodations and tourist activities. Hence, no direct impacts were calculated. Table 24 provides details, however, of average Australian energy consumption and water usage for various types of accommodation<sup>2</sup>

**Table 24: Average Australian energy consumption and water usage per type of accommodation (Earthcheck 2005, ABS 2000a)**

Accommodation	Energy consumption		Water usage	
Vacation Hotel	337	MJ/guest night	0.78	kL/guest night
Motel	168	MJ/guest night	0.27	kL/guest night
Bed and Breakfast	241	MJ/guest night	0.34	kL/guest night
Hostel	168	MJ/guest night	0.27	kL/guest night

### Indirect Impacts from Tourists - Data Sources and Calculation Procedure

First, primary energy consumption, water usage, greenhouse gas emissions as well as land use and disturbance multipliers (**M**, see Eq. 1) were determined using the 1994-95 Australian input-output tables (ABS 1999a), Australian energy consumption and production from the Australian Bureau of Agricultural and Resource Economics (ABARE 1999), Australian Water Accounts (ABS 2004), the National Greenhouse Gas Inventory (National Greenhouse Gas Inventory Committee 1998), and land use and condition data from various sources (see Lenzen & Murray 2001).

Second, expenditure data of tourists (see Table 25) was re-classified and compressed into the Australian input-output product classification (IOPC, Australian Bureau of Statistics, 1999b), yielding a commodity input

<sup>2</sup> However, the likelihood of on-site greenhouse gas emissions is relatively low, while there is for sure a small direct land disturbance caused by a tourist who is staying in an accommodation.

vector  $y$ . Several items turned out to be difficult to classify according to the Australian input-output product classification. Country-specific information on tourists was available on 'Local transport' (BTR 1990: 70) and 'Shopping to take home' (Survey of Overseas Visitors to Singapore 1999: 82-83). For the allocation of 'Food consumption', 'Shopping to use in Australia' and 'Entertainment' generic, non country-specific information was used, i.e. Australian Food Statistics, household expenditure survey (ABS 2000b: 9) and a Survey of Overseas Visitors to Singapore (1999: 82-83).

Indirect indicator inventories ( $M \times y$ , see Eq. 2) were then obtained by multiplying each item in the compressed account with its respective multiplier.

The overall primary energy, greenhouse gas emissions, water usage and land disturbance performance of each type of tourist is calculated by adding both direct and indirect effects (see Eq. 2 above).

**Table 25: Itemised expenditure data (\$) per tourist type and stay (selected niche markets, average of three years June 2002-June 2004)**

	Japanese Honeymooners	Conference attendees	Business travelers	Malaysian matures	NZ matures	FIT (Malaysia)	FIT (HK)	Repeaters (Canada)	Repeaters (UK)	German holidayers	Backpackers	Malaysian repeaters
Duration of stay	5.6	8.1	11.8	19.7	15.4	17.0	20.8	26.3	33.8	36.8	66.5	30.6
Organised tours	222	57	24	79	42	52	155	149	133	357	464	48
Airfares	1	15	54	44	19	36	64	59	125	106	153	33
Rental vehicles	2	23	47	19	73	18	23	116	103	396	115	41
Petrol and oil costs	1	8	18	16	26	9	7	55	57	159	94	41
Taxi and local public transport	4	52	93	26	26	49	56	43	71	54	117	71
Long distance public transport	0	5	3	8	10	9	4	18	23	55	109	6
Other transport fares	1	13	16	3	7	8	13	10	14	24	41	10
Food, drink & accommodation	3	104	220	23	29	57	155	57	86	102	163	105
Accommodation	8	375	532	132	219	237	279	464	488	660	1006	433
Food and drink	172	284	399	423	333	298	365	724	763	816	1248	572
Shopping to use in Australia	5	21	38	52	54	40	49	44	112	99	204	150
Shopping to take home	750	287	351	345	270	344	441	281	324	261	308	351
Gambling	9	17	72	73	15	45	19	11	26	4	18	74
Entertainment	9	24	32	21	41	32	64	57	87	91	177	63
Motor vehicles	0	8	36	0	13	11	3	88	83	42	89	181
Education	0	3	17	110	1	520	613	3	46	40	489	1175
Phone, fax & postage	3	20	45	12	9	23	41	21	45	43	69	73
Other expenditure	8	288	32	42	20	19	27	47	39	48	106	101
<b>Total</b>	<b>1198</b>	<b>1602</b>	<b>2030</b>	<b>1426</b>	<b>1205</b>	<b>1806</b>	<b>2381</b>	<b>2246</b>	<b>2626</b>	<b>3344</b>	<b>5028</b>	<b>3576</b>

Source: Tourism Research Australia, September 2004

## Results

The results are presented in three ways: environmental intensity per trip; per dollar spent; and per visitor night.

### Environmental Indicator Results per Trip

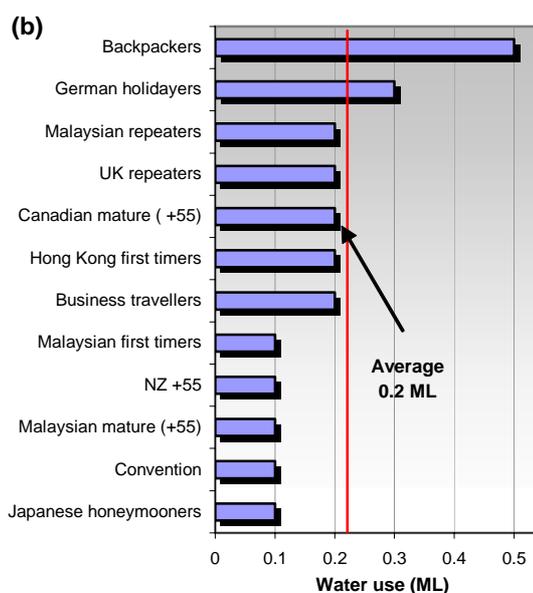
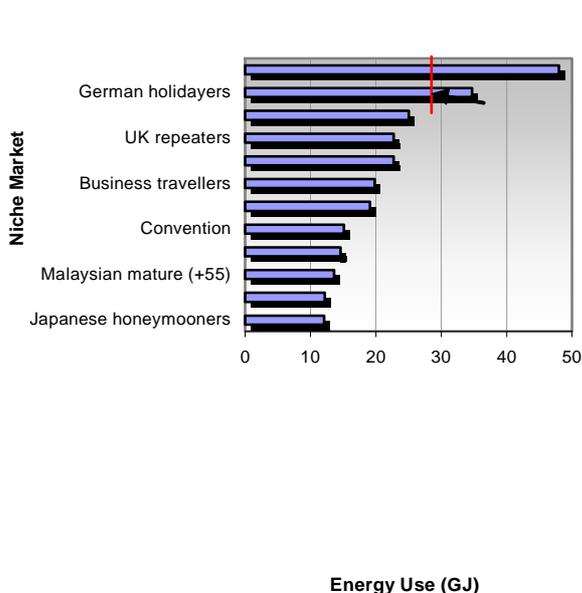
Table 26 summarises the environmental results per visitor trip for the selected special niche markets. Figures 24 (a-d) display the results. The highest absolute energy use is associated with Backpackers, German holiday makers, Malaysian repeaters, UK repeaters and Canadian mature, each of which consumes energy above the average (21.6 GJ). Above average water use (0.2 ML) is associated with the above mentioned, Hong Kong first timers and Business travelers. Above average greenhouse gas emissions (4.3 tCO<sub>2</sub>-eq.) and Ecological footprint (1.35 ha) are associated with Backpackers, German holiday makers, Malaysian repeaters, UK repeaters and Canadian matures.

### Environmental Indicator Results per Stay

Table 26 summarises the environmental results per visitor trip for the selected special niche markets. Figures 24 (a-d) display the results.

**Table 26: Environmental indicator results per visitor trip**

Environmental indicators	Unit	Japanese Honeymooners	Convention	Business	Mal +55	NZ +55	Mal first timers	HK first timers	Can +55	UK repeats	Ger man holidayers	BP	Mal Repeats	Average
Energy	GJ	12.1	15.1	19.8	13.6	12.2	14.6	19.1	22.7	22.7	34.7	48.0	25.0	21.63
Water use	ML	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.5	0.2	0.19
Greenhouse gas emissions	t CO <sub>2</sub> -eq.	2.5	2.8	3.7	2.9	2.5	2.8	3.6	4.8	4.8	6.5	9.5	4.9	4.28
Ecological footprint	ha	1.2	0.9	1.2	0.9	0.8	0.8	1.1	1.5	1.5	1.9	2.9	1.5	1.35



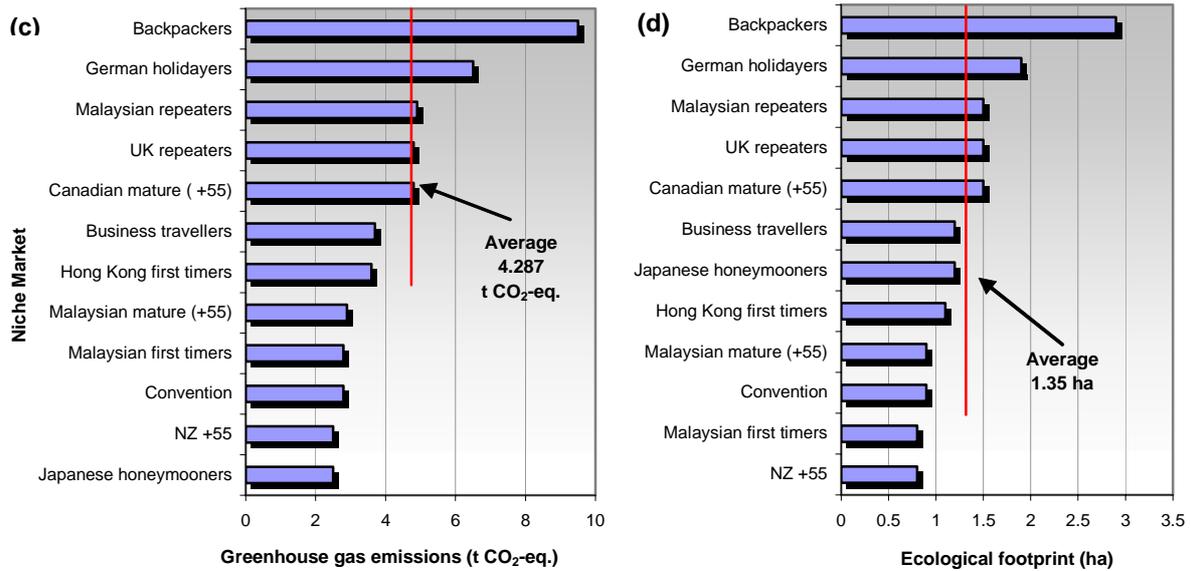


Figure 24: (a) Energy use per trip; (b) Water use per trip; (c) Greenhouse gas emissions per trip; (d) Ecological footprint per trip

### Environmental Indicator Results per Dollar Spent

Table 27 summarises the environmental results per dollar spent by each of the tourism niche markets. Figures 25 (a-d) display the results.

Each dollar spent requires roughly 9 MJ of primary energy, 0.1 kL of water, causes 1.8 kg of CO<sub>2</sub>-eq. emissions, and an ecological footprint of 0.6 m<sup>2</sup>. However, there are significant differences between the different types of tourist, such as the ratio of the least and the worst environmental performing tourist is higher than factor 2 for the ecological footprint indicator. Above average energy use per dollar spend was associated with German holiday makers, Canadian matures, Japanese honeymooners, New Zealand matures, Business travelers, Malaysian matures, Backpackers and Convention visitors. In respect of water usage, above average consumption was associated with Japanese honeymooners, New Zealand mature, Malaysian matures, Backpackers, German holiday makers, UK repeaters and Canadian matures. Each of these markets, excepting Business travelers was also associated with above average greenhouse gas emissions. Regarding ecological footprint, markets above average were Japanese honeymooners, Canadian, Malaysian and New Zealand matures. For all four measures below average impact was associated with Hong Kong and Malaysian first timers and Malaysian repeaters.

Table 27: Environmental indicator results per dollar spent by tourists

Environmental indicators	Unit	Japanese Honeymooners	Convention	Business	Mal +55	NZ +55	Mal first timers	HK first timers	Can +55	UK repeats	Ger man holidayers	BP	Mal Repeats	Average
Energy	MJ/\$	10.1	9.4	9.8	9.6	10.1	8.1	8.0	10.1	8.7	10.4	9.4	7.0	9.23
Water use	kL/\$	0.08	0.08	0.09	0.10	0.10	0.07	0.07	0.11	0.09	0.09	0.09	0.06	0.09
Greenhouse gas emissions	kg CO <sub>2</sub> / \$	2.1	1.7	1.8	2.0	2.0	1.5	1.5	2.1	1.8	1.9	1.9	1.4	1.81
Ecological footprint	M <sup>2</sup> / \$	9.9	5.7	5.8	6.7	6.6	4.6	4.7	6.7	5.7	5.8	5.7	4.1	6.0

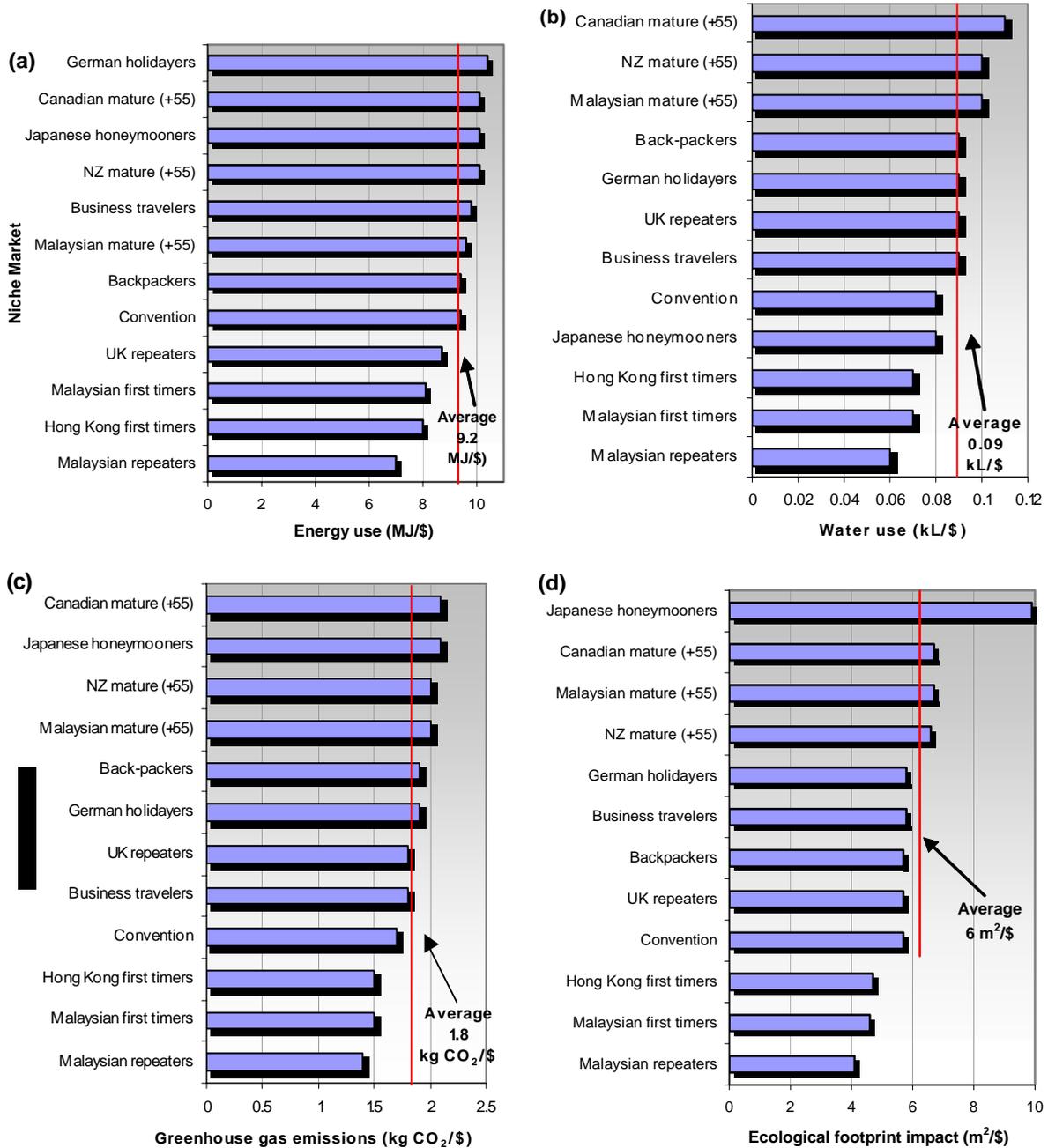


Figure 25: (a) Energy use per dollar visitor expenditure; (b) Water use per dollar visitor expenditure; (c) Greenhouse gas emissions per dollar visitor expenditure; (d) Ecological footprint per dollar visitor expenditure

### Environmental Indicator Results per Visitor Night

Environmental impacts per visitor night are derived from environmental indicator results per dollar spent and expenditure data of each type of tourist (see Table 28). Japanese honeymooners, convention visitors and business clearly cause higher environmental impacts per visitor night compared to other types of tourists due to higher expenditure. However, Japanese honeymooners have a noticeably higher primary energy demand, greenhouse gas emissions and ecological footprint compared to convention visitors and business travellers. This can perhaps be attributed to higher expenditure on items that are taken overseas, i.e. ‘Shopping to take home’. The other types of tourist do not differ with regard to the environmental indicator results despite the fact that the expenditure ranges from \$72 to \$117 per night.

On-site water consumption depending upon the type of accommodation as shown in Table 28, is negligible

compared to the off-site water consumption of products and services consumed by the tourists, i.e. roughly 4%<sup>3</sup>. The results are determined by ‘eating out’ and other food products purchased in supermarkets, i.e. dairy products, beef and vegetables. Tourists with expenditure below average (i.e. less \$94/visitor night) consume between 7-9 kL of water<sup>4</sup>, while convention visitors and business people have significantly higher water demands from ‘eating out’.

The results for greenhouse gas emissions and ecological footprint per visitor night are similar to the other two environmental indicators. However, Japanese honeymooners have by far the highest impact per visitor night to greenhouse gas emissions and ecological footprint possibly because of their high expenditure on leather products and clothing. Tourists with expenditure below the average are hard to distinguish. This may be attributed to both the lack of reliable on-site data and similar food consumption patterns, i.e. expenditure on beef, dairy products and ‘eating out’.

The main driver for primary energy input is accommodation, causing 16% to 29% of the total demand.<sup>5</sup> The relative contribution of accommodation is lower for tourists with higher expenditure per visitor night and *vice versa*. Retail trade, food products (beef, dairy and vegetables) and various types of transport are generating high energy demands across all types of tourists. However, the relative importance of items purchased for consumption in Australia and overseas is higher for tourists with above average expenditure as they spend significantly more on these items, while food products and transportation is more relevant for tourists with below average expenditure.

**Table 28: Environmental indicator results per visitor night**

Environmental indicator	Unit	Japanese Honeymooners	Convention	Business	Mal +55	NZ +55	Mal first timers	HK first timers	Can +55	UK repeats	Ger man holidayers	BP	Mal Repeats	Average
Energy	GJ/night	2.2	1.9	1.7	0.7	0.8	0.9	0.9	0.9	0.7	0.9	0.7	0.8	1.1
Water use	kL/night	18	16	15	7	8	7	8	9	7	8	7	7	9.8
Greenhouse gas emissions	kg CO <sub>2</sub> /night	448	346	314	148	160	163	173	182	141	175	143	161	213
Ecological footprint	ha/night	213	113	100	48	52	49	54	57	44	53	44	48	73

<sup>3</sup> For example, a Japanese honeymooner requires 18 kL per night (see Table 28) out of which 0.78 kL are needed for the on-site water demand within the accommodation (see Table 24:4).

<sup>4</sup> The water consumption is relative insensitive to the tourists expenditure.

<sup>5</sup> The primary energy demand caused by the accommodation is relatively lowest for Japanese honeymooners, i.e. 16% (or 337 MJ out of 2.2 GJ), while it contributes up to one third of the primary energy bill in the case of the Malaysian repeaters, i.e. 29% (or 241 MJ out of 0.8 GJ).

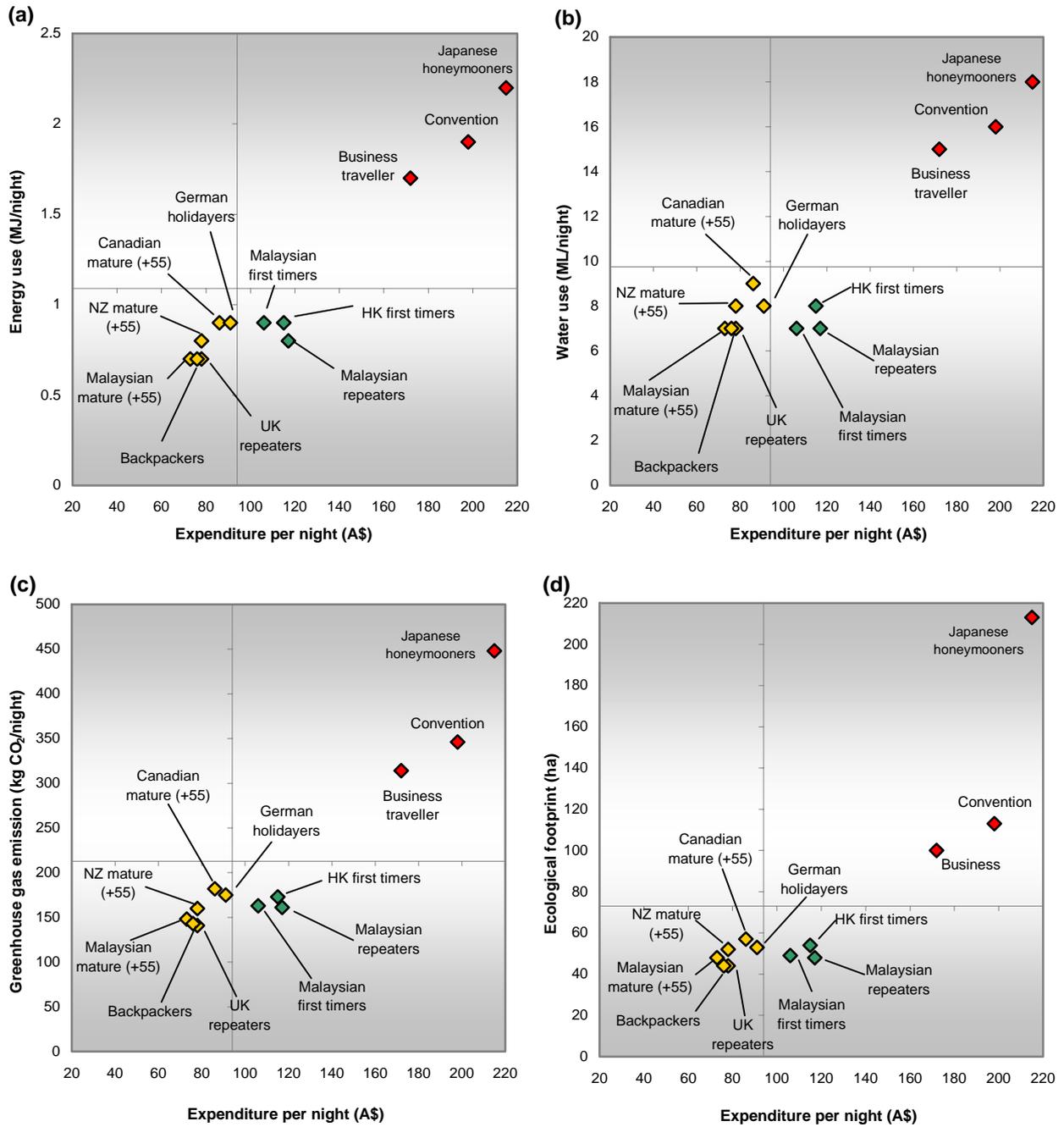


Figure 26: (a) Energy use per visitor night; (b) Water use per visitor night; (c) Greenhouse gas emissions by visitor night; (d) Ecological Footprint per visitor night

For each type of tourist the total environmental impacts are determined by using the environmental indicator results per visitor and visitor night and their length of stay. The total energy and water demand, greenhouse gas emissions and ecological footprint figures per stay show a consistent trend. Tourists with short length of stay (LOS) cause significantly lower impacts on the environment compared with tourists who stay in Australia for a long period of time. This is also true for visitors with high expenditure per visitor night, such as Japanese honeymooners, business people and convention visitors.

From the results shown in Figure 27, it can be concluded that the overall effect on the environment is much more sensitive to the LOS as opposed to expenditure per night. For example, Japanese honeymooners with the highest expenditure per visitor night have the least impact on primary energy demand, water consumption and greenhouse gas emissions. In contrast, backpackers have the highest impacts across all categories (up to factor 5) compared to the least disturbing type of tourist. However, backpackers stay, on average, twelve times longer in Australia than Japanese honeymooners.

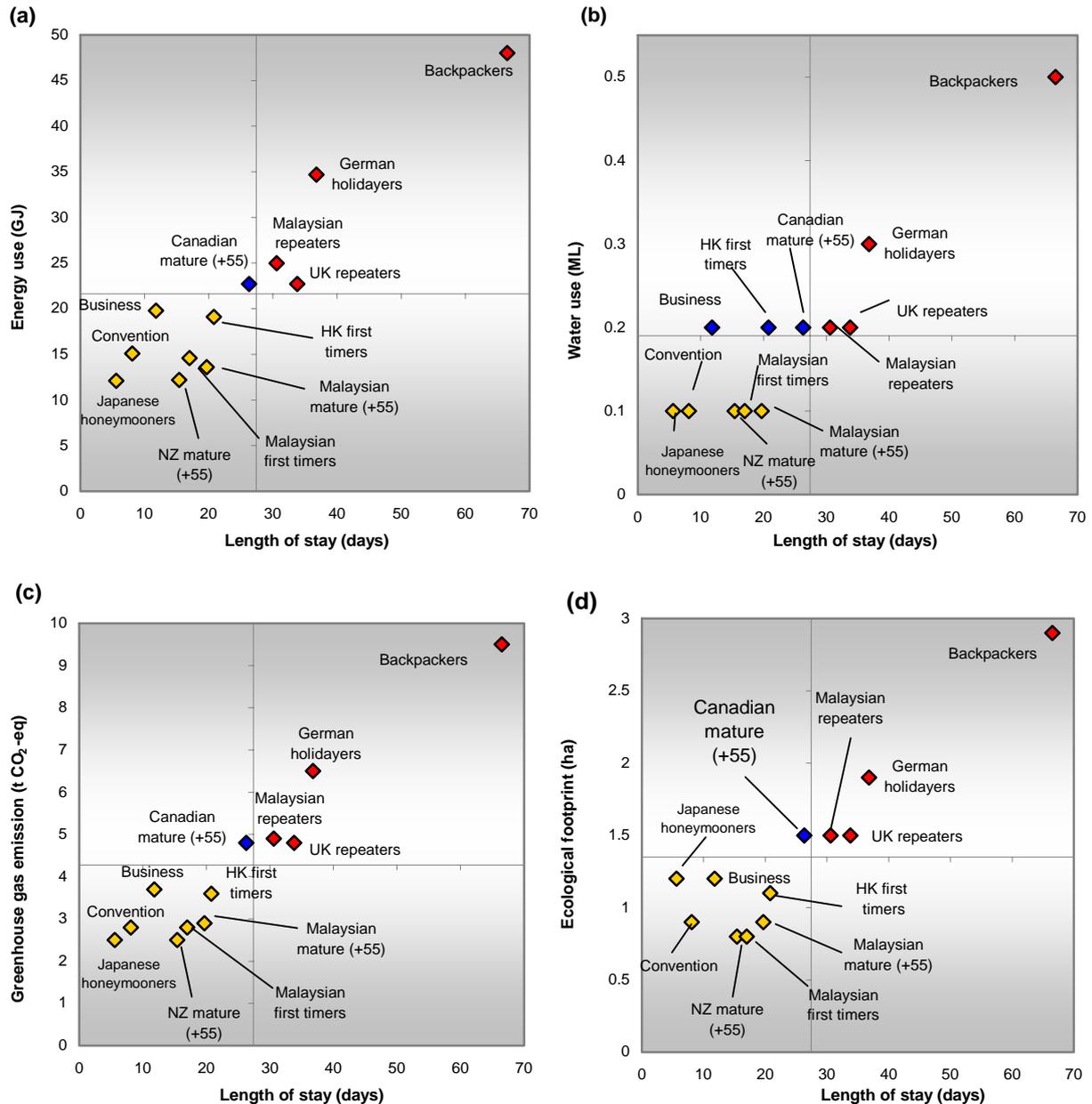


Figure 27: (a) Visitor energy use and length of stay; (b) Visitor water use and length of stay; (c) Visitor greenhouse gas emissions and length of stay; (d) Visitor ecological footprint and length of stay

## Advantages and Limitations

### Advantages

Advantages of this framework are:

- Use of an internationally accepted system of national accounts that is standardised;
- Consistent methodology applied to economic, environmental and social indicators;
- Use of detailed ‘on-site’ impact (in physical units) and calculated off-site impacts by using expenditure data and macroeconomic input-output data;
- Reveals the direct impacts as well as indirect (or hidden) effects (supply chain impacts);
- Completeness of systems analysis, i.e. typically less than 50% of the full chain effect is revealed in an audit type approach;
- Use of a dollar of GDP as the numeraire for the indicators allows the intensities to be applied to the financial accounts;

- Applicability across scales to an individual, a household, a corporation, an individual product or service and a city, state or nation; and
- Allows the environmental yield from different visitor markets to be estimated.

### **Limitations**

Severe limitations are associated with statistical macro-economic and on-site data:

- Reference years for environmental indicators differ for primary energy, water usage, greenhouse gas and land disturbance; the data is partly outdated;
- Data on on-site impacts and expenditure data of tourists are limited;
- Re-classification of expenditure data in the Australian input-output product classification is problematic due to the lack of disaggregated information;
- Lack of State- and Territory-specific information;
- Emerging markets are important. Need to ascertain which are the 'mature' and which are the 'emerging' markets;
- Distributional issues need to be further explored; and
- Need to continue efforts to operationalise sustainable yield. Dynamic analysis needed.

In this chapter, measures of environmental yield were developed. The relevant environmental impacts include those on energy use, water use, greenhouse gas emissions and (in aggregate) 'ecological footprint'. For the eleven special interest markets, measures of the environmental impact are developed per dollar spent, per visitor night and per stay.

We are now in a position to assess progress towards operationalising 'sustainable yield'.

## *Chapter 10*

# **SUSTAINABLE YIELD**

The notion of 'sustainable tourism', as discussed above, incorporates the economic, social and environmental effects of the tourism experience. The measures developed in this report go some way towards operationalising this notion at both the destination and the operator level.

## **Destination Level**

As applied to the destination, the objective of achieving sustainable yield implies that, when assessing the yield of various tourist groups, the social and environmental impacts of each group (both positive and negative) should be taken into account in one 'measure' or 'index' that captures the overall 'value' of particular market segments to a destination.

The report thus far has developed separate concepts of what might be called 'economic', 'social' and 'environmental' yield. At the destination level, the methods identified and discussed in Chapters 4 to 9 enable estimation of the economic, social and environmental impacts of tourists whether by trip, per night or per dollar spent. At this time, however, no method has been developed for 'merging' these impacts into a single measure of sustainability. As discussed above, there are problems of converting social impacts into dollar amounts. The subjectivity of perception of many social impacts precludes their quantification in many cases. While the environmental impacts, at least in principle, seem more amenable to quantitative analysis, the assignment of dollar values to these impacts depends on assumptions that can be the subject of debate. Despite the present difficulty of combining economic, social and environmental measures into a single 'index of sustainability', the measures are valuable in allowing destination managers and other policy makers to better understand the 'trade-offs' that may need to be made in tourism development and marketing activity. They allow, for example, a destination manager to 'weigh up' the potential economic gains from developing some niche market with the potential social and environmental costs that will be imposed on the destination by additional tourism from that market. Conversely, they allow a destination manager that is pursuing particular environmental policies to identify those visitor markets that are most consistent with this policy, and to highlight possible economic opportunities that are foregone. Since all policy making involves 'decision making under constraints', the measures outlined can lead to more informed tourism strategies for the destination.

## **Operator Level**

For tourism development to have sustainable outcomes, business operations must be sustainable. Sustainable development outcomes should be pursued by tourism businesses, governments, local communities and other stakeholders. Sustainable development for business means 'adopting business strategies and activities that meet the needs of the enterprise and its stakeholders today while protecting, sustaining, and enhancing the human and natural resources that will be needed in the future' (International Institute for Sustainable Development 1994:4). In recent times there has been a push to justify business activity not only on its economic impact, but also in terms of its social and environmental impacts on the host destination (Dwyer 2005). The sustainable business has interdependent economic, environmental and social objectives and understands that long-term viability depends on integrating all three objectives in decision-making. Rather than regarding social and environmental objectives as costs, a sustainable enterprise seeks opportunities for profit in achieving these goals (IISD 1994:4).

The most comprehensive framework for measuring and reporting corporate performance against economic, social and environmental parameters is the Triple Bottom Line (TBL) approach. TBL has been described as 'reporting that gives consideration to financial outcomes, environmental quality and social equity' (Gilkison 1999:2). TBL may also be defined as the 'return on capital investment when evaluated and measured along financial, social and environmental dimensions' (Sauvante 2001:2). On the TBL perspective, three primary forms of capital contribute to the success of a business, and each should receive a 'return on investment.' The three forms of capital are a) financial (cash) capital, b) natural capital and c) social capital. Sustainability from a corporate perspective results from producing a positive and balanced return to all three of these sources of capital (the triple bottom line).

In the context of yield measures which are the focus of this report, a TBL approach would seek to extend the concept of yield from 'accounting profit' for tourism firms to a consideration and measurement of a notion of yield that incorporates the broad economic, environmental and social effects of tourism. The TBL approach is thus consistent with the concept of 'Yield' as sustainable return to the firm (Dwyer 2005). Indeed, the yield measures as developed can form basic input into tourism firms that wish to adopt a TBL approach to reporting. Just as there are difficulties in operationalising the TBL, the concept of sustainable yield is extremely complex

when examining components other than economic. This is the same as for the destination level, however, the method does not allow, at this time at least, the development of a single TBL measure or index.

The economic, social and environmental effects of each visitor depend upon their expenditure and the factors that we discussed in Chapter 7, that is, the characteristics of tourists, characteristics of the destination, characteristics of tourist activity and destination management practices. Further research is needed on the factors underpinning sustainable tourism and their relative influence. At its simplest level, sustainable yield incorporates the social, environmental and economic impacts of tourist activity. In a recent exploration of the concept of sustainable yield, Northcote and Macbeth (2006), argue that sustainable development should imply direct gains or improvements in all aspects, not just the financial/economic sphere, and that such gains should be an important aspect of how we measure tourism yield. However, they do not offer insights in the ways these concepts may be measured. Certainly, there is a need for further research on the way tourism produces various environmental, social and cultural benefits as opposed to merely costs and exploration of ways to better incorporate these benefits into yield measures.

This chapter has discussed the advantages and limitations of 'sustainable yield', a broad notion of yield that incorporates social and environmental impacts alongside the financial and economic impacts that comprise the standard definition. While this notion has conceptual appeal there are difficulties in operationalising it.

The final chapter to follow discusses the implications of the study for tourism operators and destination managers and also highlights challenges for further research. An outcome of the study is an enhanced capacity for tourism stakeholders to enact policies to enhance destination long term competitiveness. Enhanced destination competitiveness can be an outcome of planning initiatives, new product development, and marketing promotion strategies at both the 'macro' level by destination managers and also at the 'micro' level by individual operators. The research agenda tabled in this chapter can, once actioned, help to promote the sustainability of Australia's tourism industry.

*Chapter 11*

## ISSUES AND CHALLENGES FOR FURTHER RESEARCH

Several issues can be identified that require more attention from researchers.

### Visitor Yield

The focus in this report has been on yield from the supplier (operator, destination manager) perspective rather than from the visitor perspective. As argued above, a comprehensive analysis of yield requires both supply side and demand side analysis. The demand side concept of tourism yield relates to the satisfaction or 'value' experienced by the visitor from the consumption of products and services, or the 'quality' of the tourism experience. The perceived quality of tourism services appears to be crucially linked to the context of service experiences (Johns 1993). In consumer settings, both the focal (service) and the contextual (environmental) dimensions of a product play a significant role in determining quality (Gotlieb, Greval & Brown 1994). These findings support the view that both the destination's macro environment and its service dimension affect tourist perceptions of quality. Murphy, Pritchard and Smith (2000) found that 'destination environment' in terms of climate, scenery, ambience, friendliness and, to a lesser extent, cleanliness, is a key predictor of destination 'quality'.

A focus on customer value will promote an understanding of the tourist experience and enable organisations to provide what tourists want, need and expect. This requires more detailed study of tourist perceptions and their influence on repeat visitation and word of mouth publicity.

Further research can include:

- Conceptualisation and operationalisation of the 'quality tourism experience' and 'quality tourism development';
- Development of measures of tourist satisfaction and 'value for money'; and
- Examination of the links between visitor satisfaction, repeat visitation and word of mouth publicity, and the impact on visitor flows.

Additional knowledge on these matters will also help to integrate the yield literature with destination competitiveness measures which emphasise the role of both supply side and demand side dimensions in determining overall destination competitiveness.

### Limitations of Expenditure Data

Although detailed international visitor expenditure data exists in Australia generally, such data does not accurately reflect the full amount of expenditure that is injected into the economy from inbound tourism. The expenditure data, ranging over eighteen types of goods and services, does not contain an estimate of the expenditure that flows into Australia as a result of international airline operations. Although 'international airfare expenditure' is one of the eighteen items this refers only to international airfares purchased within Australia. It does not include that proportion of international airfares, purchased overseas, that flows into Australia to pay for purchases made by the different airlines. An imputation for the international airfare component was made by TRA in its yield estimates as set out in Chapter Three of this report.

This imputation recognises that a proportion of the air fare paid on international carriers is spent by the airline in Australia on catering, advertising, office administration, fuel, taxes, and other expenses incurred in running the airline. Various assumptions underpin the formula and these may be tested for their accuracy.

In the yield measures developed in this report, no adjustment has been made to IVS expenditure data to cover the purchases made by international airlines in Australia. To this extent, the expenditure yield estimates underestimate the injected expenditure from inbound tourism and the impact estimates are correspondingly smaller. It would be a useful exercise to develop yield measures that make such imputations and to compare these with the measures developed from the unadjusted expenditure data. This would enable us to determine the importance of the expenditures of the international airlines to yield measurement and to ascertain whether such imputation has special relevance for particular yield measures rather than others.

The issue of imputation of airfare related expenditure needs further analysis. Future research may include:

- Identifying the assumptions that underpin the formula used by the TRA to estimate airfare related expenditure of tourists;
- Exploring whether a more accurate formula can be employed to estimate this expenditure;
- Identifying the specific industries that this expenditure must be allocated to as an input to economic modelling of its impacts;

- Developing yield measures that incorporate imputed purchases by international airlines in Australia into the expenditure data; and
- Comparing yield measures based on unadjusted and adjusted expenditure data to determine if systematic differences exist between such measures.

## **Yield as Financial Return**

There is a lack of data on the profitability of different tourism market segments and industry sectors. This limits the application of yield measures at the level of the enterprise ('rate of profit' and 'return on capital'), as opposed to the more aggregate industry level. As indicated, the TSA classifies all industries into 'Tourism Characteristic', 'Tourism Connected' and 'Other' and provides estimates of GOS for each. There are, however, two major problems with use of GOS yield measures derived from a TSA.

First, the TSA measure of GOS represents an average of GOS of firms within a tourism characteristic or connecting industry (sector). That is, an average GOS is given for industries such as accommodation, travel agency and tour operator services, taxi transport, air and water transport, motor vehicle hiring. Thus, to give some examples, use of an average measure glosses over differences in profitability between;

- operators in different segments of any industry (e.g. five star hotels Vs guest houses; air transport Vs water transport: travel agencies vs. tour operators; clubs vs. pubs; cafes Vs restaurants)
- different operators in the same location (motor vehicle hiring in Cairns)
- different operators in different locations (three star hotels in Gold Coast and Canberra).

A study presently underway in New Zealand (Simmons 2005), may shed light on these issues. The study addresses two recommendations of the New Zealand Tourism Strategy 2010: to research, develop and promote the use of pricing and yield management strategies to improve financial and economic viability; and to develop and promote resource use efficiency initiatives and environmental systems. A draft report notes that currently, the typical measure of success used by the majority of business owners is 'accounting profit'. While this measure may indicate short-term financial viability, it does not reflect the long-term costs of equity investment and hence is a poor indicator of long-term commercial performance and economic sustainability. It also does not reflect the operator's direct and indirect reliance on infrastructure and public goods and services, which are often provided by the public sector or local communities. Unless there is appropriate resourcing and funding of these elements, the commercial sector will not be sustainable.

A major expected outcome for the project is improved financial performance of tourism firms through the uptake of the research findings and tools. Proprietors will be more aware of the likely returns on investments from different types of tourism, and of industry performance benchmarks, which they should be achieving in order to be sustainable in the long term.

The project involves an analysis of 1000 businesses to measure financial performance across the industry. The measurement tool will be based upon the Ministry of Economic Development research approach to take account of tourism's unique structure and operating environment. The business examination involves interviews of up to 200 firms to generate more in depth data on the financial yield of firms, but also to examine a range of economic yield measures relevant to firms. The measurement of financial yield is based on work done by Miller and Modigliani (1961) where the basis of analysis was free cash flow rather than dividend or earnings-based performance. This approach has introduced both economic and business concepts and is attempting to reduce all commercial performance to a single measure called Economic Value Added, now commonly referred to as EVA®. This involves estimation of the Net Operating Profit after Tax (NOPAT), and estimation of the value of company capital.

The data requirements to estimate the GOS for each enterprise in Australian tourism are substantial and would require an intensive study similar to that underway in New Zealand. For an operator to estimate the profitability of a market segment whether by origin (Japanese), or by special interest (backpacker) or by travel motivation (VFR), would require allocating all costs involved in providing products and services across each of the different markets served. Such information is not normally reported by firms. This would be an enormous task that would involve somewhat arbitrary judgements about the treatment of joint and common costs. Likewise, estimates of return on firm's capital, allocated to the different markets, requires estimates of capital assets which differ according to the accounting conventions adopted (e.g. depreciation allowances) and treatment of items such as goodwill and R&D costs, and estimates of the costs associated with the capital (which generally requires use of a weighted average).

While a study could be carried out in Australia similar to the New Zealand study, such a detailed study may not be justified at the present time. Given the Australian Tourism Satellite Account, which now appears to be at the stage of being developed at the level of all states and territories, it is doubtful that the substantial effort involved in estimating operator financial performance is warranted at this time. GOS, taken directly from the TSA, is associated with the actual rate of return per industry or per tourist since it takes both revenues and costs into account.

Second, the TSA estimates of GOS relate only to direct tourism expenditure. That is, they ignore the

'production induced' effects of the tourist expenditure. This implies also a neglect of the inter-industry effects of shocks to tourism that are captured by CGE models.

In the estimates of yield made by the STCRC team, as presented above, a further refinement is made to yield estimates. In contrast to estimates of GOS yield based on the TSA and as estimated by TRA, the STCRC estimates of GOS in Sections 4.2.1 above estimate GOS as an output of the CGE model. The GOS estimates from the CGE model represent a 'net' value that takes into account changes in industry balance. Accordingly, they are smaller than the GOS yield estimates made by the TRA:

- Financial indicators of tourism yield require further study.
- Industry surveys to estimate the profitability of different tourism (characteristic) industries. That is, estimation of the rates of return to operators in travel agency and tour operator services; taxi transport; air and water transport; motor vehicle hiring; accommodation; and cafes, restaurants and takeaway food outlets.
- Comparison of survey results indicating industry profitability with industry GOS measures from the TSA.
- Industry surveys to estimate the profitability of different sectors within an industry. For example, accommodation providers could be surveyed to measure profitability of different types of property (hotels (2-5 star), motels, guest houses, B&B, campgrounds etc.). This can include by location. This would provide more detail than information in TSA.
- Surveys to determine the profitability of different market segments (e.g. Japanese business travellers, honeymooners and seniors).
- Comparison of tourism sector yields with those for industries generally and with particular industries.
- If tourism financial yield is different, why is it so? What factors are playing a role? (e.g. influence of low barriers to entry, excessive investment due to life style attractions of the tourism sector, volatility and risk?)
- Can something be done about this? e.g. Would the industry benefit from greater consolidation or regulatory control? What is the impact of increased accreditation arrangements?
- How might economies of scale be gained? Would they be beneficial or come at the cost of competitive efficiency? Would they bring greater efficiencies to investment, training, industry corporate governance, adoption of CFS and TBL through longer term perspectives and enhanced management capabilities?

## **Economy Wide Yield**

The yield measures discussed in the section above are essentially measures of extra profit or of output at the tourism industry level (or potentially, if more disaggregated studies were done, at the level of the enterprise).

From a public policy perspective, the overall impact on the economy is a critical dimension of yield. Governments (either state or federal) want to know what impact more tourists of a particular type will have on overall output (GDP or GSP), employment or net welfare. The impact on the economy as a whole will typically be smaller than the direct impact on tourism industries, given that these will draw resources away from other parts of the economy to provide goods and services for the tourists.

We are not aware of any rigorous studies of this aspect of yield. In this report, we have outlined how CGE models can be used for estimating yield and have presented preliminary results for a range of visitor types. This suggests further work in a number of directions:

- Identifying and clarifying the different measures of industry level and economy wide level yield, explaining why they differ, and for what purposes they are relevant;
- Developing economy wide yield measures for a variety of different visitor types;
- Refining yield measures for some markets. Backpackers, for example, are a special case since they often earn wages in Australia to pay wholly or partly for their visit. Further research is needed on the net impacts of backpacker expenditure given that a proportion of it is financed by working within Australia. Similarly, students work in Australia to meet their living expenses which, in turn, influences their spending and hence the economic impacts of their time in Australia. These issues have not been considered in yield studies to date;
- More accurate modelling of specific expenditure categories (e.g. foreign airline expenditure in the home economy, as discussed in 11.2 above);
- Development of measures of yield on a state rather than national basis;
- Using economy wide models adapted with environmental modules to measure specific environmental impacts (e.g. greenhouse gas emissions) on the nation as a whole resulting from different visitor types- i.e. a measure of aggregate environmental yield.

## **Implications for Marketing**

The implications for marketing depend upon the stakeholder perspective. The challenge of destination marketing is that it is made up of many suppliers and service producers. Different stakeholders with different objectives or ends in view will emphasise different target markets. Thus, while an individual operator may prefer to focus on markets that deliver higher sales revenues or higher profitability, a national or regional tourism office might wish to target markets that generate greater value added or net benefits for residents. Depending on current government policy, markets may be targeted from a variety of perspectives such as according to their ability to generate employment or benefits to remote regions or on the basis that less energy is consumed per visitor from those markets. Even within the private sector some operators (e.g. B&B owners) may emphasise lifestyle rather than profitability in market choice. Government policy may favour the development of SMEs, or industry structure and yield from tourism might be assessed as benefiting from visitors who make greater use of one or other type of operator. Less volatile source markets might also be preferred to higher growth but riskier markets.

The issue of stakeholder perspective in marketing is an important one. Tourism planners know that the destination marketing effort must rely on much more than just expected financial or economic yield to businesses or to the wider economy. Visioning is an important step in formulating a destination marketing strategy. In the visioning step, community members attempt to look into the future and imagine what they would like their community to be. Such an effort involves identifying what is really valued or desired and including those elements in the shared image of the community. The image can help community leaders decide among alternatives that are likely to lead to the desired future and those that are likely to lead away from it. It helps a community decide how much of any type of development will fit within its vision and determine what levels of change are acceptable.

Further, marketing a tourism region involves complex and coordinating action among the central attractions (both public and private) that draw tourists to a region, the transportation network to connect visitors to a variety of attractions, the hospitality services to fill basic needs while away from home, and information to help tourists meet needs and find their way in a new environment' (Uysal, Chen & Williams 2000:94). The actions of various industry associations, e.g. air transport associations, hotel associations, tour operator associations, restaurant associations etc, affect the deployment of tourism resources. These associations may differ in their perceptions of the ecological, social, and cultural impacts of tourism development. Tourism resources are likely to be used more effectively when the different associations and industry groups share a common view regarding a destination's strategy for tourism development

For demand to be effective, tourists must be aware of a destination and its specific offerings. There must also be a 'fit' between the types of experiences generated by these products and consumer expectations. Dwyer and Kim (2003) develop a competitiveness framework comprising three main elements of tourism demand - awareness, perception and preferences. Awareness can be generated by various means including destination marketing activities. The image projected can influence perceptions and hence affect visitation. Actual visitation will depend on the match between tourist preferences and perceived destination product offerings. Basically, the types of markets targeted will depend upon the stage of the destination life cycle. We need to ascertain which are the 'mature' and which are the 'emerging' markets. In respect of yield measures it is too easy to focus on established markets to the neglect of markets which may have low yield at present but represent potential high yield markets for the future.

Enhancing the appeal of a destination involves a program of marketing efforts designed to influence the decision process of prospective visitors. These efforts may focus on increasing awareness of the existence of the destination or improving the perceptions of the features of the destination to different demographic, psychographic and behavioural market segments. Relevant activities include; development of a strong destination image, creation of a high level of destination awareness and awareness of the destination's specific products and services offerings; identification of high yield customer bases; development of strong links with tourism wholesalers and retailers; development of attractive, price competitive tour packages tailored to customer needs.

These considerations reveal that the targeting of tourism marketing is much more complex than simply reaching out to 'high yield' markets. An additional challenge arises. Targeting 'high yield' markets (however measured) may not be an optimal strategy either for individual operators or for destination managers. One reason for this is that yield measures *per se* do not tell us anything about elasticities of promotion so they cannot inform us about 'bang for bucks' or the cost effectiveness of marketing activity. Consider Japanese honeymooners, for example. This market generates high yield in respect of daily expenditure, generation of value added, GOS, and net benefits. But such measures tell us nothing about the cost effectiveness of marketing strategies to target this sector. In terms of the cost effectiveness of the marketing effort it may be better to focus on the wider market (Japanese tourists) rather than a subset of this (Japanese honeymooners) or on some other market entirely. If a \$10 million promotion campaign generates three times as many Japanese tourists (or UK tourists) to Australia than Japanese Honeymooners, then this needs to be factored into the evaluation of the marketing strategies to be adopted.

Very little is known about elasticities of promotion for different markets. Crouch, Schultz and Valerio

(1992), in a study of marketing elasticities for inbound tourism to Australia for the period 1970 to 1980, found that marketing expenditures have positive effects on tourism demands with elasticities ranging from 0.11, 0.2, 0.25 and 0.14 for visitors from the USA, Japan, UK and New Zealand respectively. Kulendran and Divisekera (2005) have recently estimated the ATC marketing expenditure elasticities for these same tourist markets over the period 1980 to 2001 using co-integration analysis and the dynamic modelling approach. They found that the marketing expenditure elasticity estimates varied from country to country. Their estimates suggest that a 1% increase in marketing expenditure results in a 0.04%, 0.08%, 0.05% and 0.07% increase in tourist arrivals to Australia from USA, Japan, UK and New Zealand respectively. Marketing elasticities have not been estimated for other countries, nor have they been estimated for special niche market (e.g. convention visitors) or for journey purpose (e.g. business). Until more information is obtained on these elasticities, destination marketing should not rely only on yield estimates in identifying target markets.

Several research challenges emerge here:

- The objectives of different stakeholders need to be clarified. This is necessary in order to determine which 'yield' measures are of most interest to tourism organisations. This should cover private operators in different sectors of tourism as well as public sector organisations. A useful exercise would involve analysis of the mission statements of destination marketing organisations to determine their objective functions.
- Exploration of the influence of lifecycle stage of a destination on the types of markets that should be targeted and the influence of different yield measures on which markets are targeted.
- Estimation of elasticities of promotion for different markets by country of origin, special interest market and tourist motivation.
- Estimation of the economic impacts of targetting different markets, given different elasticities of promotion
- Exploration of the implications of different promotion elasticities for targetting 'high yield' markets.

## **Social Yield**

As referred to in Chapter 7, there is much work to do in operationalising the concepts associated with sustainable yield and gaining agreement on a technique to value the social dimension of yield. In particular, the following research needs to be undertaken.

- A range of destinations needs to be profiled in terms of their robustness using the checklist and in order for this to happen, clear definitions of the levels of each variable need to be defined. It is important to be able to classify the variation in destinations and monitor their robustness accordingly. An expert panel could be used to develop the definitions, and also to rate each destination, although on some variables local expert advice may be required.
- A thorough profiling of the relevant market segments visiting each destination needs to be completed, taking into account demographic and travel behaviour characteristics such as country of residence, age, reasons for travel, previous visitation, travel party, accommodation and transport used, activities undertaken, and self-identification with a particular segment (e.g. backpackers, ecotourists). These data are collected in the TRA International Visitor Survey. The homogeneity of the activity patterns of these segments needs to be investigated as the proposed technique relies on the identification of groups demonstrating similar behaviour. If homogeneous groups cannot be identified in this way, cluster analysis could be used to identify segments based on their behaviour patterns.
- In conjunction with this profiling using demographic and travel behaviour as the defining criteria is the concept of using psychographics to understand the various travel behaviour. Research is needed in this area.
- Substantial work is required to link particular tourism activities and behaviours to the social impacts they create. Social impact assessment faces two major challenges. First, to decide on a technique that attempts to objectively or subjectively measure social impacts. The former lacks content validity because many social impacts cannot be measured objectively, while the latter is biased by the personal perceptions of those rating. A second challenge in social impact assessment is differentiating social impacts of tourism from those associated with urbanisation or other social trends. This challenge would be compounded in the current exercise which aims to differentiate the social impact of one group of tourists from other groups based on their behaviour patterns. As suggested a Delphi study of expert tourism stakeholders within the region would be best placed to attempt this challenge. Depending on the destination, these might include representative from the local government, police, health services, accommodation providers, tour operators, local attractions (including parks), and resident groups.
- Finally, a mechanism is required to summarise the estimated social yield associated with different tourist segments. Ideally, this would be a dollar value, either positive or negative, which could be added or subtracted to the economic yield figures. It could be derived from expenditure used to mitigate the

negative social impacts and an estimate of the value of social benefits. However, unless there is a solid basis for this dollar value, it will be meaningless, and therefore substantial preliminary work is required to develop and validate the abovementioned steps before any attempt is made to reduce our understanding of the complexity of social impacts into a single number.

## **Environmental Yield**

As discussed above, the boundary for environmental performance indicators is much more difficult to define than for environmental management indicators. This is due to the complexity of the modern economies in which companies operate.

Further research may include:

- As indicated, statistical macro-economic and on-site data are both limited. There needs to be an investigation to determine possible sources of more detailed data particularly with respect to site impacts and in different locations (States/Territories).
- A need for extended company audits to investigate the primary supply chain, including analysis of off-site (*upstream*) processes of selected supply chains.
- Estimate on site requirements in respect of energy use, water use, greenhouse gas emissions and ecological footprints for an extended range of tourism markets (origin, purpose). This requires careful attention to the purchasing patterns of tourists from different markets and the activities that they undertake, since it is these purchasing patterns and activities that determines the impacts on energy and water consumption, greenhouse gas emissions and ecological footprint. The data will need to be quite detailed if accurate measures are to be obtained. Thus within the 'shopping' expenditure category, it matters whether the tourist purchases leather goods or other products with high energy input or products with less energy input within Australia (e.g. products manufactured overseas). Of course, this issue raises once again, the issue of scope of analysis. (Less energy consumption in Australia may be counterbalanced by greater energy consumption overseas).
- Since the General equilibrium effects will often go in quite different directions to partial measures, it is essential to take a GE perspective in measuring environmental and social impacts of different types of tourists. Partial measures are potentially quite misleading. Since the interactive industry effects must be taken into account, the CGE model gives us an ideal tool with which to explore the broader sustainability aspects of yield. Thus, with a model such as MMRF-Green (REF) , it is possible to estimate the GGEs from Australian industry in providing for particular types of tourists. Further research could explore this.

## **Sustainable Yield**

Sustainable yield can be studied from the perspective of the business operator, or the destination manager. From a corporate perspective, sustainable tourism operations result from producing a positive and balanced return to all three of these sources of capital (the triple bottom line). The TBL approach is consistent with, and can form the basis for, the concept of 'Yield' as sustainable return to the firm (Dwyer 2005). From a destination management perspective, each tourism market segment is potentially associated with economic, social and environmental costs as a result of the mix of services utilised during their stay. These costs, or footprints, vary across market segments depending on the mix of services utilised.. The measures that have been developed enable destination managers to better understand the trade-offs between the economic, social and environmental objectives of tourism policy.

Further research may include:

- Research on operationalising the social and environmental costs and benefits of tourism on a segment-by-segment basis.
- There is need for further research on the way tourism produces various environmental, social and cultural benefits as opposed to merely costs.
- The economic, social and environmental effects of each visitor depend upon their expenditure and the factors that we discussed in Chapter 7, that is, the characteristics of tourists, characteristics of the destination, characteristics of tourist activity and destination management practices. Further research is needed on the factors underpinning sustainable tourism and their relative influence.
- The difficulties in operationalising the TBL need more detailed analysis. Further research is required to help to develop standardised, consistent, measurement and reporting methods of tourism yield which are consistent with the TBL approach.
- Distributional issues need to be further explored as to how they can be incorporated into an operational concept of sustainable yield.

- Research is required as to how tourism yield can be usefully incorporated into the sustainability paradigm. In particular, little is known about the trade-offs between economic, social and environmental costs and benefits, and the implications of this for operationalising 'sustainable yield'.
- There is a view that sustainable development should imply direct gains or improvements in all aspects, not just the financial/economic sphere, and that such gains should be an important aspect of how tourism yield is measured (Northcote & Macbeth 2006). Research is required to clarify and operationalise the notion of sustainable yield as generating positive returns to society in the three dimensions.

## REFERENCES

- Ap, J. and Crompton, J. (1998) 'Developing and Testing a Tourism Impact Scale', *Journal of Travel Research*, 37:120-130.
- Archer, B. and Cooper, C. (1995) The Positive and Negative Impacts of Tourism in W Theobald (ed) *Global Tourism: The Next Decade*, Oxford: Butterworth-Heinemann.
- ABARE (1999) *Australian Energy Consumption and Production*, Research Report 99.4, Australian Bureau of Agricultural and Resource Economics, Commonwealth of Australia, Canberra, Australia.
- Australian Bureau of Statistics (1999a) *Australian National Accounts, Input-Output Tables 1994/95*, ABS Catalogue No. 5209.0, Canberra, Australia.
- Australian Bureau of Statistics (1999b) *Australian National Accounts Input-Output Tables: Product Details 1994/95*, ABS Catalogue No. 5215.0, Canberra, Australia.
- Australian Bureau of Statistics (2000) *Australian National Accounts: Tourism Satellite Account 1997/98*, Catalogue No. 5249.0, ABS, Canberra.
- Australian Bureau of Statistics (2000a) *Overseas Arrivals and Departures 2000*, ABS Catalogue No. 3401.0, Canberra, Australia.
- Australian Bureau of Statistics (2000b) *Household expenditure survey 1998/99*, ABS Catalogue No. 6530.0, Canberra, Australia.
- Australian Bureau of Statistics (2004) *Water Account for Australia 2000-01*, ABS Catalogue No. 4610.0, Canberra, Australia.
- Becken S. and G. Butcher (2004) 'Economic Yield Associated with Different Types of Tourists-a Pilot Analysis', *Tourism Economics*.
- Becken, S. and Simmons, D. (2002) 'Understanding Energy Consumption Patterns of Tourist Attractions and Activities in New Zealand', *Tourism Management*, 23: 343-354.
- Blake, A. (2000). 'The Economic Effects of Tourism in Spain.' Discussion Paper 2001/2, Tourism and Travel Research Institute Discussion Paper.
- Blake, A., R. Durbarry, T. Sinclair, and G. Sugiyarto (2000). 'Modelling Tourism and Travel Using Tourism Satellite Accounts and Tourism Policy and Forecasting Models.' Discussion Paper, 2001/4, Tourism and Travel Research Institute.
- Brown, G. (2005) 'Mapping spatial attributes in survey research for natural resource management: methods and applications'. *Society and Natural Resources*, 18(1):17-39.
- Bullard, C.W., Penner, P.S. & Pilati, D.A. (1978) 'Net energy analysis - handbook for combining process and input-output analysis', *Resources and Energy*, 1:267-313.
- Bureau of Tourism Research (1990) International Visitor Survey, ISSN: 0814-3633, Canberra
- Bureau of Tourism Research (2003a) *Show me the Money*, Canberra, Australia.
- Bureau of Tourism Research (2003b) 'Tourism Investment in Australia', Research paper No. 7, Canberra, Australia.
- Butler, R.W. (1980) 'The concept of a tourist area cycle of evolution: implications for the management of resources.' *Canadian Geographer*, 24:5-12.
- Collins D., U. Salma and T. Suridge (2004) 'Economic Contribution by Inbound Market Segments'. Tourism Research Report, 6: 1, Tourism Research Australia, Canberra, Australia.
- Crouch, G.I., Schultz, L., and Valerio, P. (1992) 'Marketing International Tourism to Australia: A Regression Analysis', *Tourism Management*, 13: 196-208.
- Dey, C., M. Lenzen, B. Foran and M. Bilek (2002) 'Addressing boundary issues in the Global Reporting Initiative™: Comments on the draft 2002 sustainability reporting guidelines', <http://www.globalreporting.org/WorkingGroups/Boundaries/Boundary.pdf>; accessed 28-06-02.
- Dixon, R. (1996) Inter-industry transactions and input-output analysis, *Australian Economic Review* 3:96 (115), pp. 327-336.
- Dixon P. and B. Parmenter (1996) 'Computable General Equilibrium Analysis for Policy Analysis and Forecasting' in H Aman, D Kendrick and J Rust, (eds) *Handbook of Computational Economics, Vol 1*, Elsevier Science, BV pp 4-85.
- Doxey, G.V. (1975) *A causation theory of visitor-resident irritants: methodology and research inferences*. San Diego, USA.
- Duchin, F. (1992) Industrial input-output analysis: implications for industrial ecology, *Proceedings of the National Academy of Science of the USA* 89, pp. 851-855.
- Dwyer L. (2005) 'Relevance of Triple Bottom Line Reporting to Achievement of Sustainable Tourism: a

- Scoping Study' *Tourism Review International*, 9(1): 79-94.
- Dwyer L. & P. Forsyth (1993) 'Assessing the Benefits and Costs of Inbound Tourism', *Annals of Tourism Research*, 20(4): 751-768.
- Dwyer L. & P. Forsyth (1995) 'The Yield from Inbound Tourism' Commonwealth Department of Tourism, Occasional Paper No. 3: 1-23, Canberra, Australia.
- Dwyer L. & P. Forsyth (1997) 'Measuring the Benefits & Yield from Foreign Tourism', *International Journal of Social Economics*, 223-236.
- Dwyer L. & P. Forsyth (2005) 'Tourism Yield Measurement and its Implications for Private and Public policy making', Proceedings 36<sup>th</sup> TTRA Conference, New Orleans, June.
- Dwyer L. & C.W. Kim (2003) 'Destination Competitiveness: a Model and Indicators', *Current Issues in Tourism*, 6(5): 369-413.
- Dwyer, L., P Forsyth & R Spurr (2004) 'Evaluating tourism's economic effects: new and old approaches'. *Tourism Management*, 25(3): 307-317
- Dwyer L., P. Forsyth & R. Spurr (2005) 'Estimating the Impacts of Special Events on the Economy'. *Journal of Travel Research*, 43(5): 351-359.
- Dwyer L., P. Forsyth, J. Madden & R. Spurr (2000) 'Economic Impact of Inbound Tourism under Different Assumptions about the Macroeconomy', *Current Issues in Tourism*, 3(4):325-363.
- Dwyer, L., P. Forsyth, R. Spurr & T. Ho (2005) *Economic Impacts and Benefits of Tourism in Australia: a general equilibrium approach*. Technical Report series, SustainableTourism CRC, Gold Coast, Australia.
- Elkington, J. (1999) *Cannibals with forks: The Triple Bottom Line of 21st century business*. Stony Creek, CT: New Society Publishers Ltd.
- Earthcheck (2005) Baseline and Best Practice Benchmarks. URL: <http://www.greenglobe21.com/Publications.aspx>, accessed Feb 2005
- Environment Australia (2003) *Triple bottom line reporting in Australia: a guide to reporting against environmental indicators*.
- Faulkner, B. and C. Tideswell (1997) 'A framework for monitoring community impacts of tourism.' *Journal of Sustainable Tourism*, 5(1): 3-28.
- Foran B, M. Lenzen, C. Dey and M. Bilek (2005) 'Integrating Sustainable Chain Management with Triple Bottom Line Reporting', *Ecological Economics*, 52(2): 143-157.
- Gilkison, B. (1999) *Accounting for a clean green environment: Obligations and opportunities for New Zealand businesses and their accountants*. Nelson: New Zealand: Anchor Press Limited.
- Global Reporting Initiative (GRI) (2002a) Sustainability Reporting Guidelines, <http://www.globalreporting.org/guidelines/2002.asp>, accessed 04-06-04
- Global Reporting Initiative (GRI) (2002b) Tour Operator's Sector Supplement, <http://www.globalreporting.org/guidelines/sectors.asp>; accessed 04-06-04
- Gonzalez, A. and L. Bello (2002) 'The Construct "Lifestyle" in Market Segmentation: the Behaviour of Tourist Consumers". *European Journal of Marketing*, 36 (1/2): 51-85.
- Gotlieb J., D. Greval and S. Brown (1994) 'Consumer Satisfaction and Perceived Quality: complementary or divergent constructs?', *Journal of Applied Psychology*, 79(6): 875-885.
- Gronroos, C. (1997) 'Value-Driven Relational Marketing: From Products to Resources and Competencies,' *Journal of Marketing Management*, 13: 407-419.
- Gursoy D., C. Jurowski. & M Uysal (2002) 'Resident attitudes - A Structural Modeling Approach.' *Annals of Tourism Research*, 29(1): 79-105.
- Hondo, H. and S. Sakai. (2000) Preliminary life cycle inventory analysis (Pre-LCI) using an economic input-output table, in: The Fourth International Conference on EcoBalance, Tsukuba, Japan.
- Huber. F., A Herrmann & R. Morgan. (2001) 'Gaining Competitive Advantage Through Customer Oriented Management', *The Journal of Consumer Marketing*, (1): 41-51.
- International Institute for Sustainable Development (1994) *Indicators for the Sustainable Management of Tourism* IISD, WTO and Industry, Science and Technology, Canada.
- Isard, W., Bassett, K., Choguill, C., Furtado, J., Izumita, R., Kissin, J., Romanoff, E., Seyfarth, R. & Tatlock, R. (1967) On the linkage of socio-economic and ecologic systems, Papers and Proceedings of the Regional Science Association 21, pp. 79-99.
- Johns N. (1993) 'Quality Management in the Hospitality Industry: Part Three, Recent Developments' *International Journal of Contemporary Hospitality Management*, Vol 5, No. 1.
- Johnson, P.S. and Thomas, R.B. (1991) The Comparative Analysis of Tourist Attractions. In C. Cooper, ed., *Progress in Tourism, Recreation and Hospitality Management*. Frances Pinter, London: 114-129.

- Joshi, S. (2001) Product environmental life-cycle assessment using input-output techniques, *Journal of Industrial Ecology*, 3 (2&3): 95-120.
- Jurowski, C. M Uysal, and R. Williams, (1997) 'A Theoretical Analysis of Host Community Resident Reactions to Tourism'. *Journal of Travel Research*, 36 (2): 3-11.
- Khalifa, A. (2004) 'Customer Value: A Review of Recent Literature and an Integrative Configuration'. *Management Decision*, 42 (5): 645-666.
- Kulendran N. and S. Divisekera (2005) *Australian Tourism Marketing Expenditure Elasticity Estimates*. Technical Report series, Sustainable Tourism CRC, Gold Coast, Australia.
- Lankford, S.V. (1994) 'Attitudes and Perceptions Toward Tourism and Rural Regional Development'. *Journal of Travel Research*, 32: 35-44.
- Lankford, S.V. (1996) 'Crime and Tourism: A Study of Perceptions in the Pacific Northwest'. In *Tourism, Crime and International Security Issues*, Apizam and Y. Mansfeld (eds), pp.51-58.
- Lave, L.B., Cobas-Flores, E., Hendrickson, C.T. & McMichael, F.C. (1995) 'Using input-output analysis to estimate economy-wide discharges', *Environmental Science & Technology*, 29(9): 420A-426A.
- Lenzen, M. (1998) 'Primary energy and greenhouse gases embodied in Australian final consumption: an input-output analysis', *Energy Policy*, 26(6): 495-506.
- Lenzen, M. (2001) 'A generalised input-output multiplier calculus for Australia', *Economic Systems Research*, 13(1): 65-92.
- Lenzen, M. (2001a) 'Errors in conventional and input-output-based life-cycle inventories'. *Journal of Industrial Ecology*, 4 (4): 127-148.
- Lenzen, M. (2002) 'A guide for compiling inventories in hybrid LCA: some Australian results'. *Journal of Cleaner Production*.
- Lenzen, M and C.J. Dey (2002) 'Economic, energy and greenhouse emissions impacts of some consumer choice, technology and government outlay options', *Energy Economics* , 24: 377-403.
- Lenzen, M. and B. Foran (2001) 'An input-output analysis of Australian water usage'. *Water Policy*, 3: 321-340.
- Lenzen, M. and S.A. Murray (2001) 'A modified ecological footprint method and its application to Australia'. *Ecological Economics*, 37(2): 229-255.
- Lenzen, M. and G. Treloar (2002) 'Embodied energy in buildings: wood versus concrete' — reply to Borjesson and Gustavsson, *Energy Policy* , 30: 249-255.
- Leontief, W. (1936) 'Quantitative input-output relations in the economic system of the United States. *Review of Economics and Statistics*, 18: 105-125.
- Leontief, W. & Ford, D. (1970) 'Environmental repercussions and the economic structure: an input-output approach'. *Review of Economics and Statistics* 52 (3), pp. 262-271.
- Lundie, S. and M. Lenzen (2005) Quantitative Nachhaltigkeitsberichterstattung ohne Systemgrenzen. In: Isenmann and Marx-Gomez (2005) Internetbasierte Nachhaltigkeitsberichterstattung. In press.
- MacCannell, D. (1976) *The Tourist*. New York. Schocken. 2<sup>nd</sup> Edition.
- Madden, J.R. and P.J. Thapa (2000) *The Contribution of Tourism to the New South Wales Economy*. Report commissioned by CRC for Sustainable Tourism, Centre for Regional Economic Analysis, University of Tasmania, Hobart.
- Mazitelli, D. (2003) 'Yield from Inbound Tourism', Industry Implementation Advisory Group (IIAG), unpublished
- Miller, M. and F. Modigliani (1961) 'Dividend Policy, Growth and the Valuation of Shares.' *Journal of Business*, pp.411-433.
- Ministry of Tourism (2003) *New Zealand Tourism Strategy 2010*, Tourism Strategy Group, Wellington [www.sightseeing.govt.nz/strategy/str-reports-2010](http://www.sightseeing.govt.nz/strategy/str-reports-2010)
- Murphy P., M. Pritchard and B. Smith (2000) 'The Destination Product and its Impact on Traveller Perceptions'. *Tourism Management*, 21(1): 43-52.
- National Greenhouse Gas Inventory Committee (1998) *Australian Methodology for the Estimation of Greenhouse Gas Emissions and Sinks*, Workbooks 1.1 to 8.1, Australian Greenhouse Office, Canberra, Australia.
- Nichols, M. (2003) 'An application of the Ecological Footprint method to an eco-tourism resort: A case study of Kingfisher Bay resort and Village, Fraser Island', Bachelor of Science Thesis Faculty of Science, University of the Sunshine Coast, Maroochydore, Australia.
- Northcote J. and J. Macbeth (2006) 'Conceptualising Yield in Sustainable Tourism Development: An Integrated Model'. *Annals of Tourism Research*.
- O'Reilly, A. M. (1986) 'Tourism Carrying Capacity: Concept and Issues'. *Tourism Management*, 7: 254-258.
- Parasuraman. A. (1997) 'Reflections on Gaining Competitive Advantage through Customer Value'. *Academy of*

- Marketing Science*, 25(2): 154-161.
- Patterson, P. and Spreng, R. (1997) 'Model Value, Satisfaction and Repurchase Intentions in a Business to Business, Services Context: An Empirical Examination'. *International Journal of Service Industry Management*, 8(5): 414-428.
- Pearce, P. (2005) 'Developing the Travel Career Approach to Tourist Motivation'. *Journal of Travel Research*, 43(3): 226-237.
- Ritchie, J.R.B. & G.I. Crouch (2000) 'The competitive destination: a sustainability perspective'. *Tourism Management*, 21(1): 1-7.
- Salma U. and L. Heaney (2004) 'Proposed Methodology for Measuring Yield', Tourism Research Report Volume 6, Number 1 pp 73-81, Tourism Research Australia, Canberra.
- Sauvante, M. (2001) 'The "Triple Bottom Line": a boardroom guide'. *Directors Monthly*, 25(11): 1-6.
- Simmons, D.G. (2005) Enhancing Financial and Economic Yield in Tourism: Programme Summary. Canterbury: Lincoln University.
- Stronza, A. (2001) 'Anthropology of Tourism: Forging New Ground for Ecotourism and Other alternatives'. *Annual Review of Anthropology*, 30: 261-283.
- Sugiyarto G., A. Blake and T. Sinclair (2002) Economic Impact of Tourism and Globalisation in Indonesia, Discussion Paper 2002/2, Tourism and Travel Research Institute. Available from [www.nottingham.ac.uk/ttri/series.htm](http://www.nottingham.ac.uk/ttri/series.htm)
- Suh, S., Lenzen, M., Treloar, G.J., Hondo, H., Horvath, A., Huppes, G., Jolliet, O., Klann, U., Krewitt, W., Moriguchi, Y., Munksgaard, J. & Norris, G. (2004) 'System boundary selection in Life-Cycle Inventories', *Environmental Science & Technology*, 38(3): 657-664.
- Survey of Overseas Visitors to Singapore (1999) Table 34 - List of Items Purchased in Terms of Amount Spent x Country of Residence, pp. 82-83.
- Treloar, G.J. (1997) 'Extracting embodied energy paths from input-output tables: towards an input-output-based hybrid energy analysis method', *Economic Systems Research*, 9(4): 375-391.
- Treloar, G.J., P.E.D. Love and G. Holt (2001) 'Using national input-output data for embodied energy analysis of individual residential buildings', *Construction, Management and Economics*, 19: 46-61.
- Twining-Ward, L. and Butler, R. (2002) 'Implementing STD on a Small Island: Development and Use of Sustainable Tourism Development Indicators in Samoa', *Journal of Sustainable Tourism*, 10(5): 363-387.
- Uysal M., J. Chen and D. Williams (2000) 'Increasing State Market Share Through a Regional Positioning', *Tourism Management*, 21(1): 89-96.
- Woodruff, R. (1997) 'Customer Value: The Next Source for Competitive Advantage', *Journal of the Academy of Marketing Science*, 25 (2):139-153.
- Zeithaml, V. (1988) 'Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence', *Journal of Marketing*, 52(3): 2-22.
- Zhou, D., J. Yanagida, V. Chakravorty and P. Leung (1997) 'Estimating Economic Impacts from Tourism', *Annals of Tourism Research*, 24(1): 76-89.

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## Concepts of Tourism Yield and Their Measurement

The report develops tools for measuring and enhancing the yield from tourism at the business, regional and national level.

It clarifies the different concepts of tourism yield. Different stakeholders (operators, governments, community, researchers etc.) mean different things by 'yield' and this presents a barrier to communication and policy discussion. Each of these concepts is defined and their relevance to firms and destination managers assessed.

The report develops operational measures of yield at the level of the firm and regional, state and national destination management levels.

It also develops ways to measure the yield from different types of tourists. With the increasing sophistication of tourism data sets, such as the Tourism Satellite Account (TSA) and Computable General Equilibrium (CGE) models, it is now feasible to develop new and more useful measures of tourism yield.

The results can improve the capacity for management decision making by tourism stakeholders to promote 'high yield' sustainable tourism that enhances competitiveness in the tourism industry.

The full report, *Concepts of Tourism Yield and Their Measurement*, is available to purchase through the STCRC's online bookshop [[www.crctourism.com.au/bookshop](http://www.crctourism.com.au/bookshop)]. Alternatively please complete the online order form and send to the STCRC.

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