

**Enhancing Financial and
Economic Yield
in Tourism:**

Dimensions and Measurements of Tourism Yield

**Susanne Becken
Geoff Butcher
Ross Cullen
John Moriarty
Jack Radford
David G. Simmons
John Tan**

Yield Report 2



LINCOLN
UNIVERSITY
Te Whare Wānaka O Aoraki



ACKNOWLEDGEMENTS

The Yield Research Programme was undertaken by Lincoln University in partnership with the Ministry of Tourism and the Tourism Industry Association, with support from Tourism New Zealand. Special thanks to the Tourism Industry Association's funding partners for this research who include: Air New Zealand, Budget Rent A Car, Jasons Travel Media, Regional Tourism Organisations New Zealand (RTONZ), SKYCITY Entertainment Group, Inbound Tour Operators Council (iTOC) and New Zealand Hotel Council.

**Enhancing Financial and Economic Yield
in Tourism:**

**Dimensions and Measurements
of Tourism Yield**

Susanne Becken

Geoff Butcher

Ross Cullen

John Moriarty

Jack Radford

David G. Simmons

John Tan

November 2007

www.lincoln.ac.nz/trrec/tsmyield

Contents

Contents	i
List of Tables	iii
List of Figures	iii
Chapter 1 Introduction	1
1.1 Outcomes	2
1.2 Methodology	3
Chapter 2 Financial Yield	5
2.1 Introduction.....	5
2.2 Measurement.....	6
2.3 Summary	14
Chapter 3 Sustainable Yield for Tourism: Economic and Sustainability Components	15
3.1 Introduction.....	15
3.2 A Typology of Goods and Services.....	16
3.3 The Wider Picture – Moving Beyond the Individual Firm.....	16
3.4 The Economic Yield Component	18
3.5 Sustainability Component.....	21
3.6 Methodology	22
3.7 Strategies to Address Market Imperfections.....	26
Chapter 4 Competition and Pricing: An Introduction to Measuring Competitive Value.	29
4.1 Abstract.....	29
4.2 Competitive Framework	29
4.3 Competitive Factors.....	30
4.4 Practical Issues.....	31
4.5 Pilot Study.....	31
Chapter 5 Choosing a Region.....	33
5.1 Rotorua District Council.....	37
5.2 Christchurch - Canterbury	37
References	39
Appendix A The Research Team	43
Appendix B Workplan	45
Appendix C Schedule of Milestone Reports.....	49
Appendix D. Statistics NZ Enterprise Survey Results for 2002 – All Industries (provisional).....	51
Appendix E Statistics NZ Enterprise Survey Results for 2002 (provisional).....	53
Appendix F Sample Conversion of Enterprise Survey into Financial Yield.....	55

List of Tables

Table 1	NOPAT Calculation	8
Table 2	Capital Calculation using an Operating Approach (=Working Capital + Net Fixed Assets)	9
Table 3	Capital Calculation using a Financing Approach (=Shareholder's Funds + Debt).....	10
Table 4	Deriving financial yield.....	12
Table 5	Treatment of leases for aircraft in the case of Air New Zealand	12
Table 6	Income and Services Provided by Public Sector Through a Direct and Specific Transaction	18
Table 7	Income and Services Provided by Public Sector/ Not-for-Profits at Zero Charge and Without a Specific Transaction.....	19
Table 8	Indicators for Measuring Sustainable Yield.....	25
Table 9	Policy Options for Managing Externalities	26
Table 10	Yield Programme: Assessment of Tourism Regions	35

List of Figures

Figure 1	Rivalry for Goods or Service.....	16
Figure 2	Position Evaluation Graph.....	31

Chapter 1

Introduction

This discussion paper *Dimensions of Tourism Yield* represents the first in a series of papers that describe and refine various aspects of ‘tourism yield’ as currently manifesting in New Zealand.

By way of background the research programme’s overall goals and structure are first introduced. The primary focus of this paper – dimensions of tourism yield – are then introduced and discussed. The paper sets out the basic definitions and indicators of three dimensions of tourism yield: financial, economic and sustainable; which will act as core definitions throughout the study. It also seeks to establish common formulae and metrics for their measurement, as well as establish the accounting iterations (direct and indirect) that can be accommodated within the study. While we are taking a broad definition of tourism yield, yield management is often simply associated with pricing structures and practices and, to this extent, key dimensions of pricing for the tourism sector and associated ‘rules of competition’ are also discussed.

Finally, to understand the broad operating environment for tourism it is necessary to understand tourism businesses within their regional and national contexts. In such a framework tourism production and consumption is a mixture of private and public sector production functions and a robust examination of tourism yield must take into account public sector and environmental and social resource inputs. In this study this is to be achieved through the examination of tourism within two regional case studies. The desirability of being able to generalise from these detailed projects to the nation as a whole has required a broad consideration of the location of the case study regions, which is included as a final chapter in this initial discussion paper.

The role of the first advisory board is to debate these definitions and reach consensus with the research team so that the programme will commence from a common foundation and set of understandings. Background to the Research Programme

The New Zealand Tourism Strategy 2010 made the following recommendations:

- Recommendation 29: TIA leads sector initiatives to research, develop and promote the use of pricing and yield management strategies to improve financial and economic viability;
- Recommendation 8: Develop and promote resource use efficiency initiatives and environmental systems.

Furthermore, the Ministry of Tourism in its ‘*Implementing the New Zealand Tourism Strategy*’ document highlighted the need for:

- Focusing on quality
- Seeking to operate at ‘best practice’
- Utilizing sound business principles
- Ensuring sustainability of the natural, business and social environment.

Tourism consists mainly of small and medium firms (SME), many of which are believed to operate inefficiently, achieve less than their optimum yield and may be commercially

unsustainable in the long term. 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.

The **goals** of the overall research programme (“*Enhancing Financial and Economic Yield in Tourism*”) are to advance the implementation of the NZTS in respect of the above two core recommendations. It will achieve this by examining business and investment management practices within the tourism industry (across various sub-sectors and two regions). At its core the programme researches financial yield, economic yield and sustainable yield.

Investigation will principally be by a survey of 1000 tourist operators and in-depth interview and analysis (and reporting back to) a further sample of up to 200 tourism businesses. The research is to be focussed in two regions, which will be chosen to broadly represent the sector’s capital investment and visitation patterns, and to allow the calculation of regional tourism yield. Principal outcomes for the industry will be sector benchmarks and education and extension toolkits for improving business practice and yield from the tourism sector.

The research programme has necessitated the development of a research partnership between Lincoln University and TIANZ (the Tourism Industry Association of NZ), and the Ministry of Tourism¹. Industry partners and the Ministry of Tourism have committed financial and in-kind support for the project. Support is being sought from public sector agencies including Tourism New Zealand, Statistics New Zealand, and the Department of Conservation.

The research programme has a **management board** comprising two members each from: the Ministry of Tourism, Lincoln University, and the Tourism Industry Association of New Zealand, and one from Tourism New Zealand. Each constituent research project will be assisted by an **advisory group** consisting of representatives of the above agencies and relevant sector stakeholders.

1.1 Outcomes

The three main outcomes for the proposed programme will be:

1. **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.
2. **Improved economic performance of the tourism sector** by providing benchmarks and tools for firms and communities to utilise in their business, marketing, investment and policy processes. The application of the knowledge will contribute to increasing all

¹ Research team and key public sector agencies are presented in Appendix A.

aspects of yield through optimising private and public sector investment in tourism as a whole, and between sub-sectors of various tourism industries.

3. **Improved strategic alignment of tourism investment, management and marketing** by indicating which types of tourism and which business practices generate the highest yield.

Overall, the research will support decision making for individual tourist operators, the tourist industry, tourism planners and marketers, public infrastructure providers and the Ministry of Tourism policy team. It will develop yield guidelines and indicators that are easy to understand and implement, in both the public and private sector.

1.2 Methodology

The project is based upon an eight-step methodology developed and implemented over a three-year research programme. The steps are shown in Appendix B and include:

1. Define financial yield measures for tourism businesses, and measure current performance across various sub-sectors.
This will involve the establishment of a 20-member operator reference panel to inform the development of measures (Framework Report: Paper 1).
2. 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 (Firm Foundations 2002) to ensure fit with existing research, but to take account of tourism's unique structure and operating environment (Report 2).

Define economic and sustainable yield measures for tourism entities, measure the performance across sub-sectors and in two case-study regions. This will assess economic yield by examining three contributing perspectives – public sector/community, business and the visitor.

3. The public sector examination will involve undertaking two case studies in New Zealand regions looking at public costs and benefits and resource asset costs (Report 1).
4. An examination of visitors will be undertaken involving interviews of 800 travellers to assess their expenditure and consumption patterns, and to test visitor perspectives of value and relative competitive potential (Report 3).
5. The business examination will involve 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 (Report 4).

Development of sustainable yield indicators, strategies and tools to increase tourism yield will involve drawing together the knowledge gained during the course of the programme and generating indicators, tools and strategies to enable enhanced practice across the sector. This will include:

6. A summary report on regional yield (Paper 2)
7. Tourist types (Paper 3)
8. A strategy discussion paper for key stakeholders (Paper 4) to shape intensive work by the project advisory group and the project stakeholders to develop the set of outcomes that can make a significant difference to enhancing sector practice.

Tools for tourism firms: T1

These sequential components will be advanced annually over the three-year duration of the study. The sequential structure of the programme will ensure that there will be a series of tangible deliverables to be communicated to stakeholders throughout the course of the project. A **communications plan** is a key element of the programme to ensure the results reach the relevant decision-makers.

Appendix B provides a diagrammatic representation of the work plan, while Appendix C provides a schedule of milestone reports.

Chapter 2

Financial Yield

The aim of the section is to define a standard measure by which the performance of private sector tourism firms might be easily measured and compared.

The following chapter discusses a range of measures; including profit and loss, the costs of capital, goodwill etc. – to arrive at a measure of **residual income** (also known as Economic Value Added)

2.1 Introduction

The concept of financial yield can mean different things depending on the context and the degree of resolution that is required. In some cases, measurement is easy but in others, it is extremely complex and reliability is difficult to achieve. Complexity often lies with the definitions used and reliability arises from the ease and repeatability of measures against those definitions. The following examples illustrate this.

- a) In the case where there is a need for comparison between two or more similar products sold in a competitive market, financial yield might apply to the money received from the sale of goods or services less any direct costs of sale. Another term for this would be gross margin. The approach taken in this example acknowledges that if two competitors are selling the same product, a measure of their relative efficiency at point of sale is the gross margin.
- b) The next case extends the concept of financial yield beyond gross margin to include a broad set of manageable factors that influence the earnings² arising from sales. Accommodation Sector examples highlight this by recognising that variations in the relationships between sales volume, unit price together with corresponding fixed and discretionary costs results in a range of earnings (Tourism Tasmania, 1998). In the Tasmanian publication, earnings specifically excluded a number of costs: taxation and financing being just two. Whereas revenues are generally very specific and record the total dollar payment received for goods and services sold, costs (the total money, time and resources associated with a purchase or activity)³ are not. If financial yield is based on 'earnings' there is the need to further specify the nature of what is, or is not included as a cost (tax, depreciation and financial charges being the most common).
- c) Public agencies such as the US National Parks Service also refer to financial yield – not necessarily by definition, but rather in terms of what happens if it exists (Stanton, 1999). The National Park Service relates the values in its management policies to those of its tourism customers because such values will ensure a financial yield over the long term. In this case, the Parks Service equates a harmonious customer relationship to long-term prosperity.

2 Revenues minus cost of sales, operating expenses, and taxes

3 Investor Dictionary, www.investorwords.com

- d) The previous cases would hardly satisfy longer-term investors. An investor having the opportunity to purchase shares in a variety of businesses, would be interested in the surplus free cash flows⁴ these businesses produced. The relationship between free cash flow and value may differ from investor to investor because of taxation – since dividends or share price gains might attract different tax treatment depending on local tax policies. However, investors would probably regard the business with the highest surplus free cash flow as being the highest yielding business, but –with the observation of the National Park Service in mind, take into consideration how this free cash flow performed over time. The combination of both annual and trend performance of these free cash flows allows consideration of any performance risks that might be present. Such an approach permits comparisons between alternative opportunities for the investor’s cash and reduces these comparisons to simple percentage returns – or financial yields that arise from the economic concept of Net Present Value.
- e) An investor might also look further and examine the environment in which each competitor operates and determine whether or not any other factors might have an impact on these free cash flows over the life cycle of the investment. This introduces the concepts of externality and investment horizon. And finally, the investor would generally wish to adopt a measurement system that enabled different opportunities to be compared with a minimum of ambiguity.

These four examples have used the term ‘financial yield’ in a context of benchmarking or evaluating their undertaking. Each definition of financial yield adds value within that context, but comparisons between contexts would be invalid. What is clear is that financial yield must be used within a defined framework which is supported by reliable measurements. If businesses are being evaluated or compared across time the investor’s approach is most likely to deliver reliable comparisons.

2.2 Measurement

The usual starting point for measurements of business performance are statements of financial performance and financial position that are constructed in accordance with generally accepted accounting practices (e.g. NZGAAP⁵). There are a great many measurements arising from this approach - the majority of which are derived from an interpretation of earnings (i.e. revenues less direct operating expenses and either before or after additional costs arising from: financing, taxation, amortisation of tangible and intangible assets, etc). This focus on income was first challenged in the finance literature in 1952 when David Durand (Stanley, 2003) of MIT proposed the then unorthodox position that the financial goal of the business should be to maximise the investment value of the firm rather than to maximise income.’ The principal difficulty with earnings-based measurements was and still is that they are subject to wide interpretation that hamper comparisons and still do not fully address the requirements of an investor who is generally interested in the degree to which the net present value of the business rises and supports increasing share prices (capital gains) or cash distributions (dividends).

Stewart (1990) addressed the question of measurement of financial yield based on work done by Miller and Modigliani (1961) where the basis of analysis was free cash flow rather than

4 Free cash flow in this context is the net operating profit after taxation (NOPAT) minus the change in capital employed. The expression is widely regarded as a proxy for ‘economic profit. Damodoran (2001) compares the terms free cash flows *to equity* (FCFE) and free cash flows *to the firm* (FCFF). In this paper we are referring to FCFE.

5 New Zealand Generally Accepted Accounting Practices as administered by Institute of Chartered Accountants NZ.

dividend or earnings-based performance. This approach introduced both economic and business concepts and attempted to reduce all commercial performance to a single measure that he called Economic Value Added or as is now commonly referred to EVA®

This approach also addressed the dilemma of interpreting statements of financial position and financial performance by concentrating only on factors that provide economic dimensions of performance. The outcome was a mechanism that balanced economic operating surplus against the opportunity cost of the capital⁶ invested in the business. The opportunity cost of capital is derived from the required rate of return of both the debt and equity funds used to acquire them. This combined required rate of return is called the *weighted average cost of capital* (WACC). Stewart's approach simply subtracted from the economic operating surplus the cost of the capital employed. If the difference was positive, the business enjoyed a positive financial yield (EVA®), which if it was communicated to the market effectively would result in an increase in market value of the firm's stock (shares). If there is a negative financial yield then the converse applied, the market value of the firm would decline.

This approach also sought to eliminate a great many opportunities for ambiguity in measurement and eliminated many of the arbitrary accounting adjustments required under GAAP. For example costs such as R&D, restructuring costs, and leases that have long-term benefits are adjusted for by writing them back out of the operating statements and recognising them as assets. The rationale for these adjustments is to obtain a better representation of the economic assets of the firm. In particular is the recognition that intangible assets are becoming an increasingly important part of the firm's resource base in income generation and they need to be reflected in the calculation of the capital of the firm.

The accounting treatment of goodwill and R&D costs under a GAAP versus EVA® regime gives rise to significantly different performance viewpoints and levels of capital. The view of Stewart in advocating the use of EVA® as a more reliable performance metric is that there is no rational economic basis to arbitrarily 'write off' the asset goodwill and regard it as a cost when there has been no diminution of economic potential. Similarly the commitment of funds to undertake R&D is an investment in creating a capacity to increase future earnings and should be regarded as an asset.

Stewart and others argued that if a business generated positive financial yield (a positive EVA®) over time, it should be sustainable as it could command ongoing investor support. This view was based on the assumption that there existed a positive correlation between EVA® and the change in the market value of firms⁷.

6 Capital – the cash or goods used to derive income; or: the difference between the assets and liabilities of a business. For free-cash flow purposes, the capital is further defined as all of the cash that has been invested in a company's net assets over its life without regard to financing, accounting name or business purpose Stewart (1990, p. 86). Cash is chosen because it is tangible and consistent irrespective of the financing and asset management assumptions used. For instance, depreciation (not a cash item) is not consistently treated across firms but influences tax profits and therefore cash taxes. The cash profit is generally utterly different from the tax profit. Even so, shareholders have funded the asset with cash and expect a cash return from it forever.

7 This assumption is somewhat problematic as there is a considerable body of research that does not support this assumption. For example, Dodd and Chen (1997), Chen and Dodd (2001), and Turvey et al. (1999) reported no evidence was found to support the view that the relationship between EVA® performance and changes in market value was any stronger than traditional accounting based measures of performance and changes in market values. Notwithstanding these research findings, anecdotal accounts and case studies do suggest that in many cases firms have benefited significantly from EVA® adoption. Keefe and Rouse (2003) (cited in Sparling and Turvey (2003) suggested that EVA® is a management tool and as such it has the capability to modify management behaviour thus leading ultimately higher shareholder returns. Further support for the perceived benefits of EVA® can be found in the level of adoption identified in Bain & Company's Management Tools 2003 survey where 52 % of the 708 respondent companies in North and South America, Europe, Asia and Africa used EVA® (See http://www.bain.com/management_tools)

2.2.1 Calculating EVA®

If a trading entity measures both financial performance and position in accordance with the generally accepted accounting practices, it can be a straightforward exercise to determine the financial yield available to investors (who might well be the proprietors or the managers of that business). While the methodology of residual income/EVA as derived by Stern and Stewart is specific to each firm, the basic principles are as follows:

1. Derivation of Net Operating Profit after Tax (NOPAT)

- Annual cash revenues received
- Annual cash expenses incurred in achieving revenues
- Cash taxes (generally those derived from GAAP)
- Financial/borrowing expenses such as interest
- Identification of all non-cash costs
 - Depreciation of tangible assets
 - Depreciation of intangible assets such as goodwill or research
 - Deferments arising from taxation policies
 - Economic loss of utility (the economic rather than accounting or tax depreciation of an asset)
- Identification of non-cancellable operating leases payments for assets fundamental to the business
- Any other factors that affect the flows of cash on an annual basis

A common treatment of cash items is important for consistency and for the rigour of identifying those that do have a real cash value and those that do not. A commonly used metric is Net Operating Profit After Tax (NOPAT) the calculation for which is included below.

**Table 1
NOPAT Calculation**

	Item	Treatment
+	Revenues	Booked Revenue
-	Accrued revenue	Revenue not received
-	Operating Expenses	Every expense incurred
-	Economic Depreciation	Loss of utility
+	Accounting Depreciations	Goodwill + Assets
+	Finance Costs	Costs of borrowing
-	Taxes Paid	Cash Tax
+	Taxation Expense	Accounting Tax
+	Lease Costs	Costs of non-cancellable leases
=	NOPAT	

Note: In this table, there are items such as accrued revenue and depreciation that are not associated with cash and their effects are removed. There are also adjustments to expenses associated with financing assets (e.g. leases or overall costs of borrowing to secure working capital) and the tax treatment of accounting profit. In the case of leases and depreciation, the underlying assets are included in the derivation of Capital. These adjustments enable consistent comparisons between enterprises.

2. Derivation of Capital

- Shareholder’s Funds
 - Fixed Assets
 - Current Assets
 - Inventories and reserves
 - Cash in Bank
 - Goodwill paid
 - Retained Profits and Reserves
 - R&D
 - Any other items that have cash implications
- Debt
 - Interest Bearing Liabilities (Long-term and current)
 - Present Value of Non-cancellable Operating Leases
 - Deferred Taxes
 - Cash liabilities to employees or customers or governments

There are two different pathways to calculating capital; an operational approach⁸ and a financial approach. These are elaborated below.

Table 2
Capital Calculation using an Operating Approach (=Working Capital + Net Fixed Assets)

+	Cash on Hand	Bank Funds
+	Fixed/Other Assets	Plant, Equipment and Fittings
+	Receivables	Money due for sales made
-	Payables including accruals for tax and other expenses	Cash liabilities to employees, customers or government
+	Inventories and Reserves	All stock on hand and write-off reserves valued at cost
+	Gross Goodwill	Original Goodwill paid
+	Present Value of operating Leases	P.V. of lease payments over the lease life

⁸ The operating approach is the more traditional one and mirrors a statement of financial position (balance sheet). However, recall that some items were adjusted (e.g. asset depreciation) in the calculation of NOPAT and are transferred to Capital because they form really part of resourcing the business.

+	Accumulated Tax Depreciation	If Fixed Assets are recorded at depreciated value, add accumulated depreciation
-	Economic Depreciation	Expense Economic Depreciation as well
=	CAPITAL	

Or, using a Financing Approach (=Shareholder's Funds + Debt): This is an approach that a shareholder might prefer and gives exactly the same value as the previous example. It says that the capital is the current worth (common equity) plus all debt and adjustments for the depreciation of assets and goodwill as well as any deferred items, provisions or reserves.

Table 3
Capital Calculation using a Financing Approach
(=Shareholder's Funds + Debt)

+	Debt: short term	
+	Debt: current portion of long-term debt	For Long-term debt that is segmented into current and long-term
+	Debt: senior long-term	Long-term component only
+	Capitalised Leases	Capital value of a Lease
+	Present Value of operating leases	Present value of operating lease payments over the contract period
+	Common Equity	Shareholder Funds
+	Inventory Reserves	Add back deductions
+	Accumulated Goodwill amortisation	Add back deductions
+	Taxes deferred	Add back deductions
=	CAPITAL	

3 Derivation of Cost of Capital (WACC)

And finally there is a need to determine costs associated with the capital itself. Broadly there are two forms of capital, debt and equity, each of which is usually associated with different costs /risk assessments. As the ratio of owner's equity and borrowing shifts markedly between firms, the two have to be combined into a single formula – the 'weighted average cost of capital'.

PricewaterhouseCoopers⁹ uses the following weighted average cost of capital formula to calculate the WACC'.

$$WACC = R_d(1 - T_c) \frac{D}{V} + R_e \frac{E}{V}$$

Where:

⁹ see <http://www.pwcglobal.com/Extweb/pwcpublishations.nsf/docid/748F5814D61CC2618525693A007EC870>

- R_d The pre-tax cost of debt, based on the current yield on traded company debt instruments or estimated, taking account of company gearing, size, industry risk, etc.
- T_c The marginal corporate tax rate
- D, E D and E are the market values of the business' debt and equity respectively and V is the sum of D and E . Therefore, D/V and E/V represent the relative weightings of debt and equity employed in the business' operations
- R_e The cost of equity capital

The cost of equity capital for each company used by PricewaterhouseCoopers in New Zealand in calculating the WACC's has been derived from share trading in the New Zealand Stock Exchange and has not been 'blended' with the cost of equity capital for similar companies listed on overseas stock exchanges.

PricewaterhouseCoopers applies the post investor tax specification of the Capital Asset Pricing Model (CAPM) in establishing the cost of equity for a business, using the following formula and inputs:

$$R_e = R_f (1 - T_i) + b_e [R_m - D_m T_m - R_f (1 - T_i)]$$

Where:

- R_f The risk free rate of return based on the current yield on five year Government Stock
- T_i Investors' effective tax rate on interest and dividend income and capital gains. Because some investors are subject to capital gains tax in New Zealand, T_i is not equal to the marginal personal income rate
- b_e Equity Beta
Equity beta estimates used in calculating the WACC is based on an average of monthly returns over (up to) five years, blended with weekly based estimates where less than three years of data is available. The beta estimates incorporate no adjustments to historical betas as measured.

$$[R_m - D_m T_m - R_f (1 - t_i)]$$

Post Investor Tax Market Risk Premium, where:

- D_m The cash dividend yield on the market portfolio
- T_m Tax parameter applicable to the market dividend yield

We derive our estimate of the post investor tax market risk premium from PricewaterhouseCoopers' research on New Zealand equity market returns. Refer to our paper describing the methodology we have employed to estimate the market risk premium.

So an Investor would see the yield through the mechanism of residual income (EVA®) as follows:

$$\text{NOPAT} - (\text{WACC} * \text{Capital})$$

If a business generated its cost-of-capital (i.e. $\text{NOPAT} = \text{Capital Charge}$), the financial yield as a percentage, is its WACC; as a value is its NOPAT (Table 4).

Table 4
Deriving financial yield

NOPAT-Capital Charge	Financial Yield (%)	Financial Yield Value (\$)
Zero	WACC	NOPAT
Otherwise	$\frac{NOPAT}{Capital}$	NOPAT

2.2.2 How Does This Approach Sit With Tourism?

Discussions within the Tourism Sector (Becken & Butcher, 2004) have noted the lack of consensus on a definition of yield, but rather the acknowledgement that it extends beyond visitor expenditure (or business revenue) and might encompass influences on the host society and the environment. But Dwyer and Forsyth, (1997), say that yield is the 'net economic gain that takes account of the benefits and costs of tourism activity'. This view is akin to that of Stewart's where the EVA concept is specifically rather than just narrowly applied to a business trading in the market.

2.2.3 Other Measures

The ratio of $\frac{NOPAT}{Capital}$ is also found in other measures commonly associated with businesses. In broad terms, this ratio is seen as a 'return on assets', or more accurately 'return on capital employed'. One reason for re-considering the commonly used accounting measures is that they are not uniformly applied and a single example suffices to illustrate this.

If a cash-based approach is used, as described above, any plant or equipment that is unavoidably used to produce cash is an asset – even though it might be leased for a period of time – and the present value of the annual lease payments over the lease period is entered as an asset and included in 'capital' and the annual payments stripped out of operating profit. But in accounting terms the lease of the plant or equipment is generally an operating cost represented by the annual lease payment and there is no capital value. If this were applied to, say, Air New Zealand and the treatment of its aircraft in its 2004 accounts, the capital approach (rather than the accounting approach) would increase total assets from \$2,528,138,000 to \$6,928,138,000 and operating surplus (before tax) from \$67,132,000 to \$378,458,000 or a 'return on total assets' change from 2.7 per cent up to 5.5 per cent (Table 5).

Table 5
Treatment of leases for aircraft in the case of Air New Zealand

	Cost of Lease	Operating surplus	Total assets	Return on assets [%]
Accounting	-\$311,326,000	67,132,000	2,528,138,000	2.7
Capital approach	+\$311,326,000	378,458,000	6,928,138,000	5.5

This example highlights the difficulties associated with accounting measures if results are to be compared or aggregated. The comparison of 'return on assets' between two identical businesses - one without equipment leases and the other owning its equipment – would deliver entirely different accounting results even if every other measurement were identical. By simply eliminating assumptions as to how assets are financed or depreciated, a significant source of distortion is eliminated immediately. This is important if simplicity and practicality is required from surveys or samples of tourism businesses.

2.2.4 Practical Issues

Measurements shown above include almost all of the common factors represented in a financial statement of performance or statement of financial position. However the commercial world has a wide variety of approaches available and obtaining a true economic picture (cash based) may not be easy even though financial statements comply with generally accepted accounting practices. It is not the purpose of this paper to pursue this except to state that if comparisons between businesses are to be made, or the outputs from them aggregated, the measures need to be both robust and simple.

If a small business presents its financial statements together with a description of asset usage it is generally a straightforward matter to produce a statement of free cash flows by taking the Net Operating Profit after Tax (NOPAT) and adding back depreciation, goodwill amortisation, financial charges and lease payments (non-cancellable).

With larger businesses and public or listed businesses in particular, the annual reports generally provide sufficient information to identify the free cash flows without the need to interview management.

Useful information is collected by Statistics New Zealand in its Annual Enterprise Survey and provides statements of Financial Performance and Financial Position by ANZSIC¹⁰ class and in some cases by clusters of ANZSIC classes. The overall results for the 2002-year are shown in Appendix D. and particular clusters that are relevant to Tourism (but not explicitly so) are also shown in Appendix E. It is possible to develop free cash flow models from this information provided the assumptions surrounding asset versus lease treatment and other non-cash items such as good-will amortisation are ignored (see Appendix F.). Clearly these assumptions will need to be tested.

A better approach would be the customisation of the Annual Enterprise Survey¹¹ outputs from tourism businesses. This approach would address the areas of greatest potential distortion by eliminating financing and asset treatment assumptions.

A second practical approach that has been used by the Tourism Industry Association NZ for the past 3 years is a financial calculator submitted in conjunction with an application for entry into the NZ Tourism Awards. This calculator produces NOPAT and addresses the key areas of distortion.

¹⁰ ANZSIC is the Australia-NZ classification system that assigns codes to business activities.

¹¹ The Services Questionnaire is found at: <http://www.stats.govt.nz/domino/external/quest/sddquest.nsf/12df43879eb9b25e4c256809001ee0fe0fe4976391b1d978cc256ed80083940f?OpenDocument>

2.3 Summary

This chapter has examined many approaches to the term ‘financial yield’ and submits that a definitional approach that is based on the standard accounting statements of financial performance and financial position can be used provided the cash elements of these reports are used and that assumptions as to the manner of funding debt or treatment of assets are

reduced to as few as possible. Under such circumstances, the term ‘financial yield’ is $\frac{NOPAT}{Capital}$, expressed as a percentage or NOPAT, if expressed as a dollar value. The behaviour of ‘financial yield’ over time also provides a measure of the stability and strength of a business.

Chapter 3

Sustainable Yield for Tourism: Economic and Sustainability Components

This section will take a wider perspective beyond the individual tourism firm and discuss the concepts of economic and sustainable yield. These measurements take into account the fact that tourism draws on services provided by the public sector, society including Not-For-Profits and the environment. The goal is to derive key indicators for measuring economic and sustainable yield.

3.1 Introduction

'What would it mean for an economy to be managed sustainably? ... [B]oth the output of the economy needs to be sustained and the underlying resource base that gives rise to that output.' (Pearce 1994, p3)

The above quote recognises that there are two aspects of sustainability, namely an economic and a natural/social component. For the output of the economy to be sustained it must generate sufficient income to meet all costs of production and make investment such that at least a **constant stock of capital** is maintained. The capital stock can include **built, human and social** capital. Meeting the second aspect of sustainability requires that **natural** capital stocks are at least maintained. These criteria can be applied not only at the aggregate level for each country but can also be applied as per capita measures.

Several researchers have investigated if countries are meeting these sustainable management criteria and note that many countries appear to fail this test on a per capita basis (Pearce 1994, Dasgupta 2002). As Dasgupta notes many 'developing' countries appear to be *disinvesting* as they rapidly extract timber, oil, gas, fish and other raw materials, and their natural capital stocks per capita and total capital per capita are falling. Another component of sustainability is the maintenance of sufficient energy sources whether energy carriers (oil, gas, coal) or access to renewable energy sources (solar, wind, hydro). These items can be considered both in aggregate, or on a per capita basis.

The notion of capital, and especially the consideration of **natural capital**, provides a useful starting point to consider how we might determine if a sector of an economy is providing a 'sustainable yield.' We want to be able to measure sustainable yield for businesses and regions. Two criteria to determine if a sector of a regional or national economy is providing sustainable yield are to check if its economic output is being sustained *and* if it is underpinning resource base is at least being maintained. We first examine this proposal, suggest how the idea may be implemented and indicate the data that will be needed if it is implemented. Once we have collected and analysed information on sustainable yield, we can determine how sustainable yield might be enhanced within tourism firms, regions, and the nation as a whole.

3.2 A Typology of Goods and Services

It is helpful to our analysis if we have a simple basis for grouping goods and services. One way to do this is the two dimensional typology shown in Figure 1 that uses excludability and rivalry in consumption of various goods and services.

Figure 1
Rivalry for Goods or Service

		High	Low
Excludability	High	Private goods Computer 1 x time/private	Club goods
	Low	Roads Congestible goods	Light House Public goods

These features of goods and services may change over time as technology increases ability to exclude users at reasonable cost. There is a continuing trend whereby technological advances enable public goods to move toward either congestible or private goods.

Any good or service can be provided by the private sector, the not-for-profits, or the public sector. But the typology above provides some insight into why the private sector typically provides private goods and the public sector and not-for-profits provide many congestible and public goods. The private sector needs to earn profits to continue in business and they have the best chance to do that if they provide goods or services where they can exclude users who do not pay. Where excludability is weak, the private sector is unlikely to be interested in providing those goods or services and the public sector is often the provider of last resort.

3.3 The Wider Picture – Moving Beyond the Individual Firm

For the output of the economy to be sustained it must generate sufficient income to meet the costs of production and make investment such that it is at least maintaining a constant stock of capital (built, human and social). This is the economic component of sustainable yield. Financial yield calculations focus on an individual entity and often do not take into account wider effects on the national economy, society or the environment. It is important to recognise that each entity relies on the provision of congestible and public goods, some of which are priced and others are not. In those cases where there are weak or zero property rights for the inputs or services, there is often zero charge for their use. It is useful to distinguish between those inputs where a monetary transaction takes place (either directly or indirectly through the redistribution of taxes), and inputs where there is no evidence of financial transactions (for example the use of water in some cases).

To determine if tourism is providing sustainable yield we must identify:

1. The **economic component** (i.e. the quantum of priced, partially priced or zero-priced inputs that cause some measurable costs elsewhere in the economy via the public sector); and

2. The sustainability component (i.e. the nature and quantum of un-priced services provided to tourism based on natural capital; this involves imputing a shadow price where possible).

In principle all of the inputs, facilities and services that tourism makes use of can be priced, and in practice a high percentage of them are already priced either in markets or where there are charges associated with their use. For example major inputs of capital, labour, energy are priced in competitive markets. While many services have charges or rates, these payments may imperfectly allocate costs to users. Water, wastewater and solid waste collection and disposal are some examples of these possibly under-priced services (Cullen *et al.*, 2003). There are some obvious services in New Zealand that do not have user charges. Civic facilities including urban parks, regional and national parks and reserves, art galleries, museums, car parks, public toilets are some obvious examples where there are typically zero charges to users.

Another group of services are based on the use of natural capital. These services have recently been the subject of some research that has attempted to quantify their importance to the global economy (Costanza *et al.*, 1997). Often, these services are associated with costs to other entities or to society, so-called external costs. Examples of external costs include emissions from business activities into waterways and airways (such as CO₂ and other greenhouse gas emissions). Where these emissions exceed the assimilative capacity of airways and waterways, quality changes occur and can impose costs on other users of these systems. “Ecosystem services” that are particularly important for tourism in New Zealand include natural recreation settings (marine and terrestrial) and landscape. These are either public goods or congestible goods and are key items attracting tourists to New Zealand. New Zealand is unusual in having legislation that rules out direct charging for these ecosystem services in national parks and reserves¹².

There is nothing new about the concept of economic yield as far as economics is concerned. National viewpoint Cost Benefit Analysis (CBA) has always conceptually covered all types of costs and benefits. It has typically ignored distinctions between equity and debt and has applied a single (risk-free) discount rate on the grounds that the country as a whole is risk-neutral. It has included labour and other inputs at their shadow prices (i.e. their opportunity cost rather than its market price), although in well-developed market economies such as New Zealand the market price has generally been assumed to be the shadow price. The necessity of taking into account any difference between the prices charged to users and the costs of production has also long been recognized. Typical of this were the analyses of Central Otago irrigation schemes in the 1980s, which explicitly included government subsidies as a cost of the projects. Economic policy analysis habitually considers the implications in terms of costs and benefits to parties outside the immediate decision-making parties.

CBA has accepted that externalities such as pollution or improved recreational values should be included as costs or benefits, even if there is no market price for them. Things typically regarded as intangibles (such as savings in time, increased noise, increased risk of loss of life, air pollution effects on health and, more recently, CO₂ emissions) have had imputed values placed on them for project analysis¹³, and these values are included in the economic analysis (but not the commercial analysis). Intangibles (i.e. no economic values estimated) have traditionally been (qualitatively) included in the final decision-making process, with the final

¹² There are, however, several schemes for voluntary financial contributions to maintain those services or the natural capital.

¹³ For example see Transfund (2003), Project Evaluation Manuals.

decision reflecting a weighing up of the net financial value arising from all market transactions, the non-market transactions with imputed values and the non-quantified intangibles.

3.4 The Economic Yield Component

The target to be pursued in economic yield calculations includes a full allocation of actually occurring costs and comparison of these costs to the charges incurred by businesses. Economic yield can be focused on two cases, namely: public sector provided inputs (that include services which are potentially under-priced or for which costs are not adequately allocated) and public sector services provided at zero price.

3.4.1 Imperfectly Priced Public Sector/not-for-profit Services

Most of the services provided by the public sector (i.e. districts, cities, the nation) are already priced and firms pay rates or charges for them (see Table 6). Examples include airport landing fees, road user charges, petrol taxes, rates and charges for water, wastewater, solid wastes, electricity distribution and DOC concession fees. These charges/fees/rates/taxes will be included in firms' Income Statements and hence influence their financial yield. Tourists pay directly for some services provided by the public sector, for example through airport taxes or hut fees.

Table 6
Income and Services Provided by Public Sector Through a Direct and Specific Transaction

Income/Service	Level	Questions to be asked
Rates	Local	Any net subsidy from / to tourism industries?
Airports	Local	Is the cost of services (including border control of all sorts) passed on to the users (e.g. departure tax)?
Water	Local	Is there any net subsidy from / to tourism industries, and is price at the margin equal to long run marginal cost?
Sewerage	Local	Is there any net subsidy from / to tourism industries, and is price at the margin equal to long run marginal cost?
Waste disposal	Local	Any net subsidy from / to tourism-type industries?

The rates or charges may not accurately allocate costs of providing these services to tourism firms and tourists and may not equal Average Cost or Marginal Cost for the relevant services. This is likely to mean that tourists and tourism businesses are subsidised by some other group, and some enterprises and individuals are allocated more than their share of costs.

There are many commercial tourism activities that make use of nature, the environment, and scenery. Examples include whale viewing, dolphin viewing, glacier walks, skiing, climbing, cycle tours, tramping, nature watching (geysers, plants, rocks, birds). All businesses providing tourism services that require a concession from the Department of Conservation or relevant landowners will aim to pass those costs on to their customers. Currently, there are 3781

concessions in place; and a total of 33 million individual visits to conservation areas around the country were made in 2003.

It is useful to distinguish between public sector services provided at the local or regional level (city, district councils) as opposed to the national level (central government or national agencies). For costs occurred at the level of local government the following formula provides a good starting point:

$$\text{Net Economic Cost} = \text{Total Cost of Production} - \text{Commercial Charge to Tourism}$$

The total cost of production in the above formula would also include costs for capital as captured in the EVA framework described in the section on financial yield.

3.4.2 Services Provided by the Public Sector/Not-for-Profits at Zero (direct) Price

There are likely to be some public sector services provided at zero price to visitors and to tourism operators. Examples include entrance to museums, art galleries, national parks and reserves, marketing, information supply and bio-security (Table 7). These items are typically provided by district or central government and are often funded by general rates and by taxes (e.g. income, company GST). In many cases their funding is supplemented by income from sales of merchandise and by donations from users and supporters.

Table 7
Income and Services Provided by Public Sector/ Not-for-Profits at Zero Charge and Without a Specific Transaction

Income/Service	Level	Questions to be asked
Public entertainment facilities	Local/National	Funding structure of facilities (e.g. what taxes are used and what proportion of taxes is paid by tourism); costs could be average costs per visitor or marginal costs.
Public services such as parks, parking, toilets etc	Local	Need a measure of net cost and proportion of users who are tourists. What proportion of the net cost is met by the rates of tourism operators?
Roads, signs, and roading capacity	Local/National	Do road user charges and petrol taxes cover the costs or providing road network capacity?
Marketing (TNZ, RTOs).	Local/National	Subsidy on a national level, net of proportion paid by rates from tourism operators on a local level.
Road accidents and other ACC cover	National	Does ACC contribution paid for through registration of vehicles cover costs? Are accident rates for visitors higher than average?
Research	National	Does government funds tourism research for the interests and needs of the industry rather than for the formulation of government policy?

Income/Service	Level	Questions to be asked
DOC	National	What is the average cost per visit for specific sites and for New Zealand as a whole?
Regional Parks	Regions	What is the average cost per visit for specific sites and for the region as a whole?

In many instances tourists can climb, cycle and tramp at low cost - if they pay no entrance fees to national parks, regional parks or reserves. The National Parks Act 1981 and the Reserves Act 1978 provide the public freedom of entry, while use of parking areas, toilets and tracks rarely involves any payment by users. Interesting questions arise concerning the proportion of the costs incurred by the Department of Conservation for parks and reserves which can be ascribed to visitors since some is presumably for residents in terms of existence values, and the extent to which extra visitors change the costs of provision. In general, higher usage means greater provision of services, so it is probably reasonable to include the entire costs of providing visitor services as a subsidy to the visitor industry.

In a number of circumstances the public sector is compelled to provide services at no direct user charge because, it is argued, this will avoid a greater economic or environmental cost. A useful example is the provision of public toilets, for which an entrance fee could be charged, but in remote locations the risk of tourists avoiding paying this fee and creating ‘spill-over’ costs (environmental damage or cleaning) is reduced by the provision of a merit good. Overall, the sum of costs (economic and sustainable) to the public sector is minimised by accepting some direct costs associated with providing the toilets at zero price to users.

Income tax and consumption taxes are the major taxes and source of potential transfers from tourism to the New Zealand economy. Tourism is one of the few industries, which pays GST on most of its foreign exchange earnings¹⁴. On the face of it, payment of taxes is a benefit to New Zealand, but one needs to think of the opportunity cost of the resources used to produce tourism services. If resources used in producing goods and services for international tourism would otherwise be used to displace existing imports¹⁵ or to increase exports (which earn no GST), then their use in tourism generates a net increase in GST, which is a benefit to New Zealand. If the tourism resources would otherwise have been used to produce goods for increased domestic consumption then they would have still generated GST in those uses and their use in tourism generates no net increase in GST. The effect on overall income tax of resources being transferred from tourism to elsewhere would generally be zero, and hence income taxes are not usually regarded as a benefit of tourism activity.

GST is not levied on exports partly because of the presumed inelasticity of export demand and inability of exporters to compete on world markets if the rest of the world had to pay an additional New Zealand tax in addition to local taxes in the importing country. Another reason for not levying GST is because it is not thought fair or reasonable to impose taxes on foreigners who get no benefits from the tax (no taxation without representation). Given that international visitors do benefit from the range of government-provided services they use in New Zealand, then there is some argument for charging GST. But they do not get the major benefits that

14 International Education is another.

15 Hence reducing GST on imports at the same rate as it was increased on domestic production.

make up a very large part of government spending: social welfare, health and education. Also, if we are going to include in economic yield the costs of publicly-provided services charged at less than cost of production, then we should include as a benefit the various consumption taxes that visitors pay, including fuel tax, GST and other excise taxes.

3.5 Sustainability Component

Nature provides many functions that are valued by humans. When we benefit from these functions they can be described as Ecosystem Services (ES) (Costanza et al., 1997). Many of these ES have weak or zero property rights and are 'open access' items. Countries that maintain specific parts of nature and their associated ES may share those ES with the rest of the world.

A major proportion of the value of biodiversity consists of non-use values. These often accrue to the global community, while single developing countries face the costs for preservation (Myers, 1997a).

One way to deal with this problem could be direct money transfers, enabling stakeholders to appropriate the global benefits of conservation (Gössling, 1999).

In some instances when we make use of an ES, which is not formally owned by anyone, there may be alternative uses for the ES. In those instances there is an opportunity cost associated with use of each unit of the ES, but there is zero charge for use of the ES. Hence users will not appreciate the scarcity of the ES they are using, and their activities will appear to be more profitable than will be the case if they are required to pay the opportunity cost.

When enterprises or individuals use these ES they may also impose costs on other enterprises or individuals, creating an external cost for them. The idea behind external costs or benefits is that a decision-maker does not take into consideration possible costs or benefits to third parties when deciding how resources should be used. The benefits or costs are 'external' to the items recognised by decision makers pursuing maximization of their net benefits.

The emission of pollutants into both air and water are typical examples of externalities. Many transport systems are used heavily by tourists and generate greenhouse gases. There are at present no charges in New Zealand for emissions of greenhouse gases. Greenhouse gas emissions are about to be internalised (at least partly) by carbon charges. The New Zealand government has signalled that it will introduce a 'carbon tax' in 2007 per tonne of fuel used (McNabb, 2004). The tax does not change the social cost of fuel usage, but means that all industries (including tourism) are forced to meet the cost and hence it will automatically be included in financial EVA from that time onwards.

Tourism also causes external benefits, for example in the form of regional development and infrastructure improvements. Improved access for transport is also often a result of increased tourist activity.

3.6 Methodology

To derive economic and sustainable yield we need to collect information in firms, regions, and the nation to allow us to complete those calculations. Each of the above components of sustainable yield requires a different methodology.

3.6.1 General Approach

The data collection could be undertaken using extended Input-Output analysis. This approach has been used to complete calculation of Ecological Footprints for New Zealand (Bicknell *et al.*, 1998) and for regions in New Zealand (McDonald & Patterson, 2004). Some virtues of the Input-Output approach include its ability to systematically track both forward and backward linkages. The approach requires establishing relationships between drivers such as tourist numbers and uses of e.g. specific ecosystem services.

In contrast, an item-by-item approach (bottom-up) is likely to be simpler to complete and make fewer demands for data, but it runs the risk of overlooking some components. The approach is already used to estimate the carbon footprint of businesses (e.g. <http://www.ebex21.co.nz> accessed 14/10/04). With suitable adaptations the approach might be used to quantify other ES used by tourism. Becken *et al.* (2001) for example have estimated the energy use associated with various types of tourist accommodation in New Zealand. Becken (2002) has investigated the use of various transport systems by tourists in New Zealand.

3.6.2 Geographic Stability

Many costs are not universally in the same category. For example, in Auckland water is supplied and charged at a marginal cost which is equivalent to the cost of supply whereas in Christchurch there is a flat water charge to households, which covers the average cost of supply, but the marginal unit used is not charged. The anomaly between marginal price and marginal cost is probably more severe in Akaroa where water is charged for per unit used, but the price is constant throughout the year whereas in summer when water runs out, price does not reflect the higher opportunity cost or marginal cost of supply. Note that in the case of sustainable yield it may be necessary to account for opportunity or external costs.

3.6.3 Temporal Stability

Over time items may move from sustainable to economic and finally to commercial. For example, loss of life through car accidents used to be a sustainable cost (no financial value), but since the 1980s it has had a monetary value attached, and it could readily become a commercial cost if insurance premiums for visitors reflect the average cost of lives lost. Greenhouse gas emissions are a cost in terms of sustainable yield, but are on the verge of becoming a cost in terms of economic yield cost in that government has committed to the Kyoto protocol and a CO₂ tax is being included in some economic analysis. Greenhouse gases could also rapidly become a cost in terms of financial yield if the tax is included in prices. Indeed, some firms already are purchasing carbon credits as a buffer against anticipated future costs of greenhouse gas emissions.

3.6.4 Economic Yield

Within the two case-study regions it is essential to analyse the cost structure of public sector agencies and Not-for-Profits and identify unit costs (e.g. \$/litre of water, average cost per museum visit) for all services that are relevant to tourism. The second step is to identify how

much users currently pay for those services and whether the costs are allocated fairly. The information on how much tourism entities consume (e.g. water) and what they pay for public sector services should be available from their accounting records (e.g. rates paid) or retrievable through interviews. It is then possible to determine whether tourism entities pay the right share or whether there is a 'deficit' or 'surplus', i.e. one sector subsidising other sectors.

We need to assess the relationship between marginal costs of provision and average costs of supply of these services. The incidence of rates is highly variable across the country. In principle rates are levied according to benefits gained (Local Government Act), but in practice there are many considerations of a political nature. Work undertaken by Market Economics for the Ministry of Tourism (2003) and elsewhere by the Agribusiness Group (2004) are relevant. On the face of it the results are almost contradictory, with Agribusiness saying that in many instances there are inequities occurring (between costs imposed by a sector and rates paid by the sector), whereas Market Economics felt that in the case of tourism there was a fair recovery of costs from the tourism sector. However, a more careful analysis shows that Agribusiness felt that the inequities related in particular to areas such as public goods (non-exclusive use) rather than services such as water, sewerage, etc., whereas the Market Economics conclusions related primarily to provision of these latter services.

The Market Economics study does comment on the inability of small centres to fund expansion of infrastructure, and the 2004 Budget announced funding of \$11 million over three years for Vote Tourism to assist small communities with high tourism flows to invest in water and sewerage infrastructure. There is also a Sanitary Works Subsidy Scheme (SWSS) run by the Ministry of Health, which provides subsidies on a sliding scale of up to 50 per cent for communities of between 100 and 10,000 people to fund wastewater projects and drinking water fluoridation. It aims to reduce public health risk and in so doing, minimise negative effects on the environment and society. The implication is that in small centres tourism is likely to be subsidized if there is provision of water and sewage treatment facilities at less than full cost.

The case of public sector services that are provided at zero price is somewhat simpler because costs of provision – once identified – can be allocated to users in an agreed way. It will therefore be necessary to collect consumption data from enterprises as well as from tourists. Costs that occur at a national level, for example marketing and biosecurity, need to be accounted for as well and allocated to users following defined allocation rules (such as per-person-day).

DOC, for example, maintains a VAMS (Visitor Asset Management System), which contains data on the cost of every physical asset owned by DOC and the annual costs of maintaining it, although the opportunity cost of capital is excluded. This data-base also contains data on the estimated number of users of each asset. DOC also hold data on the costs of running their visitor centres, but it seems that they have not collated this across the country, although enquiries about this are continuing. We can calculate an average cost per visit both for specific sites and for New Zealand as a whole. By knowing how many sites (and possibly what specific sites) are used by each of the various categories of visitors, we can calculate an economic cost per visitor type. We need to deduct from the costs of provision any net revenue gained by DOC from visitor concessions. DOC is currently working to estimate how much, if any, net revenue they generate from tourism concessions.

3.6.5 Sustainable Yield

Data for external costs, such as the emission of greenhouse gases or other pollutants, will be taken from the research literature where possible. Shadow prices for these, and other currently un-priced items, are needed to determine the sustainable yield from tourism. The extent of external costs depends substantially on assumptions / assessments made by the research team. For example, the total external costs depend on the number of impacts considered, the level to which life cycles are included (i.e. up- and down-stream effects or indirect costs), systems boundaries (e.g. geographically), and the treatment of accumulative effects (e.g. health versus mortality) (Schleisner, 2000).

The shadow price for CO₂ varies in different studies and could be around 20 – 30 euro per tonne of CO₂ equivalent, i.e. with the inclusion of the effect of NO_x in the upper troposphere, or as high as 140 euro per tonne (Maibach & Schneider, 2002; Department for Transport, no date). These ranges reflect the scientific uncertainty associated with climate change risks (especially from aviation¹⁶), and they also highlight the need for transparency in accounting, for example with regards to accounting for CO₂ as opposed to carbon, or the additional consideration of other greenhouse gases and their combined effect expressed as CO₂-equivalents. For New Zealand the suggested carbon tax of \$15 per tonne of CO₂ -equivalent could provide a proxy for the shadow price of CO₂ emissions, although it is noted that this is at the lower end of the range described above.

Other external costs that may be important items in determining sustainable yield of tourism include road congestion, accidents, air pollution, noise pollution and impacts on the well-being of local communities. Many of those costs are difficult to measure, and it may be problematic to allocate quantifiable shares to tourist activity. Estimates of the external costs associated with transport have been completed in some countries and Pearce (1994, p.158) has calculated that in Britain in 1991 they were in the range £22.9 – 25.7 billion. Congestion can be measured by putting a dollar-value to an hour of wasted time. In Europe this has been estimated as 8.66 euro/hr (Maibach & Schneider, 2002). In New Zealand, estimates of the total cost of road congestion range from \$1 billion to close to \$4 billion (Dye 2003). Ministry of Transport (2003, p.5) note that for some of the main New Zealand cities ... ‘and certainly for Auckland and Wellington, more detailed data and estimates of average and marginal congestion costs already exist.’

Other externalities have been priced in the European context (see for example Pearce and Pearce, 2002), for example the average value of statistical human life in Europe is 1.5 million Europe, which translates into an external cost (marginal cost) for accidents of 0.6 euro per 1000 passenger-kilometres (Maibach & Schneider, 2002). Noise is another important externality associated with transport, both by air and surface. Willingness to pay for noise reduction is one way of monetising this cost. Figures are available for the willingness to pay for noise reduction at various European airports (Maibach & Schneider, 2002; Department for Transport, no date) and attempts to value noise have been made in the context of Auckland airport.

Several thousand non-market valuation studies (NMV) have been completed in more than 100 countries to estimate ‘willingness to pay’ for many public goods. Non-market valuation studies are costly to complete and researchers have developed value transfer methods to reduce the

¹⁶ The overall radiative forcing of air travel is estimated to be 2.7 times higher than the mere effect of CO₂ as a result of other effects specific to aviation, such as the formation of ozone and contrails in the upper troposphere.

need to complete new NMV studies. Value transfer methods might be used with caution to provide estimates of the costs of some items linked with tourism. A database of New Zealand NMV studies is maintained at Lincoln University¹⁷ and is an excellent starting point for value transfer to the New Zealand context.

Table 8 provides a summary of the indicators and types of data that might be collected and likely data sources.

Table 8
Indicators for Measuring Sustainable Yield

Economic Component			Sustainability Component	
Measure/ Indicator	Measure	Paid for Through	Information From	Non-monetised Costs/benefits
Water	Litre	Directly: rates	Councils + entities	Environmental and opportunity cost
Waste	Kg or m ³	Directly: rates	Councils + entities	Environmental costs
Wastewater	m ³	Directly: rates	Councils + entities	Environmental costs
Electricity	KWh	Directly: Electricity bill	Electricity company + entities	Emissions, other environmental costs and opportunity cost
Use of conservation land	\$/visit	Directly: concession	DOC + entities	Environmental costs, biodiversity and opportunity cost, crowding
Road usage/signage	\$/Kilometre	Directly: petrol	Transit NZ + entities	Congestion, emissions, other environmental costs, accessibility
Airports	\$/passenger	Directly: departure tax	Airports	Noise, environmental costs
Biosecurity	\$/person	Indirectly	MAF	Biodiversity benefits
Accidents	\$/event	Directly: petrol	MOT, ACC	Value of life
Information services	\$/person	Indirectly	Information centres + TNZ + RTOs + firms + tourists	Increased visitor satisfaction
Museums/galleries etc.	\$/person	Indirectly	Providers + entities + tourists	Benefits for communities
Cultural events	\$/person	Indirectly	Providers + entities + tourists	Benefits/impacts for communities
Marketing	\$/person	Indirectly	TNZ + RTOs + entities	Wider recognition of NZ
Facilities (e.g. toilets)	\$/person	Indirectly	Providers + entities + tourists	Avoided costs of recovery
Community services ¹⁸	\$/person (local)	Indirectly	Councils, community groups	Social service provision, community cohesion

¹⁷ <http://learn.lincoln.ac.nz/markval/>

¹⁸ This item could include health services, education, telecommunication and other social services to the community.

3.7 Strategies to Address Market Imperfections

Different strategies will need to be developed for calculating the different dimensions of financial and sustainable yield, and even within sustainable yield different approaches will be required for the economic and the sustainability components. Market imperfections are often addressed by pricing, for example through direct charges or taxes. There are, however, many other instruments available, for example education and communication strategies with the aim of changing behaviour, regulations to limit or restrict use of specific resources, and other regulations Cullen *et al.*, 2000. A very simple typology of ways to tackle externalities is provided in Table 9.

Table 9
Policy Options for Managing Externalities

	Positive	Negative
Internal	Costs of Production	Reputation
External	Awards	Taxes

The objective behind charging for any service needs to be made clear before attempting to determine what is an appropriate price or level of charge. The three classic reasons for charges advanced by Hanemann (1998) are revenue generation, cost allocation and incentive provision. Adequate revenue generation and reasonably accurate cost allocation requires information on the costs of providing these services, the ability to estimate share of costs attributable to each user or user group and the ability to collect revenue from users. Quarterly or annual cost of supplying items by firms, NGOs, Not For Profits and government can be estimated from accounting information and this will provide sufficient information to estimate the price required for services to earn revenue which at least matches historic costs over chosen time periods. Accurate cost allocation and incentive provision are more demanding if the reference point is *marginal costs* and not *average costs*. Seasonality in demand is a major feature of tourism in New Zealand and this can lead to peak load pressure on transport systems, water supplies, accommodation and space on walking tracks. The private sector often makes use of high season/low season pricing and those prices may approximate the opportunity cost of the services provided.

Provision of parks and reserves is costly, and allocation of these costs is an interesting challenge. Pricing strategies might be directed toward pursuit of static efficiency, dynamic efficiency¹⁹, or revenue maximization. Richardson (2002) provides some pertinent comments on these issues and notes that countries can set prices to tourists at more than cost recovery levels. The absence of charges for use of a national or regional park can lead to a rapid increase in visitor numbers and to congestion.

The development of new technologies is continually increasing our ability to collect charges from users. Time of day road user charges are now used on heavily used roads in several cities (e.g. London City congestion charge). Where direct measurement of use is too costly or impractical, proxies for use such as measurement of a linked input can be a means to levy a charge for use. Carbon charges on fossil fuels are one example of this approach. Rates for

¹⁹ For example, development of facilities may occur, at least partly, to meet the demands placed upon facilities by increasing numbers of visitors. Those spaces require investment to develop and ongoing expenditures to operate. Pricing policies can in principle be developed to include these development costs and meet dynamic efficiency objectives.

wastewater linked to water used by businesses are a second example (Cullen *et al.*, 2003, p.17). Just as important as the development of technologies is a change in the social attitudes towards the acceptability of charging. There are many instances in New Zealand where the technology to charge for use is simple and readily available, but charges are not levied because they are deemed to be not socially acceptable to the New Zealand public, even if international visitors might be perfectly willing to pay them.

Chapter 4

Competition and Pricing: An Introduction to Measuring Competitive Value.

4.1 Abstract

This short chapter examines the background to identifying factors that influence one of the most important components of financial yield – price. In a pure and competitive market price is determined by demand. Within this framework even if enterprises offer similar products in a climate of fixed demand, some of them may enjoy greater or lesser sales success if there are other factors that determine customer choice.

4.2 Competitive Framework

Central to the notion of sustainability is the ability of an enterprise to compete with others and the price its products so as to produce sufficient value in both short and longer timeframes.

According to Porter (1985), the key issues underlying strategies that enable enterprises to compete are industry attractiveness and relative competitive position. Subsequent work performed in the information technology sector (Gale, 1994) also demonstrated (Gale, 1994) that the views of customers needed to be considered in relative rather than absolute terms.

Porter also notes that not all industries (sectors) offer equal opportunities for sustained profitability and this factor is an essential ingredient for its enterprises. Even so, some enterprises are much more profitable than others, regardless of what the average profitability of the industry may be (Porter, op lit).

Investigating financial yield on an industry basis still leaves open the potential for individual enterprises to benefit from having a superior competitive basis over their competitors. Clearly this superior competitive basis is determined by customers who may freely choose between the products offered to them.

Throughout the tourism industry enterprises compete explicitly or implicitly for business. Visitors experience various choice-determining factors before committing to purchase and the weight they place on these factors is an indication of their importance in their decision-making. Controllable factors such as price or availability are common, but there may well be other factors, some intangible, such as service standard, reputation or appearance. Factors that give rise to competitive advantage can be categorised as either cost leadership or differentiation (Porter, op lit)²⁰. Collectively these factors form a value proposition²¹ that, if perceived to be higher for one enterprise versus others, will result in it receiving proportionately greater numbers sales (Donovan *et al*, 1998)²². Provided other important factors such as capital and operational costs, associated with financial yield are also favourably aligned, the enterprise with the most sales will be the more profitable over the short and longer term.

²⁰ Porter, Ibid P3

²¹ Value is commonly defined as product quality per unit of price customers are willing to pay.

²² Donovan, John., Tully, Richard., Wortman, Brent., *The Value Enterprise*, McGraw Hill Ryerson, 1998, P52, 53.

In summary: not all industries (sectors) are equally profitable; enterprises having the best competitive position and financial structure are more assured of long-term profitability; factors that determine competitive position may be categorised as either cost leadership or differentiation.

4.3 Competitive Factors.

One business notion that has been elevated, almost to the status of an axiom, by early winners of the USA Malcolm Baldrige National Quality Awards (Kearns, 1989) is that “customers determine the business”. This notion primarily attributes business survival to the support given by its customers. Of course from time-to-time in the business lifecycle there are other influences, such as creditors, that might also determine survival, but production is pointless without customers. It is important to distinguish between factors that motivate customers causing them to crystallise their choice of product and factors that managers employ within their enterprises to produce these products. This distinction also recognises that everything an enterprise does (generally known as the ‘value chain’) also has cost implications that determine the financial yield of an enterprise.

For instance, managers may employ skilled staff who exhibit greater diligence with production and generate a quality factor such as reliability which may appeal to customers. If prices were identical, higher reliability products would be differentiated from lower reliability products, and the weight customers place on reliability would be a measure of the relative competitiveness of this factor rather than a measure of the mechanism that gave rise to it. Further, if a customer could be persuaded to trade price against reliability the degree of price change that is necessary to do so is the money value of that competitive factor versus alternatives.

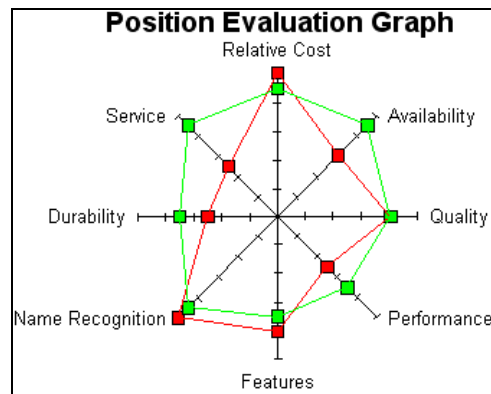
Enterprises wishing to maintain a competitive advantage relative to others need to identify two sets of information:

- their competitors, and,
- the factors customers use to crystallise their purchasing decisions.

Identifying their tourism competitors will involve enterprises having knowledge of distribution and promotion channels as well as the itineraries or flow patterns used by visitors. The essence of this is that competition is not necessarily local or even uniform amongst visitor segments.

Identifying the purchasing decision factors and their relative importance to customers involves the identification of customers and ascertaining why they have either purchased or declined a product. For example, in the diagram below some typical factors are illustrated along with a comparison between the two enterprises.

Figure 2
Position Evaluation Graph



Once this information is available a further element is needed: the degree to which trade-offs between factors can be driven by price and therefore allow relative competitiveness to be monetised by factor. Thereafter this allows enterprises to perform cost-benefit analysis on business improvement scenarios.

An understanding of relative competitive position will lead to a clearer framework for the setting of prices at the level of the firm.

4.4 Practical Issues

Three streams of information are needed: competitors, factors and monetary trade-offs.

One of the major issues is dimensionality. Clearly the greater the number of competitors, the greater number of factors and trade-offs that must be researched.

Another issue is factor weighting. Customers may identify several factors that critically motivate purchasing choice, but could weight them differently. Identifying these critical factors and establishing their weights with some degree of confidence calls for adequate sampling to ensure statistical confidence.

4.5 Pilot Study

Broad-scale implementation of the measurement of relative competitive value would be improved by piloting the methodology on a small number of businesses each having local and easily identifiable competitors. A small location within the target case-study areas for the main project using a sector such as 'attractions', 'hospitality' or 'transport' would assist with the establishment of surveys.

Chapter 5

Choosing a Region

A key component of the research is to integrate private and public sector pricing and management practices with tourist expenditure to estimate (regional) tourism yield, and by inference to the nation. The research plan and budget allows provision to collect information in two regions to allow us to complete those calculations. The choice of region is however complicated by several competing factors:

- *Capital intensity*: Understanding capital investment structures is a key to understanding business and sector financial and economic yield. Thus a chosen regional case study should have a broad mix of capital intensive tourism entities.
- *Nature of tourist behaviour and visitation patterns*: Tourism hubs depend, to some considerable extent, on the range of tourist activities and attractions in their surrounding regions. As examples, visitation to Auckland is significantly influenced by the proximity of Rotorua and Waitomo Caves, and the location of New Zealand's primary international airport.

In Canterbury, some 97 per cent of all tourist bed nights (international and domestic) have been estimated to be spent within Christchurch city²³. Meanwhile visitor surveys have indicated that regional visitation includes trips to: Akaroa (37%), Mt. Cook (37%), Kaikoura (36%), Arthur's Pass (31%), Hanmer Springs (27%) and Timaru (24%) (Simmons *et al.*, 2003)

In an important sense a broad range of 'things to do and see' (i.e. the attractions and activity sectors, although relatively un-capitalised [e.g., sea-kayaking], or provided by the public sector [museums, parks, recreational facilities]) are a crucial element in the evolution and health of destination regions.

Case study regions therefore need to draw on a broad range of public resources and must, of necessity, include some consideration of activity and 'lifestyle'²⁴ tourism businesses.

- *Nature of regions /destinations within a national system*

Tourism in New Zealand, as elsewhere, is manifest in a system of tourist flows that in turn are supported by a hierarchy of tourist places: gateways, primary destinations, tertiary destinations, and travelling routes. Case study regions that can lead to an elaboration of regional tourism yield should reach across these categories in a way that would enhance generalisation of results to the whole tourism sector and the national economy.

At a more pragmatic level the choice of regions is also influenced by *ease of data collection*, including congruence between local, regional, RTO and Department of Conservancy management jurisdictions. Background data on the size of tourism activity and economies would also assist in contextualising the regions chosen for further analysis. Table 10 sets out a variety of criteria against which tourism regions might be assessed for analysis of tourism

²³ The CAM indicates some 65 percent of commercial visitor nights are spent in Christchurch (and 35 per cent within the wider Canterbury region. These data underestimate the significance of 'staying with family and friends' for both domestic and international visitors (> 50% and 28%, respectively).

²⁴ For the purposes of this study tourism 'lifestyle' entities are defined as tourism operations established within a larger business trading unit. Examples include: far-stay accommodation, part time activity guiding.

yield. From this analysis two regions stand out as most suitable for this study, namely Canterbury and Rotorua.

Table 10
Yield Programme: Assessment of Tourism Regions

	Auckland	Rotorua	Canterbury	Queenstown	Westland
<i>Capital Intensity/Mix</i>					
Major Tourists firms (capital)	Yes 5 star	Yes 4 star, plus Royal lakeside, Novotel, Millenium	Yes 4 star (?)	Yes 4 star plus	NO 3 star max
Many smaller tourism firms (lifestyle)	Yes, but difficult to define tourism region: gateway function	Yes broad market mix	Yes broad regional mix	Yes broad regional mix	Many strong nature focus
<i>Market Composition</i>					
NZ market share	All broad mix	All strong NW Europe, Asia	All close to Akl profile	Broad not emerging Asian markets	Narrow: Europeans, Australia
NZ market composition (% NZ)	>80	60 estimated	n/a	n/a	17%
Commercial bed nights (n, 000)	5303	1924	4694	2892	350?
Commercial bed nights (%)	17.4	6.3	15.4	9.5	?
<i>Tourism System</i>					
Tourist Density (person days %)	n/a	13	10	N/a	13
Tourism's contribution to regional economy (% employment)	n/a	18	<i>12 Christchurch 30 Kaikoura 50 Akaroa</i>	N/a	30
Placement within tourism system	Gateway	Major destination	Gateway regional destination.	Major destination	Secondary destination, corridor

	Auckland	Rotorua	Canterbury	Queenstown	Westland
<i>Public Sector Provision</i>					
Services provided by local and regional Govt (priced)	Yes	Yes	Yes	Yes	Yes
Services provided by local and regional Govt (Unpriced)	Yes	Yes	Yes	Yes	Yes
Services provided by DoC	Minimal. (ARC) regional Parks	Yes: major focus lakes and DoC lease (Waiatapu). DoC funding parallels RDC - easy to separate	Yes: regional reserves, Arthur's Pass National park, DoC to provide map of 'jurisdictions' Funding relatively easy to separate.	Yes	Major land manager 85%
Services provided by other Govt departments	Yes	Yes	Yes	Yes	Yes
<i>Comment</i>					
<i>Comment</i>	Largely urban, difficult to work across metro agencies, narrow "public resource" inputs	Broad capital and market mix, focus on cultural and natural products, Single regional Council	Broad capital and market mix, mixed economy, Boundary issues and breadth (7.5 TLAs; partial DoC, ECaN), yet CHCH too narrow.	Broad capital reasonable market mix, (parallels some Rotorua conditions)	Narrow capital and market mix, regional economy 'distorted' by size of DoC presence

5.1 Rotorua District Council

Rotorua is one of New Zealand's primary destination areas. It hosts approximately 1.2 million visitors per year (including emerging Asian markets such as Korea and China) to generate a tourist density of 13 per cent (against the usually resident host population). Tourism accounts for 18 per cent of the regional economy. Importantly, Rotorua city provides a broad range sector capitalisation, while the regional hinterland offers a broad range of activities, many of which are focussed on a Maori cultural theme. DoC resourcing closely parallels the single District Council structure. Rotorua has been the focus of a previous tourism planning case study undertaken at TRREC.

5.2 Christchurch - Canterbury

Christchurch is the major gateway to the south island, and also serves as a regional destination. It has an average length of stay of 4.1 nights, but achieves this largely on the basis of its regional 'destinations' for which Christchurch serves as a hub. Overlapping jurisdictions are something of a challenge with DOC, Environment Canterbury and 7.5 TLAs comprising the CCM-RTO region. Data gathering across eight TLAs will be costly. There is merit in a reporting structure that allows examination of Christchurch as a 'gateway' and its inclusion within the larger Canterbury region. Canterbury has been the focus of a number of studies undertaken by TRREC.

Auckland is the most similar region to Canterbury, but while having the broadest mix of visitors offers only a partial picture of tourist behaviour as some major icon attractions are outside the immediate urban regions. Queenstown is the most closely similar destination to Rotorua - and is excluded because of this similarity. Westland was considered as a potential case study region but the above analysis indicates it draws a sub-sample of only 17 percent of international visitors and exhibits relatively low level of sector capitalisation. Wellington (at 7.1 percent of commercial bed-nights) was excluded because of the relatively strong orientation to business travellers, both domestic and international.

It is recommended therefore that the case study regions be: Rotorua (RDC, and RTO) and Christchurch – Canterbury (based on RTO definitions)

References

- Agribusiness Group and Harris Consulting (2004). *Urban / Rural Equity in Local Government Rating*. (draft report only)
- Becken, S. 2002. Tourism and transport in New Zealand. *TRREC Report 54*. Lincoln University.
- Becken, S. & Butcher, G. (2004). Economic yield associated with different types of tourists – a pilot analysis. Proceedings of the CAUTHE 2004 in Brisbane, Australia, 10-13 February 2004, pp. 73-78.
- Becken, S., Frampton, C., & Simmons, D. Energy consumption patterns in the accommodation sector – the New Zealand case. *Ecological Economics*. 371-386.
- Bicknell, K. B., Ball, R., Cullen, R. & Bigsby, H. (1998). New methodology for the ecological footprint with an application to the New Zealand economy. *Ecological Economics*, 27(2), 149-160.
- Chen, S., & Dodd, J.L. (2001). Operating Income, Residual Income and EVA: Which Metric is More Value Relevant? *Journal of Managerial Issues* 13 (1, Spring), 65-87.
- Costanza, R., D'Arge, R., De Groot, R., Farber, S., Grasso, M., Hannon, B., Limburge, K., Neem, S., O'Neil, R., Parelo, J., Raskin, R., Sutton, P. & Van den Belt, M. (1997). The Value of the World's Ecosystem Services and Natural Capital. *Nature*, 387, 253-259.
- Cullen, R, Dakers, A, Fairweather, J. & Simmons, D. 2001. Tourism water and waste in Westland: Implications of increasing demand on infrastructure. *TRREC Report 27*, Lincoln University.
- Cullen, R., Dakers, A., McNicol, J. and Meyer-Hubbert, G. (2003). Tourism, water and waste in Akaroa: Implications of tourist demand on infrastructure. *TRREC Report 38*.
- Damodaran, A. (2001). Corporate finance: theory and practice. 2nd edition. New York: Wiley.
- Department for Transport (no date). *Valuing the external costs of aviation*. Available at (20/10/04).http://www.dft.gov.uk/stellent/groups/dft_aviation/documents/page/dft_aviation_503315.hcsp
- Dasgupta, P. (2002). Is contemporary economic development sustainable? *Ambio* 31(4), 269-271.
- Dodd, J.L., & Chen, S. (1997) Economic Value Added (EVA). *Arkansas Business and Economic Review* 30 (4, Winter), 1-9.

- Dwyer, L., & Forsyth, P. (1997). Measuring the benefits and yield from foreign tourism, *International Journal of Social Economics*, 24(1/2/3), 223-236.
- Dye, S. (2003). Gridlock's problems worth week off every two months. *The New Zealand Herald*, 28.10.2003.
- Gössling, S. (1999). Ecotourism as a means to safeguard biodiversity? *Ecological Economics* 29(2), 303-320.
- Hanemann, W.M. (1998). Price and rate structures, chapter 5 in D.D. Baumann, J.J. Boland, W.M. Hanemann, 1998. *Urban water demand management and planning*. New York: McGraw-Hill.
- Maibach, M. & Schneider, C. (2002). *External costs of corridors. A comparison between air, road and rail. Air Transport Action Group. Final Report, Zurich.* Available at (20/10/04). <http://www.atag.org/content/showpublications.asp?folderid=435&level1=4&level2=435&>
- Market Economics (2003). *Effects of Tourism Demand on Water and Sewerage Infrastructure*. Research undertaken for Ministry of Economic Development and Ministry of Tourism. Available at (20/11/04) <http://www.tourism.govt.nz/policy/pol-reports/pol-tra-infrastructure-sum/index.html>
- Miller, M. & Modigliani, F. (1961). Dividend Policy, Growth and the Valuation of Shares. *Journal of Business*. 411-433.
- McNabb, D. (2004). Carbon tax clobbers local shipping. *The Independent*, 13 Oct 2004, 3.
- McDonald, G.W. & Patterson, M.G. (2004). Ecological footprints and interdependencies of New Zealand regions. *Ecological Economics*, 50, 46-97.
- Ministry of Economic Development (2002). *Firm Foundations*. A Study of New Zealand Business Practices and Performance. Available at (12/11/04) http://www.med.govt.nz/irdev/ind_dev/firm-foundations/index.html
- Ministry of Transport (2003). *Surface transport costs and charges: Annex to terms of reference*. Available at (19.10.04) www.transport.govt.nz/publications
- Pearce, B. & Pearce, D. (2002). Setting environmental taxes for aircraft: a case study of the UK. *CSERGE Working Paper GEC 2000-26*. Available at (20/10/04) http://www.uea.ac.uk/env/cserge/pub/wp/gec/gec_2000_26.pdf
- Pearce, D.W. (1994). *Blueprint 3: Measuring sustainable development*. London: Earthscan.
- Richardson, M. (2002). *Some simple economics of eco-tourism*. Available at (14/10/04) <http://www.treasury.govt.nz/academiclinkages/richardson/default.asp>

- Schleisner, L. (2000). Comparison of methodologies for externality assessment. *Energy Policy* 28, 1127-1136.
- Simmons, D., Fairweather, J. & Shone, M. (2003). Canterbury Summary. *TRREC Report 39*. Lincoln University.
- Sparling, D. & Turvey, C. (2003) Further Thought on EVA and Shareholder Returns, Invited paper. *Agribusiness* 19 (2), 255-267.
- Stanley, P. (2003). Epistemology, Research, Methodology and Rule 702 of the Federal Rules of Evidence Versus EVA®. *Journal of Business Ethics*, 44, 327 – 341.
- Stanton, R. (1999). Director's order #17: National Park Service Tourism. September 28, 1999.
- Stewart, G. (1991). *The Quest for Value*. Harper Collins.
- Tourism Tasmania (1998). *How to make more money from your attraction or tour business?* Yield Management for small to medium-sized attractions and tour operators. Available at www.discovertasmania.com
- Transfund (2003). *Manuals and Procedures*. Available at (22/11/04) <http://www.transfund.govt.nz/man.html>
- Turvey, C.G., L. Lake, E. van Duren & Sparling, D. (1999). The Relationship Between Economic Value Added (EVA), and the Stock Market Performance of Agribusiness Firms, *Agribusiness* 116 (4), 399-416.

Appendix A

The Research Team

- **Prof. David Simmons** (Programme Leader) is the Director of the Tourism and Recreation Research Education Centre (TRREC) at Lincoln University. He has successfully led a large multi-year, FRST-funded programme focusing on tourism planning in New Zealand (LINX0203) and contributed to, and led, tourism planning programmes overseas (WTO, WWF, UNDP). His role will be Programme (and Relationships) Manager.
- **John Moriarty** has until recently held the position of Chief Executive Officer of TIANZ. He has professional qualifications and experience in systems engineering, finance, public policy and business management. He has implemented EVA measures in the tourism and telecommunication sectors. His principal role in the team is to bring an industry perspective to the toolkit development, and ongoing transfer of results and methods to the wider tourism industry via their extensive distribution network.
- **Mr Jack Radford** is Senior Lecturer in Accounting with considerable experience in business development, management and change. His past experience includes work within the tourism sector. Jack is objective leader for objective one and will be directly responsible for the business analysis framework.
- **Assoc. Prof. Ross Cullen** is a Resource Economist at Lincoln University, currently working on LINX0303 to value ecosystems services. In this programme he will lead analyses of public sector and public good costings. Ross was a member of the LINX0203 research team for four years. Ross is Objective Leader for Objective two.
- **Dr Susanne Becken** has pioneered the analysis of energy use by tourist type in New Zealand, recognised by the First Conference on Climate Change and Tourism in Djerba, 2003. She is currently Objective Leader of the Landcare Research FRST programme on 'Understanding Tourists' Travel Patterns to Decrease Energy Use' (LCR C09X0207). She will take lead responsibility for business, and tourist type analyses, and database integration, as leader for objective three.
- **Ms Kylie Fitzgerald** is a Policy Analyst with the Ministry of Tourism. She has post-graduate tertiary education in business marketing and management. She has responsibilities in representing the Ministry of Tourism on the research team, providing liaison with other public sector agencies and contributing to the sampling, surveying and analysis of tourism business practices.
- **Mr John Tan** is the Chief Financial Officer of Landcare Research, experienced in applying EVA methodology to companies, and has worked with key researchers in the UK on full cost accounting (including environmental and social dimensions) and sustainable yield. He will direct the development of EVA for individual tourism enterprises.
- **Mr Geoff Butcher** is an experienced consulting economist (subcontract to LINX0203) with considerable knowledge of the tourism economy. In the 1980s he pioneered early input-output analyses of the tourism sector in New Zealand. He will contribute to the economic analyses of the tourism sector.
- **Assoc. Prof. John Fairweather** is an experienced FRST Programme Leader (LINX0204) and key researcher (LINX0203 and AGRB0301). He is an expert in the development of research designs and is experienced with tourism research. He will assist throughout the programme in peer reviewing field methods and the overall research framework.

International Connections

We have sought guidance from, and will work with a number of international researchers who have given an undertaking to provide comparative perspectives or visit New Zealand and participate in our workshops. They include:

- **Qantas Professor of Tourism and Travel, Larry Dwyer**, University of New South Wales. Prof. Dwyer has extensive experience in tourism economics and many publications in the area, including the topic of measuring the benefits and yield of tourism.
- **Professor Jan Bebbington** of Aberdeen University, the foremost researcher and expert in the area of full cost accounting, including social and environmental dimensions.

Public Sector Involvement

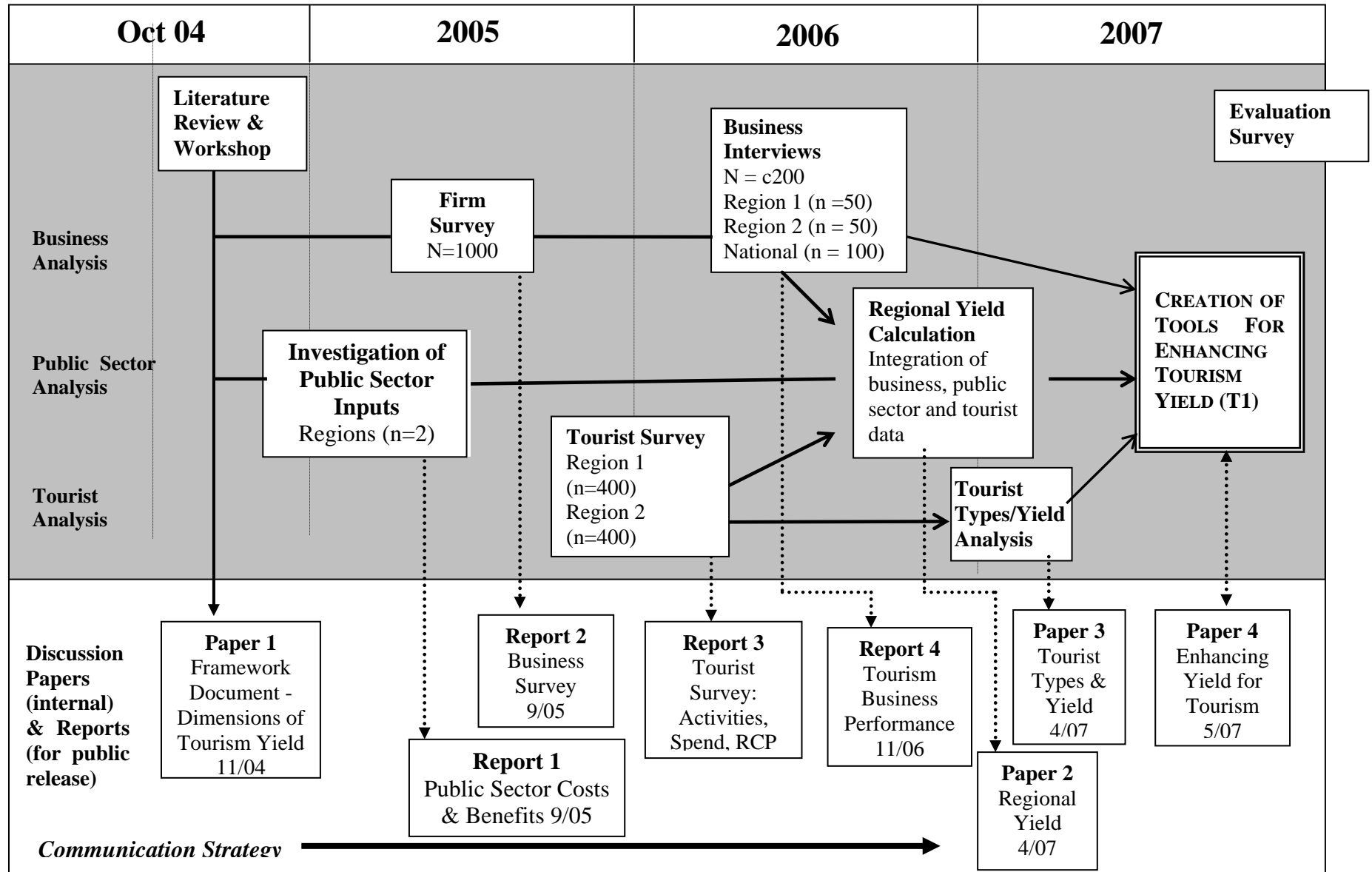
Lead Agency: The Ministry of Tourism

- Statistics New Zealand (to be confirmed)
- Ministry of Economic Development
- Department of Conservation (to be confirmed)
- Tourism New Zealand (to be confirmed)
- Local Government New Zealand (to be confirmed)

Appendix B

Workplan

Timeline - Enhancing Financial and Economic Yield in Tourism



Appendix C

Schedule of Milestone Reports

The following reports (to be publicly released) and internal discussion papers are scheduled.

Discussion Paper 1 - The dimensions of tourism yield;

This paper will lay the foundation definitions, data requirements and metrics for the project (and individual research instruments that support it). The justification for determining the two regional cases will be debated. This document will form the basis for the first Project Advisory Group meeting. (November 2004).

Report 1 - Public sector inputs (costs and benefits)

This report will describe the public sector (local, regional, and national) direct inputs, and outline society's indirect inputs, into tourism production and consumption. Summaries of findings will be presented to public sector agencies. (April 2005).

Report 2 - The business survey report

An adaptation of MED's *Firm Foundations* study, this report will present the results of a large survey of tourism businesses, examining their business practices and motivations. It will form a foundation for the in-depth interviews and analyses of businesses in year two of the project. (September 2005).

Report 3 - Tourist activities, expenditure and relative competitive potential;

Surveys of 800 tourists, within the selected study regions, will provide insights into tourist expenditure, activities and relative competitive potential that lead to considerations of pricing and resource recovery costs for the sector. This study also provides the basis for examining yield associated with differing tourist types. (May 2006).

Report 4 - Tourism Business performance, adaptations and benchmarks;

This report is the major engine of the study. Data and experiences resulting from the interview, analysis and reporting back to 150 tourism businesses will form the basis for establishing sector benchmarks and pathways to improving business yield performance. (November 2006).

Discussion Paper 2 - Calculating regional yield;

This discussion paper provides a method to integrate tourist expenditure and assessments of relative competitive advantages, with public and private sector inputs to form an assessment of the regional yield within the project's two study regions. (March 2007).

Discussion Paper 3 - Tourist types and yield;

This discussion paper provides detailed assessment of tourist expenditure and activity types to examine which types of tourist lead to the highest yield outcomes. (March 2007).

Discussion Paper 4 - Strategic options and tools for enhancing financial and economic yield for tourism;

This discussion paper serves to outline recommendations and options for both the private and public sectors in enhancing financial and economic yield for tourism. It will comprise a distillation of results arising from the business survey and in-depth business analyses to outline the methods and approaches to improving financial and economic yield for tourism businesses. It will also outline the contributions that public sector resource allocations make to economic and sustainable yield.

This report forms the basis for ongoing discussions with the Programme Governance Board in the determination of strategic options and tools for sector implementation. (May 2007).

Discussion Paper 5 - Tools one – Tools for enhancing (private and public sector) tourism yield.

The research team, in consultation with the Programme Governance Board, will determine a series of tools (e.g. spreadsheets, decision frameworks and management principles, and other electronic tools) to enable both tourism businesses and public sector agencies to develop and apply policies to enhance financial and economic yield for tourism. (September 2007)

Appendix D.

Statistics NZ Enterprise Survey Results for 2002 – All Industries (provisional)

All Industries

ANZSIC = Divisions A - Q (excluding Classes K7412, L7711, M813, Q9610, an

Financial Item ⁽¹⁾	2000 \$(million)	2001 ⁽²⁾ \$(million)	2002 ⁽²⁾ \$(million)
Financial Performance			
Total Income	333,912	359,839	382,070
Sales of Goods and Services	271,892	298,986	319,411
Interest, Dividends and Donations	26,955	28,702	30,872
Government Funding, Grants and Subsidies	25,233	23,331	21,212
Non-operating Income	9,832	8,820	10,575
Total Expenditure	307,839	333,745	344,263
Interest and Donations	27,848	26,977	24,985
Indirect Taxes	4,670	4,784	4,967
Depreciation	11,918	12,654	13,824
Salaries and Wages Paid to Employees	45,779	47,661	49,931
Redundancy and Severance	217	187	146
Salaries and Wages to Self Employed Commission Agents	841	799	1,132
Salaries and Wages to Working Proprietors (SW to WPs)	4,280	3,844	4,603
Purchases and Other Operating Expenses	201,510	225,117	237,059
Non-operating Expenses	10,994	11,909	7,762
Opening Stocks	26,716	30,422	33,954
Closing Stocks	28,985	33,074	34,531
Operating Surplus before Income Tax	30,354	29,937	42,409
Financial Position			
Total Assets	815,428	834,128	913,280
Current Assets	218,790	273,392	263,569
Fixed Tangible Assets	199,962	207,539	228,491
Additions to Fixed Assets	33,908	38,797	38,451
Disposals of Fixed Assets	13,515	11,582	9,767
Other Assets	396,676	353,198	421,219
Total Equity and Liabilities	815,428	834,128	913,280
Shareholders Funds or Owners Equity	319,877	310,466	341,334
Current Liabilities	266,433	288,786	280,459
Other Liabilities	229,119	234,877	291,487
Financial Ratios⁽¹⁾			
Total Income per Full-time Equivalent (FTE)	\$215,400	\$229,700	\$241,400
Operating Surplus per Full-time Equivalent (FTE)	\$19,600	\$19,100	\$26,800
Current Ratio	82.1%	94.7%	94.0%
Quick Ratio	71.2%	83.2%	81.7%
Return on Equity	9.5%	9.6%	12.4%
Return on Total Assets	3.7%	3.6%	4.6%
Liabilities Structure	39.2%	37.2%	37.4%

(1) Refer to 'Definitions' in the Technical Notes for definitions of Financial Items and Ratios.

(2) These figures are provisional.

Appendix E

Statistics NZ Enterprise Survey Results for 2002 (provisional)

Cultural and Recreational Services

ANZSIC = Divisions P

Financial Item ⁽¹⁾	2000 \$(million)	2001 ⁽²⁾ \$(million)	2002 ⁽²⁾ \$(million)
Financial Performance			
Total Income	5,528	5,833	6,477
Sales of Goods and Services	4,797	5,012	5,604
Interest, Dividends and Donations	336	392	384
Government Funding, Grants and Subsidies	328	381	413
Non-operating Income	67	48	76
Total Expenditure	5,201	5,479	6,042
Interest and Donations	273	309	297
Indirect Taxes	61	62	83
Depreciation	344	395	461
Salaries and Wages Paid to Employees	1,042	1,116	1,130
Redundancy and Severance	1	1	4
Salaries and Wages to Working Proprietors (SW to WPs)	65	52	78
Purchases and Other Operating Expenses	3,295	3,473	3,904
Non-operating Expenses	121	72	90
Opening Stocks	40	63	66
Closing Stocks	48	63	73
Operating Surplus before Income Tax	392	406	513
Financial Position			
Total Assets	6,337	6,299	6,589
Current Assets	1,191	1,197	1,022
Fixed Tangible Assets	3,726	3,830	4,199
Additions to Fixed Assets	580	596	699
Disposals of Fixed Assets	68	91	120
Other Assets	1,420	1,272	1,368
Total Equity and Liabilities	6,337	6,299	6,589
Shareholders Funds or Owners Equity	3,226	3,517	3,903
Current Liabilities	2,018	1,654	1,635
Other Liabilities	1,093	1,128	1,051
Financial Ratios⁽¹⁾			
Total Income per Full-time Equivalent (FTE)	\$156,900	\$160,400	\$167,200
Operating Surplus per Full-time Equivalent (FTE)	\$11,100	\$11,200	\$13,200
Current Ratio	59.0%	72.4%	62.5%
Quick Ratio	56.7%	68.5%	58.1%
Return on Equity	12.1%	11.5%	13.1%
Return on Total Assets	6.2%	6.4%	7.8%
Liabilities Structure	50.9%	55.8%	59.2%

(1) Refer to 'Definitions' in the Technical Notes for definitions of Financial Items and Ratios.

(2) These figures are provisional.

Appendix E, Continued.

Accommodation, Cafes and Restaurants

ANZSIC = Division H

Financial Item ⁽¹⁾	2000 \$(million)	2001 ⁽²⁾ \$(million)	2002 ⁽²⁾ \$(million)
Financial Performance			
Total Income	5,151	5,358	5,677
Sales of Goods not Further Processed	2,347	2,523	2,535
Sales of Other Goods and Services	2,692	2,709	3,053
Interest, Dividends and Donations	67	82	52
Government Funding, Grants and Subsidies	7	9	13
Non-operating Income	38	35	24
Total Expenditure	5,036	5,169	5,426
Interest and Donations	142	157	149
Indirect Taxes	53	67	57
Depreciation	263	274	267
Salaries and Wages Paid to Employees	1,208	1,297	1,335
Redundancy and Severance	-	1	11
Salaries and Wages to Working Proprietors (SW to WPs)	98	100	131
Purchases of Goods Bought for Resale	1,055	1,045	1,195
Other Purchases and Operating Expenses	2,153	2,152	2,227
Non-operating Expenses	65	76	66
Opening Stocks	97	147	144
Closing Stocks	107	158	166
Operating Surplus before Income Tax	213	289	382
Financial Position			
Total Assets	5,635	5,870	6,178
Current Assets	1,043	1,275	1,263
Fixed Tangible Assets	3,912	3,862	4,193
Additions to Fixed Assets	536	434	630
Disposals of Fixed Assets	217	127	101
Other Assets	680	732	721
Total Equity and Liabilities	5,635	5,870	6,178
Shareholders Funds or Owners Equity	2,550	2,610	2,633
Current Liabilities	1,510	1,394	1,840
Other Liabilities	1,575	1,865	1,705
Financial Ratios⁽¹⁾			
Total Income per Full-time Equivalent (FTE)	\$74,500	\$75,300	\$78,700
Operating Surplus per Full-time Equivalent (FTE)	\$3,100	\$4,100	\$5,300
Current Ratio	69.1%	91.4%	68.7%
Quick Ratio	62.0%	80.1%	59.7%
Margin on Sales of Goods for Resale	55.1%	58.6%	52.8%
Return on Equity	8.3%	11.1%	14.5%
Return on Total Assets	3.8%	4.9%	6.2%
Liabilities Structure	45.3%	44.5%	42.6%

(1) Refer to 'Definitions' in the Technical Notes for definitions of Financial Items and Ratios.

(2) These figures are provisional.

Symbols:

- nil or zero

... not applicable

Appendix F

Sample Conversion of Enterprise Survey into Financial Yield.

Accommodation, Cafes and Restaurants

Conversion to Financial Yield

Financial Item ⁽¹⁾	2002 ⁽²⁾ \$(million)
Financial Performance	
Total Income	<u>5,677</u>
Sales of Goods not Further Processed	2,535
Sales of Other Goods and Services	3,053
Interest, Dividends and Donations	52
Government Funding, Grants and Subsidies	13
Non-operating Income	24
Total Expenditure	<u>5,438</u>
Interest and Donations	149
Indirect Taxes	57
Depreciation	267
Salaries and Wages Paid to Employees	1,335
Redundancy and Severance	11
Salaries and Wages to Working Proprietors (SW to WPs)	131
Purchases of Goods Bought for Resale	1,195
Other Purchases and Operating Expenses	2,227
Non-operating Expenses	66
Earnings	<u>239</u>
Note: Transferred Stock Movements to Financial Position	
Add Back Depreciation	267
Cash Taxation Provision based on accounting profit (\$0.33)	-79
NOPAT	<u>427</u>
Financial Position	
Total Assets	<u>6,594</u>
Current Assets	<u>1,043</u>
Opening Stocks	144
Closing Stocks	166
Recognise Average Stocks as Working Capital	155
Fixed Tangible Assets	3,912
Remove 'asset movements'	-
Add back Accumulated Depreciation for past years	804
Other Assets	680
Total Equity and Liabilities (CAPITAL)	<u>6,594</u>
Shareholders Funds or Owners Equity	3,049
Current Liabilities	1,840
Other Liabilities	1,705
Financial Ratios⁽¹⁾	
Total Income per Full-time Equivalent (FTE)	\$78,700
Operating Surplus per Full-time Equivalent (FTE)	\$5,300
Current Ratio	68.7%
Quick Ratio	59.7%