Scott Kingsley Cunliffe
B.Sc. (Architecture), M. Environmental Design (Architecture)

Some Risks are Worth Taking:
Tourism Risk Management in Tropical Coastal Areas

Doctor of Philosophy

James Cook University
School of Tropical Environment Studies and Geography

24 January 2005

Submitted in partial fulfilment of the requirements for the degree
of Doctor of Philosophy in the Faculty of Science, Engineering and Information
Technology of James Cook University.

Dedication

This work is dedicated to the victims of the Indian Ocean tsunami which occurred on 26 December 2004. It is hoped that a contribution can be made to mitigative and forward planning efforts aimed at minimising the scale of losses and maximising risk management in all coastal tropical areas, particularly for those most vulnerable; the communities and natural resources that support small and medium (tourism) enterprises, and foreign and domestic tourists.

Some Risks are Worth Taking:

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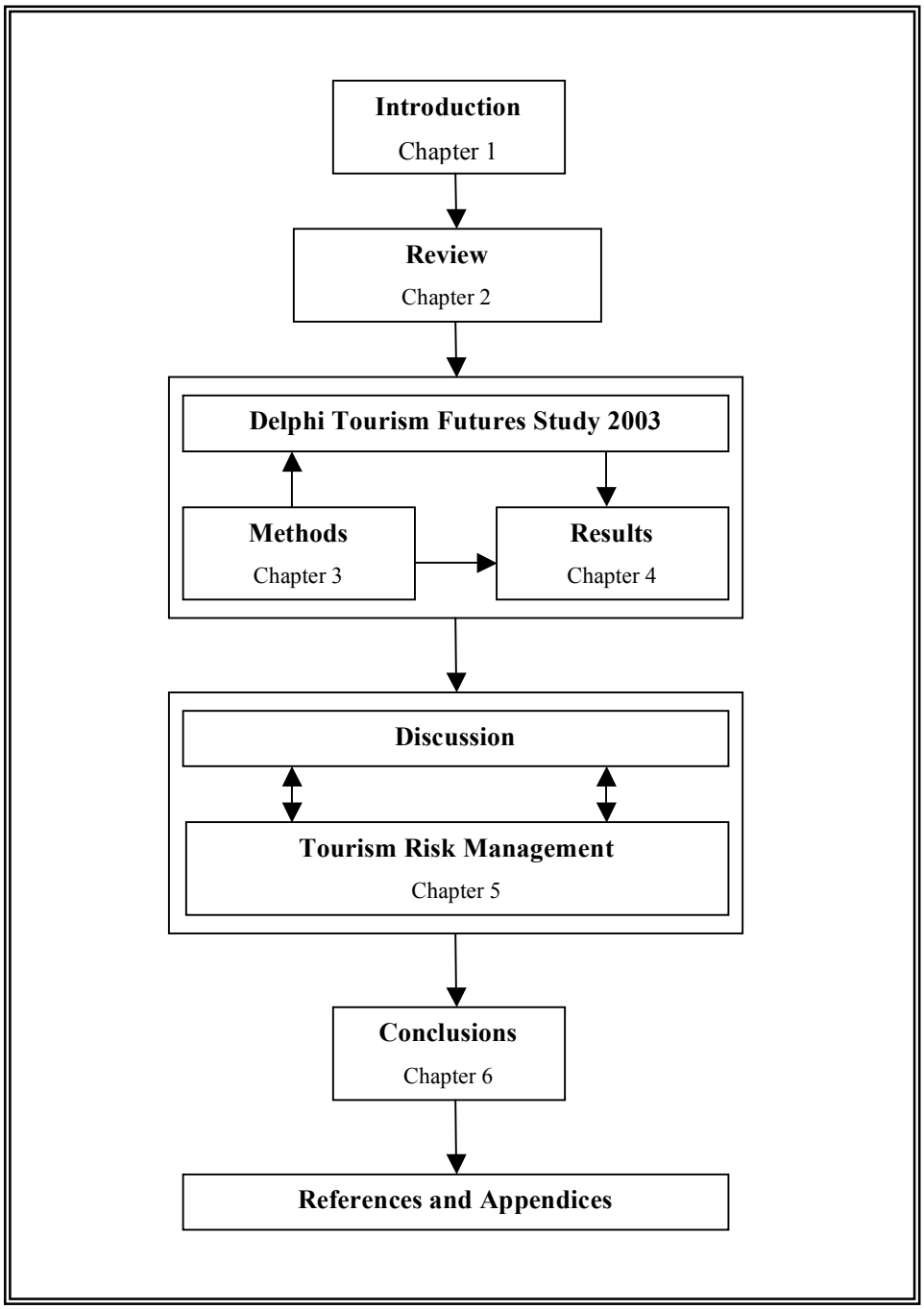

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Statement on the Contribution of Others Including Financial and Editorial Help

The research received ethical clearance from the James Cook University Experimentation Ethics Review Committee (Approval Number: H1420). A copy of this approval is included in the Appendix. The research presented and reported in this thesis was conducted within the guidelines for research ethics outlined in the *National Statement on Ethics Conduct in Research Involving Humans* (1999), the *Joint NHMRC/AVCC Statement and guidelines on Research Practice* (1997), the *James Cook University Policy on Experimentation Ethics. Standard Practices and Guidelines* (2001), and the *James Cook University Statement and Guidelines on Research Practice* (2001).

No fees or stipend support have been paid to the author of this thesis to prepare thesis material contained in the document to follow. A portion of the costs associated with the survey and database were awarded from School of Tropical Environment Studies and Geography (TESAG) funds. Editorial costs for Ms. Jill Greaves (JCU English Literature) were paid by the author. The work has been self-funded from the outset. The Centre for Disaster Studies has afforded me the opportunity to contribute to a Sustainable Tourism Cooperative Research Centre (STCRC) applied research project throughout 2004 allowing for the use and application of some the thesis research findings. Supervision and statistical support from supervisors was more than adequate while I have been able to maintain residence overseas for much of the candidature, minimising the use of university infrastructure during that time.

Abstract

A model for tourism risk management has been developed in the thesis arising from the literature review and data from the primary research survey, the Delphi Tourism Futures Study 2003. This web-based survey used experts from around the world to collect opinion and data on a variety of risk- and futures-related tourism development information. The methodology was appropriate (qualitative forecasting) to the task, and the modelling of total risk for tourism was supported by the survey results.

Important terminologies were redefined to fit the concept of a tourism risk management model that draws on terms used in the disaster and emergency management discipline, international development, and the tourism and insurance industries. The model was built on the original 'risk triangle' concept (risk being a product of hazard, vulnerability and exposure), and a later adaptation developed by Granger (1999) that replaced exposure with 'Elements at Risk'. The new model has added one additional element termed 'Risk Environment' that is made up of three components using a broad definition of environment. Safety and security emerged as the primary concern for tourist destination choice in the coming decades.

Indications of the increasing level and extent of crises and catastrophic events affecting tourism in tropical coastal areas suggest a need to study the future. The recent (26 December 2004) Indian Ocean tsunami has heightened awareness of the need for coastal areas to prepare for all types of natural hazards, especially for tourism businesses in vulnerable coastal areas. It is hoped that the research to follow could have a positive impact on: i) building awareness of risk management needs of the tourism industry, and ii) on the role of long-term forecasts in tourism risk management. It is envisaged that tourism risk management will develop into a necessary component of responsible and sustainable tourism development planning. The research to follow suggests that this is plausible, and that tourism risk management can provide a practical planning and management tool.

Acknowledgements

Firstly I would like to acknowledge my grandparents, [redacted] for their inspiration and support to achieve this goal, and my wife [redacted] for everything else.

Of course there are a number of people, without whom I could not have created the document to follow, some of whom are named below, but many others are not named. They know the value I have placed on their support and assistance.

My sincere thanks to the following individuals especially: Jill Greaves for her editorial thoroughness, Colin Lemmon, IT database expert from JCU for a workable system that seemed too ambitious, Linda Anderson-Berry for early camaraderie, Jon Nott for occasional logic, all the Delphi panelists who contributed to the richness of the survey, Alison Cottrell for her supervisory role and subtle advices, and David King for supervisory thoroughness, friendship and sound guidance. I should also thank the School of Tropical Environment Studies and Geography and James Cook University for the small but appreciated contribution to the cost of preparing a doctoral thesis.

And finally to all those friends and colleagues who offered criticism, positive comment, and helped me sustain enthusiasm throughout, and ensured that I maintained the rigour and comprehensive approach that is vital to the process of long-term planning and risk management.

SC
24 January 2005

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2. Literature Sources.pdf
3. DTFS Web Site Information (3 files)
4. DFTS 2003 (10 files)
5. DFTS Instructions to Panelists (8 files)
6. Delphi - Journal Publication
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11. Ethics Approval
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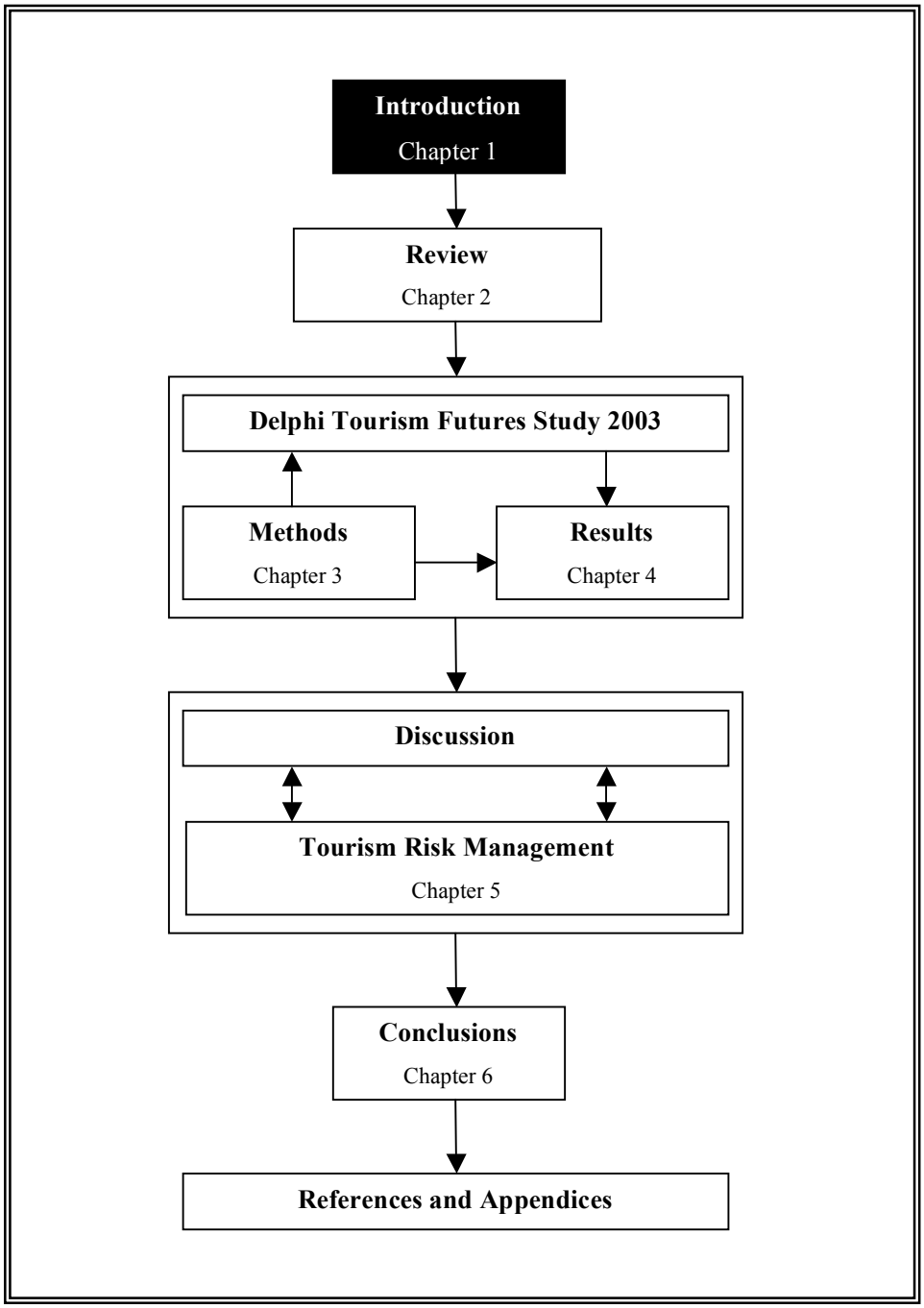
Chapter 1
Introduction to the Research



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1 INTRODUCTION TO THE RESEARCH

JANUARY 2005 PREAMBLE

A final draft of this thesis had been completed in December 2004. The impact of the 26 December 2004 earthquake and tsunami has not only made its mark on the history of humankind, but has fulfilled several poignant predictions that were generated by the research to follow. It was therefore thought to be appropriate to make mention of this catastrophe, and to acknowledge the potential future value of tourism risk management. As the reader will find, primary research results described in Chapter 4 and 6 suggest that a major catastrophe caused by natural or anthropogenic hazards (of a scale exceeding that of 11 September 2001) would occur before 2010. The few pages to follow attempt to draw some potentially positive outcomes from the massive loss and devastation that has occurred.

As the Chief Economist of the multilateral development bank (the Asian Development Bank in Manila) has pointed out, the increase in poverty in the tsunami-struck regions is potentially the most important effect of this natural disaster. The destruction and consequent recovery needs of the livelihoods of large numbers of families in the affected areas illustrate the severity of the risk exposure and vulnerability of these families and their businesses. The large numbers of small- and medium-sized tourism goods and services enterprises that were located on or adjacent to highly exposed and vulnerable beach and coastal lowlands are at the heart of the tourism industry in these coastal areas. These families and businesses are amongst the most vulnerable (to natural and anthropogenic hazards), they are the least resilient (have the most difficulty recovering from the losses), and have been the hardest hit in terms of total loss (life and property) and in terms of the almost total lack of shared risk (small businesses are rarely insured and are often family owned). The recovery of the livelihoods of these families and businesses will be the most difficult task ahead.

Rather than describe the negative outcomes from this profoundly tragic event, I would like to point to some positive or potentially positive outcomes that may arise from this event. One opportunity that the tsunami has presented is for national and local legislators to ensure that the recovery process is not simply a rapid return to business as usual, but rather that the recovery process is inclusive of mitigative measures and risk management strategies that build risk awareness to therefore minimise future potential losses from natural and anthropogenic hazards of all kinds. Education in schools and communities for the development of risk awareness is a long-term mitigation strategy that has the potential to return a massive increased value for every dollar spent. This is the second significant opportunity, committed long-term education (curriculum development at primary, secondary and tertiary level) and community awareness-building as a mitigative strategy.

Reconstruction requires new investment, new jobs, and increased demand for a range of domestic goods including food, clothing, building materials, transport and communications services that will benefit local businesses. The overall economic impact of the tsunami in the medium-to-long-term could be largely positive. The tourism areas in Thailand damaged by the tsunami are expected to complete most physical repairs to buildings and infrastructure within three to four months. This is a shorter (expected) recovery time for tourism in this area than it was following the SARS outbreak. Although the affected southern resort areas account for around three percent of Thailand's GDP, the greatest risk to the economy is the potential for a lingering perception that Thailand is not a safe destination in the eyes of potential inbound tourists. Again the opportunity here is to improve disaster awareness amongst goods and service providers, and to promote risk awareness in marketing campaigns. This would mark a significant reversal of attitude in an industry that views risk and uncertainty as a significant danger to growth and development.

The United Nations World Conference on Disaster Reduction, held in Kobe 17-22 January 2005 produced the Hyogo Declaration, which contained some groundbreaking recommendations. One such recommendation from the Conference Plenary was that risk management should be incorporated into all development activities in the future. This is

one of the first international declarations that has adopted risk management as an appropriate process and terminology to underpin sustainable development. It is hoped that this recommendation will translate into meaningful policy and programming development throughout the region. This particular recommendation can at least be partly attributed to a positive outcome of the 26 December 2004 tsunami.

The tourism risk management model developed in the research to follow has made the addition of three elements of a 'risk environment' that has been added to earlier modelling precedent. The model can act as the basis of a comprehensive risk assessment that is inclusive of the recognition and importance of the socio-physical aspects of communities and businesses (natural resources, cultural resources and livelihoods), and both the planning and the economic environment of those communities and businesses. It is hoped that over the course of the coming months and years, that some of the opportunities described here might be incorporated into a thorough and comprehensive recovery plan to minimise future loss potential. We owe at least this to our children and to the families of those who incurred losses on 26 December 2004.

SC
24 January 2005

1.1 INTRODUCTION

This thesis looks to the future to provide some answers to today's questions regarding risks to the sustainability of tourism. The increasing level and extent of crises and catastrophic events affecting tourism in tropical coastal areas suggest a need to study the future of hazards and risks to tourism. The research could have a positive impact on our thinking about the risk management needs of the tourism industry and the role of long-term forecasts in tourism risk management. The question is therefore: will tourism risk management develop into a necessary component of responsible and sustainable tourism development planning? The research to follow suggests that this is plausible.

For ease of reader navigation and cross-referencing throughout the thesis, the following simple conventions have been used:

i. Reference to specific 'sections' of the document refers to the sub-headings within a chapter. For example: in Chapter 1, Section 1.4 is titled Research Design; and Section 1.4.8 is titled Risks to the Research, etc.
ii. A three-level hierarchy has been used for titles and sub-titles with level one being the Chapter title (e.g. 1 Introduction to the Research), level two being the first sub-title (section title), and level three being the second sub-title. A fourth sub-title level has been used sparingly.
iii. Each chapter commences with a diagrammatic flowchart with the appropriate chapter highlighted, followed by a Table of Contents and a Table of Figures for that specific chapter. A complete Table of Contents and Table of Figures for the thesis is provided in the front of the thesis.

1.2 SUMMARY OF KEY DEFINITIONS

Clarity in the use of terminology and the definitions of important complex terms are critical to the value, usefulness, and understanding of the tourism risk management model, and to consistency of meaning throughout the thesis. Seven key definitions are included here to describe the main terms used in the thesis. The origins and interpretations of important terminologies are discussed in detail in Chapter 2: Literature

Review – Tourism and Risk, with additional risk-related terminology described in Chapter 5: Tourism Risk Management.

Unless otherwise cited, the definitions to follow have been developed from the literature review for specific application in the thesis for the emerging discipline of tourism risk management. The definitions below are a selection of important terminology used in the thesis.

Disasters can be understood as accidents, catastrophes, and calamities, natural or anthropogenic, causing large-scale damage to the physical and social environment resulting in economic and social costs. The terms disaster and catastrophe are used interchangeably.

Hazard is a situation or condition with potential for loss or harm to the community or environment that has a specific time and place of occurrence.

Risk

Risk is defined as the chance of incurring a loss that will have an impact upon objectives and is a product of the collective concepts of vulnerability, exposure, hazards, and the environment within which the risk occurs.

Risk Management

Risk management is a scientific approach to dealing with pure risks by anticipating possible accidental losses and designing and implementing procedures that minimise the occurrence of loss or the financial impact of the losses that do occur (Vaughan 1997 p.97).

Tourism "comprises the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business, and other purposes not related to the exercise of an activity remunerated from within the place visited" (World Tourism Organization 2002 Chapter 3).

Vulnerability is defined as the susceptibility to loss, damage, or injury to life and livelihood, and the capacity or ability to recover from such losses from natural and anthropogenic hazards. (Vulnerability and resilience are not the same. Resilience is the "positive" side of vulnerability, the ability to cope with disasters).

Exposure is defined as the elements of a specific business or community in a state of being exposed to natural and anthropogenic hazards.

In addition to these definitions, the following recent description of sustainable tourism issued by the World Tourism Organization is of interest:

Sustainable Development of Tourism: Conceptual Definition

"Sustainable tourism development guidelines and management practices are applicable to all forms of tourism in all types of destinations, including mass tourism and the various niche tourism segments. Sustainability principles refer to the environmental, economic and socio-cultural aspects of tourism development, and a suitable balance must be established between these three dimensions to guarantee its long-term sustainability.

Thus, sustainable tourism should:

1. Make optimal use of environmental resources that constitute a key element in tourism development, maintaining essential ecological processes and helping to conserve natural heritage and biodiversity;
2. Respect the socio-cultural authenticity of host communities, conserve their built and living cultural heritage and traditional values, and contribute to inter-cultural understanding and tolerance; and,
3. Ensure viable, long-term economic operations, providing socio-economic benefits to all stakeholders that are fairly distributed, including stable employment and income-earning opportunities and social services to host communities, and contributing to poverty alleviation.

Sustainable tourism development requires the informed participation of all relevant stakeholders, as well as strong political leadership to ensure wide participation and consensus building. Achieving sustainable tourism is a continuous process and it requires constant monitoring of impacts, introducing the necessary preventive and/or corrective measures whenever necessary" (World Tourism Organization 2004 no page numbering).

1.3 BACKGROUND TO THE STUDY

Tourism is a discretionary industry not a basic need. The choice to travel or not is completely in the hands of the paying individual or business. One's holiday time is commonly viewed as sacrosanct; it's time to relax or concentrate on a chosen activity; to be as far as possible stress free; and to enjoy privacy or the company of your choice. Other common motivations of learning, discovery, adventure, or satisfying business, religious and cultural needs are similarly encouraged by the perception of uninterrupted sensory indulgence, or at least overall enjoyment. Holidays are for having fun and any unplanned deviation from that is unwelcome. For the vast majority of tourists, this is precisely their experience. However hazards of all kinds exist, accidents do happen even on holidays, and there exists a strong ethical imperative on the part of tourism service providers to ensure that plans are in place to cope with at least the most common uncertainties from natural and anthropogenic hazards.

Tourism industry leaders (public or private sector) are normally averse or even loathe to discuss potential risks or hazards germane to their destination or region, let alone to bring this information to the attention of their paying customers, the unsuspecting tourist (Gutteling and Wiegman 1996). Warning customers of potential hazards is not a good way to commence a holiday and for goods and services providers, it is simply not good for business. Awareness of, and preparation for, potential disaster is therefore generally at an extremely low level amongst tourists as compared to the local population. This means tourists are vulnerable and exposed (lack of knowledge of a potential hazard, and lack of ability to protect themselves or to cope with a potential hazard) to the possibility of incurring a loss or losses because their hosts have not provided adequate information. There are other reasons for this.

Tourism invariably sells security. Tourists leave the comfort zone of their home environment and place themselves (and friends and family) in the hands of a number of largely unknown entities (transportation providers, accommodation providers) in exchange for a financial guarantee. Recently, trusting the word of a travel agent has been partially replaced by trusting one's own judgement, having researched numerous Internet sites to obtain a satisfactory solution based on comparative analysis of similar websites. Many are still not comfortable with this manner of choosing a destination, continuing to rely on the advice of travel agents, advertising and 'word of mouth' recommendations of friends and relatives. Either way, destination choice is a process of weighing up alternatives based on the best available knowledge. Consciously and unconsciously, travellers then make choices based on their perceptions of the likelihood of that destination delivering the expected product in a safe and secure environment. This aspect of safety and security of destinations has become one of the most important influences or criteria affecting destination choice.

Successful tourism businesses and destinations are safe, secure, and will virtually guarantee an uninterrupted delivery of the expected quality of goods and services, for a price. Any deviation from this certainty can be costly and damaging to both host and client. Critical uncertainties that threaten the safe and secure delivery of the promised product are primary detriments to the reputation, profitability, and sustainability of tourism businesses. These critical uncertainties can otherwise be termed hazards.

Events over the last five years have illustrated how natural and anthropogenic hazards can have a devastating effect on tourism flows in terms of numbers and expenditure. Such massive fluctuations in demand for tourism goods and services are unprecedented since the passenger jet began operations in the 1950s. At the same time, the tourism industry has illustrated an extraordinary resilience, an ability to bounce back from economic ruin.

World Tourism Organization (WTO) figures indicate that, in the year 2000, tourism provided direct and indirect employment for 212 million people and generated US$3.4

trillion in gross output, and it continues to maintain its position as the largest and fastest growing industry in the world (World Tourism Organization 2001a). It is likely that this growth rate will not change significantly over the next half-century, according to the World Tourism Organization (1994). Changes in tourism products, increased accessibility, transportation risks, natural hazards, and an increasingly sophisticated consumer are some of the factors placing more and more pressure on tourism goods and services providers to keep pace with growth and technological advances. Exposure to elements of risk and hazards of all kinds are also increasing alongside growth in arrivals and expenditure, as are the costs of catastrophes to the insurance industry. Measurements of arrivals numbers and expenditures are the two most basic and common indicators of tourism development.

The thesis recognises this dynamic of tourism and the need to constantly adapt to new circumstances, respond to new needs, and to satisfy a changing demand for new goods and services. It also recognises the growing need for a more thorough and comprehensive view of the elements (hazards, vulnerability, exposure and the risk environment) that can spoil a holiday experience or destroy a tourism business. These elements comprise what is termed the 'total risk' to tourism businesses and their host communities. A qualitative conceptual description of total risk is an important focus of the research. Summarised in two sentences, the underlying assumption (*sensu stricto*) underpinning this research is that:

> Tourists, tourism industry businesses, and host communities in tropical coastal areas will in the future contend with a myriad of natural and anthropogenic hazards that will threaten social, economic, and environmental stability. Tourism risk management strategies will be found to be valuable planning and management tools to reduce the adverse impacts of hazards and catastrophic events.

The interest in the topic is derived from a practical concern for the future of the tourism industry and its host communities. There exist countless examples of uncontrolled developments and poorly planned facilities that put both tourists and goods and services

providers at considerable risk of jeopardising investment in tourists' holidays and the infrastructure that supports the tourism experience. The thesis therefore examines the need to reduce such risks that can and have been identified. Current conventional tourism planning and development strategies rarely investigate risk of any kind systematically and/or deliberately.

1.4 RESEARCH DESIGN

The prime impetus for the research is derived from a practical concern for both natural and anthropogenic hazards that will have adverse impacts on the tourism industry, particularly in vulnerable tropical coastal areas. While considerable research has been undertaken on the impacts of tourists on the places they visit (Organization for Economic Cooperation and Development 1980; Britton, Clarke *et al.* 1987; World Tourism Organization 1997a; Boyd and Butler 2000; Eagles, McCool *et al.* 2002)[1], little published material is available on the impact of natural and anthropogenic hazards on the tourism industry in the future.

A risk management approach could enhance or supplement existing tourism planning and management tools to contribute to a more sustainable tourism development process in tropical coastal areas if risk is understood as the chance of loss or something occurring that varies from expectations and which might occur randomly (Slovic 2000). For tourism businesses to fail to prepare themselves for a variety of potential disasters is at best unsustainable, and at worst irresponsible.

The research design (or plan) provides a framework within which to organise and manage the research and writing of a dissertation of original research and findings. This preliminary planning is critical to ensure that the study will: i) be relevant to the

[1] See also
De Kadt, E. J., World Bank, *et al*. (1979). Tourism--passport to development? Perspectives on the social and cultural effects of tourism in developing countries. New York, Published for the World Bank and UNESCO by Oxford University Press,
Serageldin, I., E. Shluger, *et al.* (2001). Historic cities and sacred sites: cultural roots for urban futures. Washington, D.C., World Bank.

problem; and ii) employ economic procedures (Churchill 1987). The research plan is designed to prepare and organise four tasks:

i) Summarise the preliminary review of the related research literature and describe how this led to the formulation of the research question;
ii) Formulate the research question, and make subsequent choice of method for the research;
iii) Compile the definition of concepts, variables and hypotheses; and
iv) Schedule the research activities and thesis compilation as a set of scheduled project management activities.

Research designs can be categorised into three main types: exploratory, descriptive, and causal (Pizam 1994). A significant challenge of this research design was the choice and subsequent adaptation of an investigative method called the Delphi technique. The choice of the Delphi technique as an analytical survey tool required a combination of exploratory and descriptive methodologies. The exploratory first stage identified relevant events and issues that formed the basis of the Round One Delphi questionnaire. Round One was followed by a refined and redrafted Round Two Delphi questionnaire incorporating a summary of responses from the first round. Questions were a combination of open-ended and multiple choices formats. The survey was titled "Delphi Tourism Futures Study 2003".

The decision to project into the future, as opposed to concentrating on contemporary hazards to tourism in coastal tropical areas was made for two reasons. Firstly, it was driven by the conceptual change to the research question formulation described in the section to follow. This conceptual change moved the focus from tourism impacts to risk management, which requires by definition (and from a strategic planning perspective as described in Section 1.5 Research Issues and Constraints) thorough forward planning to prepare for future uncertainties. That is, it is necessary to anticipate future change through proactive or preventative measures, as opposed to responding to change as it occurs through reactive or curative measures. Risk management is a strategic planning tool.

Secondly, the literature uncovered a dearth of long-term forecasting or predictions on future hazards to the tourism industry apart from passing references and platitudes suggesting that certain hazards will have a significant impact on the tourism industry in the future. Harshly regarded, this could be described as apathy from the tourism industry, which could lead to potential waste of all kinds. More conservatively, it could be viewed as a simple lack of vision. This research is intended to be innovative and creative, and to contribute to a positive future vision for tourism in tropical coastal areas.

Tourism risk management is an emerging area of sustainable tourism development planning and management. The research will contribute to the long-term endeavour to continue revising and updating methods and approaches to planning and management, in response to the changing needs of tourists, host communities, and all those involved in the business of tourism.

1.4.1 Topic Development

The original title proposed for this thesis was drafted as "Tourism, Coastal Environments, and the Potential for Disasters". This was later changed to include the subject of the vulnerability of these geographic locations by adding "[Disaster] Susceptibility Analysis" to the title. Vulnerability was soon recognised as a significant component of risk analysis and risk management. The literature review provided the basis of a simplified final version that defined a geographic area while remaining global in coverage, and inferred that the tourism risk management process was the research focus. "Some risks are worth taking" was added later recognising that the tourism industry is here to stay, and that tourists will continue to weigh risk and opportunity when choosing a destination.

In the process of framing and reformulating the research question as the research developed, two important issues arose:

i) Recognition of the need to acknowledge the cumulative nature of risks facing the future of the tourism industry (as opposed to addressing

individual physical, cultural, economic, and environmental impacts of tourists in certain locations); and

ii) Recognition of the need to forecast future risks that will have an impact on tourism development in the foreseeable future from 2001 to 2050.

This represented a twofold shift in the research question formulation, conceptually and methodologically: i) from tourist impacts to risk management (conceptually); and ii) from case study to survey methods (methodologically). Risk management investigations commenced with an existing model used in natural hazards disaster management (see Granger 1998) and then developed this model for application to tourism risk management for which no such model currently exists. A qualitative survey process was considered the most appropriate means of obtaining extensive expert opinion on a variety of uncertainties about the future of tourism in tropical coastal areas.

The shift away from tourist impacts on the tourism destination towards the estimation of total risk (taking a comprehensive approach to risk management) resulted from two realisations that emerged from the literature review, namely: i) understanding more about the source and type of hazards that have adverse impacts on tourism in coastal tropical areas; and ii) understanding the necessity to accommodate socio-economic and organisational aspects of the risk environment in the management of risks to tourism businesses and host communities.

A variety of predictable and unpredictable catastrophic events will have significant consequences for the future of the industry in tropical coastal areas, so the second shift in focus was made from a case study investigation of extant evidence to a qualitative survey investigation of expert opinion on the future to identify trends and likely developments and to identify future possibilities. Cornish (1977) describes this as a form of applied history. Futures forecasting can be a valuable working tool to lessen the load of uncertainty, by making best use of existing and historical information about our changing world.

The primary aims of the research then became clear. Assuming that risks and uncertainties for tourists and tourism organisations do exist and will continue to exist, the next question became "Can these risks be managed to minimise potential losses from surprise events and adverse impacts?" Further to this, the possibility of looking to the future to identify possible trends and change agents was an exciting prospective challenge, given the dearth of published material on long-term tourism futures.

1.4.2 Aims and Research Questions

The research questions then needed to elicit an understanding of the range of hazards that can potentially affect tourism developments, now and in the future, while asking whether or not a risk management model can be developed to show how these hazards, in combination with other key determinants of vulnerability and exposure, can be effectively managed. The aims of the research then became twofold:

Aim 1 To determine what risks from natural and anthropogenic hazards will have an impact on the development of the tourism industry in tropical coastal areas from 2001 to 2050; and

Aim 2 To develop a risk management model appropriate to the tourism industry that could manage these risks in the future.

To satisfy Aim 1, two research specific questions were required to investigate the perception that risks to tourism would have an impact on future development:

- What are the likely growth trends for tourism in tropical coastal areas to 2025 and to 2050, and can valid and reliable forecasts be made to 2025 and to 2050?
- What are the likely natural and anthropogenic hazards that will impact tropical coastal areas during this time?

To answer these questions, the research needed to develop and implement a qualitative forecasting method using expert opinion to predict long-term trends, change agents, and future hazards for tourism in tropical coastal areas. This method would also need to investigate possible long-term futures (growth and development trends, market and

demand trends, risk reduction measures) for tourism development in tropical coastal areas.

Similarly, to satisfy Aim 2, two research specific questions were required to investigate the potential modelling of tourism risk management:

- Can tourism risk management be developed as a valid and practical tourism planning and management tool?
- Is there a need to identify a model of tourism risk management that minimises losses from future potential catastrophic events?

The overarching research question was then: Can a model be developed that reflects the concerns and need for tourism risk management arising from the literature and a qualitative investigation of future risks to tourism in tropical coastal areas?

The four topic areas of the questions in the Delphi survey were initially arranged to address the research questions, with the addition of other risk-related topics such as insurance and health hazards for example.

1.4.3 Paradigms

Tourism has traditionally, in an industry-specific manner, followed the dominant social paradigm or the dominant Western world-view (Blaikie 1992) of bigger is better, increased numbers of visitors are good for the economy, and tourism can be an economic saviour by supplanting other declining sectors of local and national economies. This paradigm is increasingly challenged by the more recent Ecologically Sustainable Development (ESD) paradigm (Dunlap and K. D. van Liere 1978). A key hypothesis of the research (which was investigated in the survey questionnaire) will be that there exists divergent opinion amongst experts in the field, according to whether they are amongst the risk takers (likely dominant social paradigm followers) and the risk advisers or risk analysts (likely ESD paradigm followers), assuming they generally follow one of the two paradigms.

1.4.4 Theory

Theory of risk and risk management from the insurance industry provides a thorough approach to describing and quantifying the impacts of catastrophic events, both natural and anthropogenic. The research will not draw on the quantitative methodologies but will exploit qualitative data and models of risk management from the insurance business and the disaster and emergency management discipline. Risk management theory is about decision-making under conditions of uncertainty requiring some subjectivity, experience and intuition (Swiss Re 1998a; Munich Re 2000; Swiss Re 2003a). The 'management' component is then aimed at the operating efficiency of organisations drawing on and integrating knowledge from a variety of other business fields (Chichilnisky and Heal 1998).

Current theory surrounding tourism development forecasting is focused on the short- to medium-term (Smith 1995). Short- to medium-term forecasting for tourism development is generally based on a three-to-five year time frame. The use and meaning of this terminology (short-term and medium-term) varies from place to place depending upon the focus of the forecasts (Smith 1995). Forecasting tourism development activities is rarely applied to a time frame greater than the short-to-medium term of three- to five-years (World Tourism Organization 2001b) or just beyond, based on the most common method of extrapolation.

Risk (if analysed at all in the tourism development process) is most often assessed quantitatively in terms of the economic and financial viabilities of decisions, and rarely incorporates qualitative assessments systematically. This appraisal is based on the author's professional experience in the industry, and is discussed in Chapter 5: Tourism Risk Management. Tourism demand forecasting for marketing and product development is the common purpose of these short- to medium-term forecasts.

Long-term qualitative forecasting and the assessment of risk to tourism due to all types of hazards have only rarely been attempted. Such forecasting is needed to increase the lead-time between potential events and current planning. As the rate of change

accelerates (development), and the complexity of the business environment grows (competition, legislation, etc.), the lead-time for business decisions decreases and "it makes previous expectations less reliable" (Glenn and Gordon 2004 in press p.4). It is clear from both theory and practice, that the value of thinking ahead is critical to a viable, sustainable business. Long-term forecasts or predictions are a multidisciplinary examination of future change and therefore an important component of effective and comprehensive tourism risk management.

1.4.5 Concepts

Clear and unambiguous definitions of concepts are critical to developing reliable explanations (Neuman 2000). Operationalising the concepts in qualitative research is only possible following the data analysis. Initial definitions for these concepts were posed to all panelists taking part in the Delphi Tourism Futures Study 2003 (the primary research survey) with a view to finalising them after the analysis of the survey data was completed. The four key concepts of the research were:

i. Risk and risk management (and the concept of 'total risk');
ii. Hazards, disasters, and catastrophic events;
iii. The tourism industry in tropical coastal areas; and
iv. The consequences of points i and ii on point iii, to 2025 and 2050.

1.4.6 Variables

The variables are in effect the operationally defined concepts (Pizam 1994). That is, variables are units of analysis of certain value that can be attributed to measuring the concepts of the research. The main independent variable of the research is the impact of catastrophic events. Risk, measured quantitatively or qualitatively, is a key dependent variable that is affected by the cause or independent variables of exposure, vulnerability, and hazards that can be, in certain circumstances, measured quantitatively or qualitatively, or at least given a specific value.

If it were useful to attempt to calculate or place a value on total risk, it would require the measurement of the independent variables that complete the risk equation, described in

Chapter 2. This is practically impossible with the equation in the form it is presented in Figure 1-1 below. Chapter 5: Tourism Risk Management discusses each variable to derive a more practical model to describe the key components of risk.

The risk equation is mentioned here because it contains the key variables for the research. The value of the risk equation lies in its modelling of an approach to total risk by illustrating the relationships between variables. In practical terms, the equation is a demonstration of the necessary considerations or components of a comprehensive appreciation of total risk. That appreciation might take the form of a risk assessment process, risk analysis, or indeed the design of a risk management strategy. Hazard (or catastrophic events) is the main independent variable for two reasons: i) the central role of hazards to disasters; and ii) the central role of identification of hazards to the research. The equation is described below, and discussed in detail in Chapter 2 Literature Review, with the equation itself developed further in Chapter 6 Tourism Risk Management. This equation was offered to panelists in the Delphi survey for their opinion and comment.

$$\textit{Risk}_{\textit{(Total)}} = \textit{Hazard x Vulnerability x Elements at Risk}_{\textit{(Exposure)}}$$

Figure 1-1 Total Risk Equation
Source: After Granger (1998).

Catastrophic events can be described as accumulations of the hazards which, when understood in terms of their impacts, are the key components of the risks that will effect the development of the tourism industry in tropical coastal areas. The diagram below places exposure and vulnerability between the main dependent and independent variables (risks and catastrophic events respectively). Strictly speaking, exposure and vulnerability are independent variables. Figure 1-2 was designed to graphically indicate the priority of the concepts.

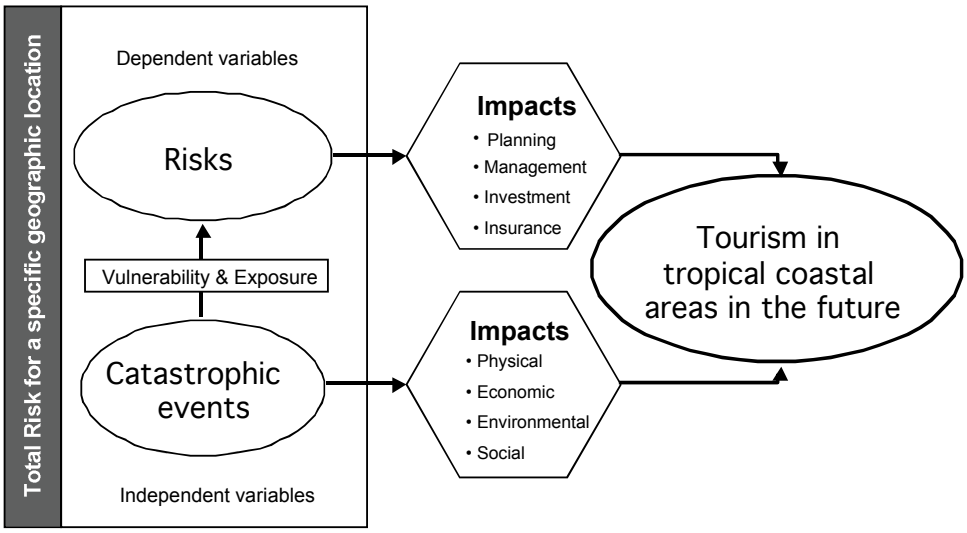

Figure 1-2 Risk Variables and Impacts on Tourism

1.4.7 Hypotheses

The hypotheses developed in the thesis are aimed at a methodological question (the appropriateness of an adapted method), a possible homogeneity of opinion of the survey panelists (the views of a grouping of the panelists in the survey), and three potential results or findings (regarding risk exposure, the impacts of future risks, and representative tourism risk management model).

The choice of a qualitative survey technique was based on the appropriateness of this method to deriving expert opinion on probable future uncertainties, in this case the likelihood and consequences of various types of risk that tourists and tourism businesses will face in the future. Participants in the survey were therefore chosen for their knowledge and experience of forward planning from a variety of disciplinary backgrounds. The key characteristics to be represented by the participants (referred to as survey panelists) can be broken into these two primary categories:

i. risk takers are those directly and indirectly affected by risk in the future (businesses, investors, operators, goods and services providers); and
ii. risk advisers (or risk analysts) are those who have and share knowledge or experience of risk analysis and risk management, but are not directly involved in the impacts of such advice or analyses. (This would include academics, National Tourism Organisations, The World Tourism Organization, and others).

Using a disproportionate, stratified, convenience sampling method to select panelists for the survey, a hypothesis that was tested statistically was the possibility of convergence or divergence of opinion between the risk takers and the risk advisers. The proposition was twofold: i) that the risk takers would be likely to have a convergence of opinion on matters posed by the questions in the survey, as would the risk advisers have a convergence of opinion; and ii) that there would be a divergence of opinion between these two groups.

There are three hypotheses to be examined in the research:

a. that the tourism industry is experiencing an increase in risk exposure;
b. that risks from natural and anthropogenic hazards will have an impact on the development of the tourism industry in tropical coastal areas in the coming decades; and
c. that a model can be developed as a planning and management tool to illustrate the relationship between variables that constitute a description of total risk for tourism businesses and their host communities.

An additional methodological hypothesis was that a qualitative survey method could be developed to predict plausible, long-term futures information regarding tourism development in tropical coastal areas. These hypotheses were refined and clarified following the analysis of the primary data set from the survey (Neuman 2000).

The topics of questions presented to panelists in the questionnaire were aimed at providing evidence, opinion and information on these hypotheses, and to assist in answering the research questions described above.

1.4.8 Risks to the Research

The research is ambitious and somewhat risky, in that the topic will: i) investigate future uncertainties; and ii) draw on theory and concepts from a variety of disciplines including social theory, insurance, emergency management, and business management theory. The research then attempts to relate these interdisciplinary concepts to tourism. It takes a long-term view of tourism development by drawing on the strengths of these other disciplines.

Other possible risks associated with the study concerned data quality, given the common constraint of 'drop-out' from the Delphi panel, and the financial costs required to maintain the enthusiasm of the Delphi panel (international telephone charges for example), given their global locations. Panelists required very little coercion in the end, with eighty-seven percent completing the entire two-round process, and contributing an unexpected and surprising amount of time to long, written responses to open-ended questions. Although the use of a web-based survey limited panelists to those with web access, this was not a significant risk once the initial selection of potential panelists was completed. Based on the overview of the Delphi technique, its prior applications, and a review of the appropriateness of the technique to forecasting tourism development and future risks, it can be concluded that it was an appropriate choice of methodology.

1.4.9 Outcomes

The research will contribute to the body of knowledge in the tourism forecasting discipline by developing and testing a long-term forecasting method (including forecasted results to 2025 and 2050 horizons) for the likely risks that the tourism industry will be exposed to in tropical coastal areas. The research will also provide the insurance industry with a systematic exploration of possible future risk exposures that will serve as an early warning to permit insurers to take appropriate action. Tourism plant and equipment is not a significant individual component of global primary

insurance or reinsurance (Cunliffe 2003). Discussions with two of the major reinsurers suggest that this might change if and when underwriters can quantify a product with acceptable accuracy (Cunliffe 2003).

There exists an opportunity to bridge the gap in communications between insurers and the insured (tourism businesses) by presenting a systematic risk management process as a firm basis on which to negotiate lower premiums. This will be an important area of further research, based on the thesis results. In 2004, with support from the Australian Government Sustainable Tourism Cooperative Research Centre (STCRC) (http://www.crctourism.com.au/) and the Centre for Disaster Studies, James Cook University (http:// www.tesag.jcu.edu.au/CDS/index.htm), the author commenced a project to develop a tourism destination risk management model for Australia. This project provided the opportunity to further satisfy Aim 2 of the Research Aims (see page 16 of the thesis).

The research has clear practical value for tourism development planning practitioners and might in future serve to minimise the adverse impacts of catastrophic events, or even avert possible crises in the tourism industry. Indications of the increasing level and extent of disasters and catastrophes suggest good reasons to study the future.

Risk management for the tourism industry has been largely confined to health and safety applications (air travel, road accidents, sickness, adventurous/dangerous activities), and to investment strategies for major hotels and resorts. Since September 11, 2001 there have been a number of publications addressing macro-level risks to the tourism industry and the implications for policy-makers (see for example World Tourism Organization 2001c; Glaesser 2003; Wilks and Moore 2003). A review of the current literature indicates no prior attempts to view risk comprehensively with respect to the tourism industry, nor has the tourism industry been specifically singled out in terms of risk exposure by the insurance or reinsurance industry. Thus the work will not be duplicating existing research. It will, however, build on a number of investigations of individual risks and methodologies from the emergency management and insurance industry literature.

An unexpected outcome of the research has been the interest shown from Standards Australia in utilising elements of the research to adapt their generic Risk Management standard AS/NZS 4360:1999 (Standards Association of Australia 1999) into a Tourism Risk Management standard. This will be pursued in 2005.

1.5 RESEARCH ISSUES AND CONSTRAINTS

The research began the year before the events of September 11, 2001[2]. By December 2001, it was decided that the research would be limited to pre-September 11, 2001 historical records, that is, the research would not investigate or discuss catastrophic events after September 10, 2001. This has not been possible. Any discussion of catastrophe on the news or in the literature from 2002 to 2004 invariably mentions the events of September 11, 2001 as the gauge or example against which all other events are now compared. The impacts of the events of September 11, 2001 have therefore been necessarily discussed in the Delphi survey, the results of the survey, and in the literature review. The event itself however has not been discussed in detail.

In order to explore the research aims, and after investigation of appropriate methods with which to investigate possible long-term futures issues, the Delphi technique was chosen to explore and test systematically the possible futures of both large and small-scale issues in the near and distant future. Although one cannot know the future, the technique can identify a range of futures, and it can result in a description of the likelihood of certain future events or conditions that can, in turn, be changed by policy, and policy consequences can be forecasted. While it was not an objective or a research aim to forecast the policy consequences of the Delphi findings, it might, however, be a logical issue to follow on from the current research.

It should be noted that the value of futures research is not only demonstrated by the accuracy of forecasts, but can be illustrated by: i) the value and usefulness in planning

and awareness building of new possibilities; and ii) highlighting the potential changes required of a future policy agenda. The thesis pursued the first of these two values. Operationalising these new possibilities (the second value) is a logical extension of the research. It is hoped that this will be pursued in 2005 as described above.

This method of primary research can highlight issues that force us to anticipate opportunities and threats and to consider how to address them. Its purpose is therefore not to know the future, but to assist in making better decisions now and in the future (Avtah Brah 1999). Obviously, from a strategic planning perspective, it is better to anticipate through proactive or preventative measures, rather than to just respond to change as it occurs through reactive or curative measures. This is also a basic condition of risk management. A constraint on the research is then the need to curtail follow-on activities and not to pursue the policy implications of the Delphi findings.

This was a qualitative research investigation. Statistical analysis of responses to the predominantly categorical questions in the survey was limited to descriptive statistics, apart from two correlations. These were deduced from: i) variables between questions repeated in a second round of the survey to test variance between responses to the same question (in Round 2) after the responses to the first round were known, (this indicated the level of consensus achieved and the change in this level between rounds); and ii) responses of one sub-group of panelists' responses compared to another sub-group (risk takers and risk advisers/analysts) to test the hypothesis that responses from these two sub-groups would vary.

The ambitious objective of developing a model for tourism risk management required detailed investigations of definitions, terminology, applications, and implications of past models largely from the natural disasters and emergency management disciplines. The components of earlier models have been expanded and redefined with a focus on the hazards component, given the domination of this component in most risk models. The other components of the model (namely, vulnerability and exposure) developed in the

[2] The date "September 11, 2001" will be used in the thesis to represent the terrorist attacks on the World Trade Centre towers and other locations in the USA on September 11 2001.

thesis have not received the attention given to hazards and total risk, because the addition of a fifth component to these four existing components required altered definitions of both vulnerability and exposure which were partially subsumed by the new fifth component, the risk environment. The new model is described in Chapter 5: Tourism Risk Management.

The background and justification for selecting the Delphi technique discussed in Chapter 3 include only those aspects of the research design that are relevant to the choice of method. It is not a comprehensive critique of all available forecasting methods.

1.6 CONTENTS OF THE THESIS

Chapter 1: Introduction introduces the research topic, provides some basic definitions of the key research concepts, and describes an outline of the structure of the thesis and the content of the remaining chapters. There is a brief discussion of background information and assumptions. The main purpose of the introductory chapter is to: i) describe the aims and the research question, hypotheses, and chapter contents of the thesis, and ii) to provide an introduction to the research.

Chapter 2: Literature Review - Tourism and Risk investigates the relevant discussions of these two, and other topics, to describe the background and theory behind the research questions and hypotheses. The use and necessary adaptation of the terminology of tourism risk management is described in detail. The concepts of risk management for tourism, tourism in coastal areas, and disasters and catastrophic events are investigated and described. The potential, hazardous impacts of climate change on tropical coastal tourism are significant to future coastal tourism development. The four main topic areas of the review are reflected in the four main topic areas of the Delphi survey (listed in the following paragraph) and the conclusions in Chapter 6. The literature review is supplemented throughout the thesis with citations, where appropriate, particularly for the literature on the subject of risk management in Chapter 5.

Chapter 3: Delphi Tourism Futures Study Methods describes the choice of the Delphi Technique as an iterative, anonymous survey method, and its design and

adaptation as a qualitative survey method. Panelists from twenty-two countries around the world, representing forty different organisations, participated in both rounds of the survey. The first round consisted of a total of forty-six questions, of which thirty-two were categorical questions, and fourteen were open-ended. Data was collected in four topic areas:

1. Tourism and economic growth trends;
2. Catastrophic events and the impacts of climate change;
3. Insurance and risk management for tourism; and
4. Futures forecasts and catastrophic events to 2050.

The research aims, hypotheses and the initial review of the literature provided the basis of most of the questions in the questionnaire. The four topic areas then provided a convenient grouping that assisted with pre-testing the survey and organising and analysing the data.

A web-based survey technique was used with a simple database to allow easy access to the results. The method required a complete adaptation from any prior use of this technique found in the literature. This was the subject of the first journal publication arising from the research (Cunliffe 2002). It is notable that the Delphi technique that was adapted and developed specifically for this qualitative research became a significant component of the overall research process.

Chapter 4: Delphi Tourism Futures Study Results presents the results of both rounds of the survey. A summary of each round, including a Final Report summarising all study results and analyses, was made available to all panelists. Descriptive statistical analyses were applied to the categorical questions and responses from the survey. Correlations were applied to determine a convergence or divergence of opinion amongst panelists with varying backgrounds and expertise to test certain assumptions. The analysis of findings includes an evaluation of the method in terms of its adequacy, effectiveness and impacts.

Chapter 5: Tourism Risk Management investigates the components of the process of tourism risk management, the concepts of risk from different perspectives, and specific risks to tourism which are described in four main sectors of the industry (tourists themselves, the hospitality industry, travel agencies, and transportation providers). The practical needs of tourism risk management are described, using local government and small and medium enterprises as an example. Four typical risk management processes are also described with a short discussion of risk management co-ordination, documentation, and treatment options.

The final section describes a model (illustrated by a quasi-mathematical equation and diagram) that is based on all the research findings.

The main findings of the study are synthesised in the final discussion in **Chapter 6: Conclusions**. Suggestions are made for further research and follow-on activities that are relevant to the development of tourism risk management as an accepted practice amongst tourism development planners. The conclusions address the research design components mentioned in Chapter 1, the research questions, hypotheses and the achievement or not of the Research Aims.

The Appendix is enclosed on a separate CD.

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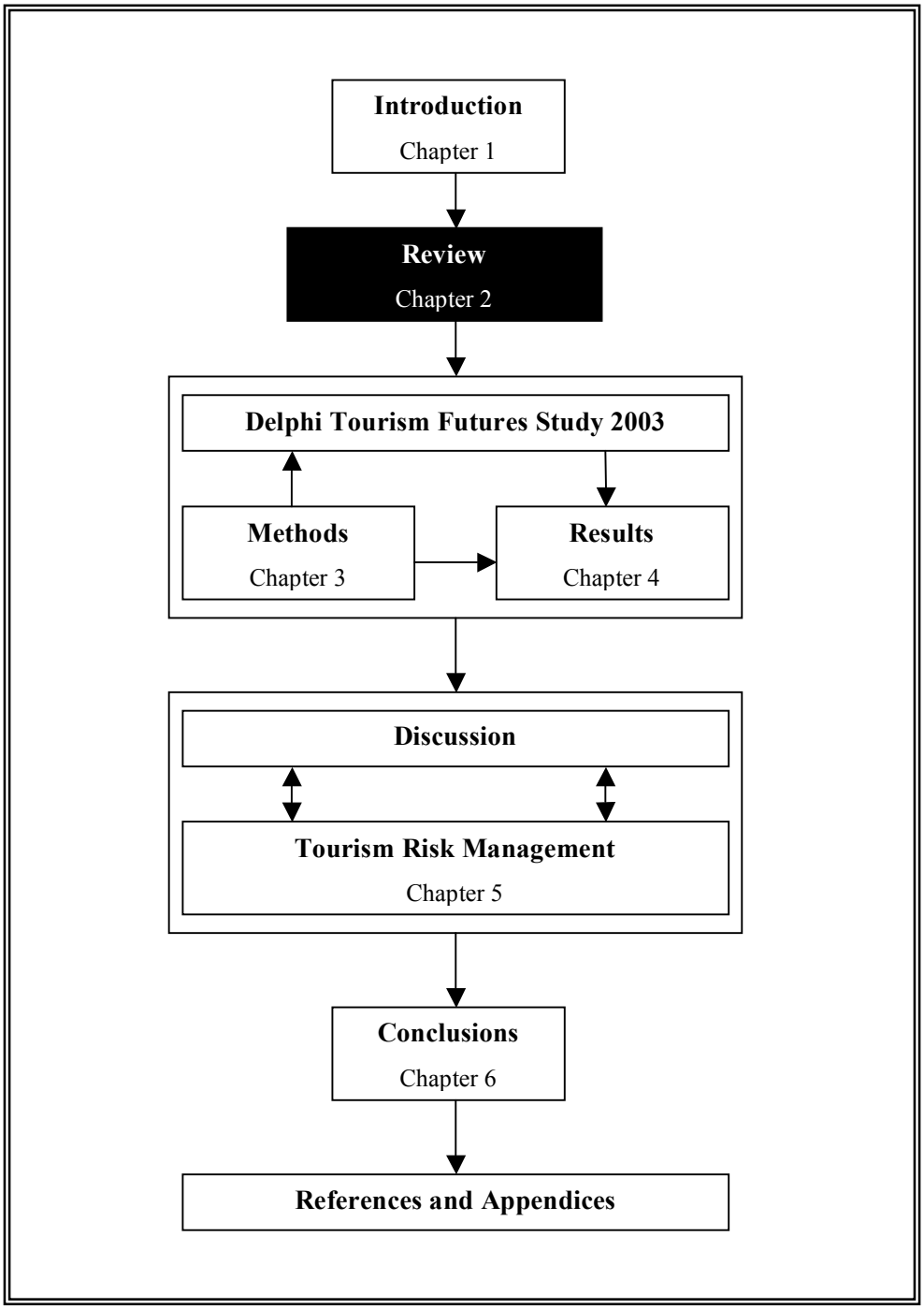
Chapter 2

Literature Review – Tourism and Risk



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LITERATURE REVIEW - RISK AND TOURISM

2.1 INTRODUCTION

This chapter is the synthesis of an extensive literature review covering several apparently disparate fields such as risk and insurance, natural hazards research, emergency management, risk management and tourism in tropical coastal areas. The investigations focussed on risks and risk management for the tourism industry in coastal tropical areas. The tourism-related literature was not the only source, given that it was found that the link between tourism and risk management has not been made in many recent articles or books, prior to September 11, 2001. Since that event there has been a resurgence in interest in risk management, risk assessment and risk analysis in the corporate world and in many research endeavours, tourism included.

Over the course of collecting and reviewing relevant articles, reports, and books, there was an opportunity to visit a number of university and corporate library collections from Australia, the USA, and Europe (see Appendix 2: Literature Review Sources, for a complete list of libraries and collections visited). Information and data regarding risks to tourism in the Asian region were relatively scant, apart from material available in the more general category of emergency management and crisis planning. Additional literature review information specific to tourism risk management is contained in the discussion in Chapter 5: Tourism Risk Management.

The primary objective of the review was to investigate current knowledge of risk management and its application to the tourism industry in tropical coastal areas. It is divided into four parts, as follows:

i. Introduction and Approach;
ii. Defining Key Terms;

iii. Review Discussion (this section is divided into four topic areas that are reflected in the Delphi survey questionnaire and Chapter 6: Conclusions); and

iv. Bibliography and Reference Documents (included in the Bibliography and Appendix respectively).

The four topics of Sections 2.3 to 2.6 are: Tourism and Coastal Tropical Areas; Disasters and Catastrophic Events; Risk Management for Tourism; and Future Forecasts and Climate Change. (Additional related thematic topics are also discussed below). These four sub-sections summarise aspects of the review that led to firming up the research question, which in turn formed the basis of the design and content of the Delphi survey (described in the following Chapter 3: Methods). The Bibliography includes all cited references at the end of the thesis. A separate list of valuable additional resources and references (those of relevance to related topics but not cited in the thesis) is included in Appendix 22: Additional References.

Background

The purpose of the literature search and review was twofold: i) to explain and to clarify the theoretical rationale of the problem; and ii) to inform the reader of what research has and has not been done on the problem (Pizam 1994). The review of the literature was an ongoing process throughout the thesis.

The link between tourism and risk found in the literature is largely confined to health and safety considerations (Department of Tourism Studies 1995) such as the impacts of war and terrorism on tourism flows in a specific region, the effects of catastrophic events on tourism marketing of a particular destination, or risks tourists encounter in dangerous or adventurous recreational activities. While the tourism industry boasts being the world's biggest single industry (World Tourism Organization 1994; Ersbach and Mirthes 1997), risk management does not appear to be a common planning or management tool nor a component of current tourism planning and management strategies (Cunliffe 2002).

Although the growth of the tourism industry is inextricably linked to globalisation, described by Avtah Brah (1999) as the movement of capital, commodities, people and cultural imaginations, the tourism industry is not commonly recognised as a key motivator of this phenomenon (globalisation). Rather, tourism as an industry benefits from the process of globalisation (Boniface and Fowler 1993) due to more extensive access and the easing of export and immigration restrictions. Tourism, like other industries that rely on natural and cultural resources (mining, forestry, agriculture and other industries), is more nationalistic than global in terms of the generators or agents of change and development. That is, for a particular country, national interest in tourism development is a higher priority than are issues related to global tourism (Inskeep, Routledge (Firm) *et al.* 1994; Shah 1996; Geyikdagi and Geyikdagi 1997; Goeldner and Ritchie 2003). It is likely that that situation will change as risks of a global nature and unforseen hazards to successful development continue to generate negative impacts to Nation States. Sharing risk-related information and experience (positive and negative) will be nothing less than critical to a sustainable global tourism industry in future (Shiller and Athanasoulis 1995).

Approach

Additional objectives of the review were as follows: to ascertain the extent of information available on the topics or topic areas described in the research design; to confirm the value and importance of the topic and related topic areas; to identify those areas of information where knowledge in currently not available or at least is not in a published and available format; and to investigate current knowledge on tourism and disasters in coastal tropical areas, risk management theory, and the risks to the viability and sustainability of existing and future tourism developments.

The research has taken a necessarily global view (coastal tropical areas around the world); therefore the review of the literature was also necessarily global. Initially, attention was paid to the Asian region (the author's preference); however, material from the Caribbean provided the most extensive source of information on risks to tourism development. This is probably due to the regular occurrence of seasonal natural disasters in the region, and also because of the strength of support from the Organization of

American States to most small island states in the Caribbean. World Bank lending programs and projects supported by US and Canadian bilateral organisations have provided extensive, valuable literature and reports on tourism development and extant risks in the Caribbean. Interestingly, a similar depth of material has not been produced for the Asian region despite the obvious vulnerability of coastal areas in Asia to natural and anthropogenic hazards.

The literature reviewed and utilised in the thesis was chosen to assist with the research question formulation, and to provide a foundation for the development of a tourism risk management model and new and current views on the components of similar models. A variety of bibliographic resources was used, including electronic databases where references and full text articles were downloaded for filing and review. The two main topics were: i) hazards and catastrophic events pertaining to tourism; and ii) the topics of risk and risk management (other relevant thematic topics are described below). The literature on these two topic areas was critical to developing the main research question.

As a means of organising the literature search process, a list of key terms or themes was developed to guide the investigations. Material found was then evaluated by way of testing the validity or value of information found by examining it for relevance against the key research questions (Pizam 1994) described in the Research Design in Chapter 1. This approach was adopted to ensure that not only were relevant data sources identified, but also that the value and applicability of such information could either be added to the body of knowledge being constructed, or be discarded (Neuman 2000).

Topic Themes

There is a fine line between collective and individual measures to protect against risk (Freudenberg 1988), which has much to do with culture and value judgments. Tourism in a free market capitalist society provides considerable protection to the individual with economic risks borne largely by those whose funds are invested in the destination facilities and infrastructure, which may be government and/or the private sector. The themes of the literature search therefore encompassed risk protection in each of the themes described below, inclusive of risks to both government and private sector.

Over the course of the review process, it became evident that little useful material was available on some of the themes listed, and additional topic areas were added where a greater depth of material was to be found. The theme of Hotel/Resort Planning, for example, provided little useful material, given the common focus on site-specific financial risk and investment pre-planning risk assessment, which was of limited relevance to the broader objectives of the research. On the other hand, social theory (the risk society and perceptions of risk) became an important source of material for enabling a description to be given of the origins of risk sensitivity to the modern world.

The terms (or themes) listed below served as a means of organising the literature search (Pizam 1994; Neuman 2000):

- Risk Analysis & Risk Management
- Hotel/Resort Planning
- Tourism Demand & Tourism Forecasting
- Tourism Planning
- Social Theory of Risk
- Tourism Impacts
- Globalisation and Futures Studies
- Emergency Management
- Disaster Planning
- Risk Modelling
- Natural Catastrophes (hazards, vulnerability, exposure)
- Anthropogenic Catastrophes (hazards, vulnerability, exposure)
- Insurance & Reinsurance (risk management and catastrophe)
- Tourism Geography
- On-going searches to find examples of the use of such terms as hazard, disaster, catastrophe, vulnerability and exposure. (These were continued throughout the research process and thesis preparation).

The section to follow is included here to define the most important terms used throughout the remainder of the thesis. The value of a clear understanding of these

terms, and their specific application to tourism risk management, became increasingly important during the review process.

2.2 DEFINING KEY TERMS

The terms used to describe risk and uncertainties are common to many disciplines, each with its own interpretation of the precise meaning for that discipline. Terms are defined and discussed below to determine an applicable definition of the most important ones for specific application to tourism risk management. Based on the following review of the use of relevant terminology conventions from a variety of disciplines, a summary of nine key terms is provided in Chapter 1: Introduction, (Section 1.1: Summary of Key Definitions).

Throughout the text, the term 'anthropogenic' is used to refer to the source of a hazard, disaster, or catastrophe that has occurred as a result of a hazard agent that is not a natural phenomenon.

The remainder of this section defines nine important terms that are critical to the research investigations, and that form a valuable contribution to the body of knowledge on tourism risk management. The use of these terms in different disciplinary contexts is illustrative of the necessity to clarify specifically the meaning of these terms within the context in which they are applied. While some definitions are drawn directly from cited literature, it was necessary to develop specific new definitions for four of the nine terms.

2.2.1.1.1 Community

The term 'community' is used to describe groups of people who share common attributes. It implies a sense of belonging and connection that bonds people into meaningful supportive social groups. Newby (1987 p.43) defines community as "a local social system … a set of social relationships which takes place wholly or mostly within a locality". Handmer offers a much simpler definition of communities, "as settlements of neighbourhoods" (Handmer 2003 p.55). Newby's more specific definition was adopted for the thesis. This definition is inclusive of visitors as well as locals in the definition of the community.

2.2.1.1.2 Tourism and Tourists

The terms tourist and tourism have no universal definition since the terms have different meanings for different people (Theobald 1998 p.3). New Webster's New World Dictionary defines tourism as "travelling for pleasure; the business of providing tours and services for tourists", and a tourist as "one who travels for pleasure" (Guralink 1984 p.1503). This is, however, a rather narrow view of tourism and the tourist of today. Much has been published on the issue of the definition of tourism's concepts and technicalities (Leiper 1979; World Tourism Organization 2001).

One of the first attempts at a definition of tourism by the League of Nations Committee of Statistical Experts in 1936 proposed a definition that is close to today's most accepted definition prepared by the World Tourism Organization. The inter-war period saw a significant rise in global tourism receipts, and the League of Nations responded with a definition, for statistical purposes, that a foreign tourist is one who visits a country other than that in which he/she habitually lives for a period of at least twenty-four hours. The United Nations endorsed this definition in 1945, and added a maximum duration of stay of less than six months. Many organisations, including the World Tourism Organization (WTO), have extended this to a year or less. WTO's definition of tourism is by far the most internationally accepted definition available today: "It comprises the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business, and other purposes not related to the exercise of an activity remunerated from within the place visited" (World Tourism Organization 2002 Chapter 3).

In 1963, the IUOTO (International Union of Travel Organizations, now the World Tourism Organization) recommended a new term 'visitor' to differentiate between two distinct categories of travellers as either: i) tourists; or ii) excursionists. 'Tourists' fit the tourism definition above and 'excursionists' are defined as persons travelling outside their usual environment for not more than twenty-four hours.

Since 1963, these definitions have been adopted by many nations around the world. Countless refinements and changes have ensued and, although there is recognition of the need for a uniform basis for the collection of standardised tourism data, terminologies and data sets from many countries still remain incompatible. In the United States, for example, the definition of tourism varies from state to state. WTO's recent Tourism Satellite Account (TSA) initiative has provided the basis of an instrument for global statistical analysis, and for designing strategies in the field of tourism (World Tourism Organization 2000).

Article 2.1 states:

> 2.1 There is an acute shortage of information on the role of tourism in national economies worldwide, hence the need for reliable data relative to the importance and magnitude of this industry. Governments, entrepreneurs and citizens do not dispose of the exact information they need for designing public policies and business strategies and for evaluating their effectiveness and efficiency (World Tourism Organization 2000 p.4).

The TSA project has initiated a uniform and integrated definition and classification system of tourism statistics, determined a method for quantifying the economic impacts of tourism, and established a means of dialogue between governments and the private sector.

WTO's classification of travellers is now accepted and used by most national tourism organisations around the world. The terms, 'travellers', 'visitors' and 'tourists' are commonly used interchangeably despite their distinctly different connotation for statistical purposes. The diagram in Appendix 1, Classification of Travellers, clearly illustrates these differences. The term 'visitor' is the core concept around which the entire system of tourism statistics is based. The WTO definition of a tourist is used throughout the thesis.

Tourism

The tourism industry, as a collective, is made up of the direct contributors to the industry such as tourists themselves and those establishments or businesses providing goods and services to visitors, including hospitality businesses (accommodation establishments and restaurants), transport providers, tour operators and travel agents, destination and attraction staff, and local, national and international tourism organisations. Other less direct contributors to the tourism industry, mainly small and medium enterprises (SMEs), provide a variety of goods and services to visitors as well as non-visitors. Their proportion of revenue from visitors, although more difficult to quantify, is a significant contribution to overall tourism revenues.

Tourism, as defined by WTO, can be broken down into: i) international tourism (which includes inbound and outbound); and ii) domestic tourism (in country of residence). International tourism includes both inbound and outbound tourism, national tourism includes both domestic and outbound tourism, and internal tourism includes both domestic and inbound tourism. Domestic tourism is comprised of residents visiting their own country. Inbound tourism is comprised of non-residents visiting another country. Outbound tourism is comprised of visitors to another country, as illustrated in the Figure 2-1 below.

Figure 2-1 Measuring Forms of Tourism.
Source: Adapted from World Tourism Organization 2000.

It should be noted that, while there is no collective agreement on precisely what constitutes 'the tourism industry', the term has been used throughout the thesis to indicate all those individuals and organisations providing goods and services directly and indirectly to persons, groups, and organisations deemed to be tourists.

2.2.1.1.3 Disaster and Crisis

A disaster is not a 'crisis' in the traditional meaning of the word. "A disaster and a crisis are two different, and related events" (Shaluf 2003 p.23). The terms are often used interchangeably, and there is no universally accepted definition for a 'disaster' or a 'crisis'. The following list of the main characteristics of both crisis and disaster indicates their necessary differentiation.

Figure 2-2 Differences Between Disaster and Crisis.
Source: Adapted from (Shaluf 2003 pp.25-27).

In the light of these characteristics, a crisis is seen to be a more specific term, pertaining mainly to businesses, and are most often anthropogenic events, resulting from economic and political issues as well as disasters. Disasters are accidents, catastrophes, and calamities, natural or anthropogenic, causing large scale damage to the physical and social environment with economic and social costs.

Crises, for Prideaux *et al*, "can be described as the possible but unexpected result of management failures that are concerned with the future course of events set in motion by human action or inaction precipitating the event" (Prideaux, Laws *et al.* 2003 p.478). Here a crisis is a human management failure. While this assertion of the anthropogenic nature of a crisis is in agreement with Shaluf (2003 pp.25-27), to suggest that management is the base cause of any crisis, while it may be the case in many instances, does not account for the social or other non-conflict, non-management related crises that do occur.

The term 'crisis' is not extensively used in the thesis except when it pertains to major anthropogenic catastrophes. Disaster (and disasters) will be the main term used to describe accidents, catastrophes, and calamities arising from natural or anthropogenic causes.

In Australia, "disasters are said to have occurred when the normal community and organisational arrangements cannot cope with a hazard impact" (Emergency Management Australia 1993 cited in Zamecka and Buchanan 2000 p.11). While this highlights the ability of a community to cope with uncertainty, it does not adequately describe the essential elements of a disaster or the environmental impact of hazards (see below for Zamecka and Buchanan's definition of a hazard).

Other useful definitions of disaster include:

> "… any happening that causes great harm or damage; serious or sudden misfortune; calamity; **disaster** implies great or sudden misfortune that results in loss of life, property or that is ruinous to an undertaking; … **catastrophe** is

specifically applied to a disastrous end or outcome" (Guralink 1984 p.400 and p.223).

Man-made (sic) disasters or 'technical' disasters are major events associated with human activities. Generally, a large object in a very limited space is affected which is covered by a small number of insurance policies. Man-made disasters can be divided into seven categories: i) major fire or explosions; ii) aviation and space disasters; iii) shipping disasters; iv) road/rail disasters; v) mining accidents; vi) collapse of buildings/bridges; and, vii) miscellaneous (including terrorism) (Swiss Re 2003 p.36).

The following brief and practical descriptions are drawn from the work of the German International bilateral foreign aid organisation GTZ (Deutsche Gesellschaft für Technische Zusammenarbeit GmbH). They contain valuable definitions of terms written for practical use and application to their work in disaster planning and risk management, mainly in developing countries around the world.

Hazards and Disaster

A disaster is a disruption in the normal functioning of a society which leads to loss of human life, property and environmental resources, and which exceeds the ability of the affected communities to cope unaided. Disaster risk designates the extent of the damage and loss a natural event is expected to cause. It is determined as the product of the factor's hazard and vulnerability. Hazard includes the probability and the magnitude of the anticipated natural event; vulnerability comprises a number of political-institutional, economic, socio-cultural and geographical factors.

Disaster Risk Management and Disaster Risk Reduction

In technical cooperation, disaster risk management comprises action (programs, projects and/or measures) and instruments whose intended impacts are expressly aimed at reducing disaster risk in endangered regions and mitigating the extent of

disasters. Disaster risk management is the generic term for the operational areas risk assessment, disaster prevention and mitigation and disaster preparedness.

Risk Assessment or Risk Analysis

A survey is made of the current hazards posed by extreme natural events as well as the respective local vulnerability of the population and their basis for livelihood to ascertain the specific risks within a region. Based on this information disaster risk can be purposively reduced.

Disaster Prevention and Mitigation

Disaster prevention and mitigation denotes activities that prevent or mitigate the adverse effects of extreme natural events, above all in the medium and long term. These include on the one hand political, legal, administrative and infrastructure measures to address the hazard situation and on the other hand influencing the lifestyle and behaviour of the endangered population to reduce their disaster risk.

Disaster Preparedness

Preparedness comprises measures that can be carried out for fast and effective evacuation, to save human life, mitigate loss and damage and provide emergency assistance. Full-scale preparedness includes: early-warning systems, deployment and coordination capabilities, emergency plans, emergency supply reserves and training (Deutsche Gesellschaft für Technische Zusammenarbeit GmbH 2003 pp.6-8).

Blaikie *et al* (1994) argue that, while many disasters "are a complex mix of natural hazards and human action", . . . the social, political and economic environment is as much a cause of disasters as the natural environment". This supports the belief that vulnerability is central to an "understanding of disasters and their prevention or mitigation" (Blaikie, Cannon *et al.* 1994 p.8).

In 1995, a disasters academic expert, Professor E. L. Quarantelli from the Disaster Research Centre at the University of Delaware, guest edited an issue of the Journal of

Mass Emergencies and Disasters (Quarantelli 1995). This journal issue focused on a question that he had struggled with during some four decades of research, "What is a Disaster?", the central concept of the field of disaster studies. To Quarantelli's disappointment, neither the round-table conference held in Paris prior to the special issue of the journal, nor the papers contained in the journal, could agree on whether a disaster was fundamentally a physical happening or a social construct. He concludes, "… clearly the field has intellectual problems" (Quarantelli 1995 p.226).

This debate continues, with the only certainty being that the term 'disaster' is highly value-laden (see for example Beck 1992; Blaikie 1992; Jones 1992; Turner and Pidgeon 1997; Kreimer and Arnold 2000; Shaluf 2003). It can be concluded that the definition of disaster is dependent upon the discipline using the term. For the purposes of the thesis, disasters can be understood as accidents, catastrophes, and calamities, natural or anthropogenic, causing large scale damage to the physical and social environment resulting in economic and social costs.

2.2.1.1.4 Catastrophe

A catastrophe is best understood as a major disaster. Reference is commonly made to disasters that escalate into catastrophes. European literature uses catastrophe almost exclusively (Ayling 1984; Evans 1996; Froot and O'Connell 1997; Berz 1999; Linnerooth-Bayer 1999; Munich Re 2000); United Nations publications continue to use disaster as opposed to catastrophe (UNDHA 1992; United Nations Environment Program 2003; United Nations Development Programme (UNDP) 2004). Definitions reflect the similarity of use of catastrophe and disaster, depending on location and discipline of use:

"2. a disastrous end, bringing overthrow or ruin 3. any great and sudden calamity, disaster, or misfortune 4. a total or ignominious failure 5. a sudden, violent change such as an earthquake" (Guralink 1984 p.223).

"The term 'natural catastrophe' is used to describe an event caused by natural forces. Such an event generally results in a large number of individual losses involving many

insurance policies and insured parties. The scale of the losses resulting from a catastrophe depends not only on the severity of the natural forces concerned, but also on man-made factors such as building design or the efficiency of disaster control in the afflicted region. Natural catastrophes can be broken into six categories: i) floods; ii) storms; iii) earthquakes; iv) droughts, bush fires; v) cold waves, frost; and, vi) other (including avalanches and hail)". (Swiss Re 2003 p.36).

2.2.1.1.5 Hazard

The definition of a hazard is consistent within the emergency management discipline. The one adopted for the thesis, from Zamecka and Buchanan (2000), was originally drawn from Standards Association of Australia AS/NZS4360:1999. This definition describes a hazard as simply "a source of potential harm or a situation with a potential to cause a loss" (Standards Association of Australia 1999 p.4). Zamecka and Buchanan expanded the version of the Standards Australia definition above to account for all hazards, natural and anthropogenic, where hazard is "a situation or condition with potential for loss or harm to the community or environment" (Zamecka and Buchanan 2000 p.9). Other examples are useful to illustrate the value of the Zamecka and Buchanan definition.

"Hazards are extreme natural events that can have adverse consequences. The extent of the hazard depends on its probability within a certain period of time and region and the severity of the event" (Deutsche Gesellschaft für Technische Zusammenarbeit GmbH 2003 p.8). Here, GTZ focuses only on natural hazards, the primary focus of their development assistance projects.

Hood and Jones (1996) define hazard as " a phenomenon or circumstance perceived to be capable of causing harm or costs to human society" (Hood and Jones 1996). Here, the sociologists ensure that the human dimension of the impact of a hazard is included in the definition.

Blaikie's and Cannon's definition while similar to that of the GTZ, adds the potential for the accumulation of impacts, which is often the case in reality. "Hazard refers to the

extreme natural events which may affect different places singly or in combination (coastlines, hillsides, earthquake faults, savannas, rain forests), at different times (season of the year, time of day, over carrying return periods, of different duration)" (Blaikie, Cannon *et al.* 1994 p.44).

Guralink's definition is simple but too general; "3. risk; peril; danger; jeopardy" (Guralink 1984 p.643).

Insurers generally define a peril as the cause of a risk (fire, windstorm, theft or other perils), and a hazard as a condition that may create or increase the loss arising from a given peril (it is possible for something to be both a loss and a peril, e.g. sickness). For the purposes of the thesis, the two terms peril and hazard are used interchangeably. For insurers, there are four broad categories of hazard:

- physical hazard
- moral hazard (dishonesty, misrepresentation)
- morale hazard (careless attitude)
- legal hazard (legislation and the courts)

In the emergency management literature, hazards are often confined to natural hazards. Evans (1996) categorises hazards as natural for example, with no reference to anthropogenic hazards and suggests that a hazard is "a natural phenomenon with the potential to cause damage, including its location and the severity and probability of the damage" (Evans 1996 p.6). Here, Evans adds the probability of damage, which is more commonly associated with risk. Warner (1992) rightly points out that a hazard is a component of risk (see definition of risk below), when risk is understood as being a result of the probability or frequency of the occurrence of a defined hazard. Risk is quite different from a hazard. A hazard is then the often-physical source of harm or loss, or an event that is the actual incident or situation that has a specific time and place of occurrence.

The term 'environmental hazards' is increasingly used in the literature to replace 'natural hazards', "reflecting a growing appreciation of the extent to which natural

environmental systems are influenced by human activity to create or exacerbate hazardous conditions, for instance in desertification, floods and acidification" (Hood and Jones 1996 p.3). The thesis will adopt Hood's broader interpretation of this type of hazard but will not use environmental hazard in place of natural hazard to avoid any confusion in the use of the term environment. The thesis makes specific use of the term environment in relation to the risk model (see Chapter 5: Tourism Risk Management).

For application to tourism risk management, the Zamecka and Buchanan definition described above is most appropriate to account for all types of hazards likely to have an impact on the community and/or the environment. Loss or harm to the community and environment is understood in a broad interpretation of these terms where community means visitors and locals, and environment means the natural, social, and business environment. In this case, the use of environment is consistent with its use in defining the Risk Environment in Chapter 5. A hazard is then defined as a situation or condition with potential for loss or harm to the community or environment that has a specific time and place of occurrence.

The shortlist of hazards below includes a number of hazard types that may belong to both categories (natural and anthropogenic) and may not be mutually exclusive.

Natural hazards

- Climate change (includes possible anthropogenic influences)
- Cyclones/hurricanes/typhoons and tropical storms
- Flooding
- Earthquake and volcanic eruption
- Environmental catastrophe
- Other climatic and atmospheric extremes

Anthropogenic hazards

- War and terrorism
- Fire
- Vandalism and crime
- Safety and security
- Sickness and disease

- Political instability and population pressure
- Industrial/chemical catastrophe
- Environmental catastrophe
- Cultural/ethnic persecution
- Maritime catastrophe

2.2.1.1.6 Vulnerability

Handmer suggests that vulnerability "is seen as a function of the susceptibility to loss and the capacity to recover" (Handmer 2003 p.56). The 'capacity' to recover is often termed resilience, and Handmer recommends the use of resilience rather than vulnerability because of its more positive connotations (Handmer 2003 p.56). This implies vulnerability and resilience are rather similar terms. For this writer, they are not a replacement for one another. Resilience is a different but related state (see Buckle and Marsh 2001). Community hazard mitigation for example will benefit from protecting and countering aspects of vulnerability, as well as the characteristics of resilience, which can be a positive factor in hazard mitigation.

Vulnerability is described by the Intergovernmental Panel on Climate Change (IPCC) as "the degree to which a system is susceptible to, or able to cope with, adverse effects of climate change including climate variability and extremes" (Intergovernmental Panel on Climate Change 2001 p.3).

Blaikie also defines vulnerability as a state of being susceptible, by saying it "has a commonplace meaning: being prone to or susceptible to damage or injury" (Blaikie, Cannon *et al.* 1994 p.9). He further refines the definition of vulnerability with a simple working definition: "the characteristics of a person or group in terms of their capacity to anticipate, cope with, resist, and recover from the impact of a natural hazard. It involves a combination of factors that determine the degree to which someone's life and livelihood is put at risk by a discrete and identifiable event in nature or society" (Blaikie, Cannon *et al.* 1994 p.9). This rather lengthy definition places vulnerability with those persons deemed to be vulnerable or more prone than others to damage, loss, and suffering. The addition of 'livelihood' to the definition adds the dimension of time, in that the reconstruction of livelihood following a natural catastrophe takes time.

Other useful definitions include the following:
"Vulnerability denotes the inadequate means or ability to protect oneself against the adverse impacts of external events on the one hand and on the other to recover quickly from the effects of the natural event. Vulnerability is made up of many political, institutional, economic and socio-cultural factors" (Deutsche Gesellschaft für Technische Zusammenarbeit GmbH 2003 p.22). Here, the GTZ definition includes aspects of protection and recovery and asserts that vulnerability is a factor of a wide variety of influences. While this is accurate, the specific reasons for a community or business being vulnerable are not useful in a definition.

Evans (1996) chooses to link vulnerability to loss potential and exposure rather than to the elements that are exposed or at risk and the reasons they are vulnerable. He defines vulnerability as the "degree of loss that may be expected of an element (e.g., a structure) exposed to a hazard event with a given location and severity" (Evans 1996 p.61). Anderson-Berry (2002) provides a useful diagram that describes a multitude of components that contribute to the vulnerability of a specific community (Cairns, Australia) illustrated in the Figure 2-3 below. Anderson-Berry's diagram also provides a detailed description of the many components that make up a community and the 'sense of community' within a group.

Figure 2-3 Contributors to Cairns Community Vulnerability.
Source: Anderson-Berry 2002.

For the application to tourism risk management, a hybrid of the definitions described above was developed, where vulnerability is defined as the susceptibility to loss, damage, or injury to life and livelihood, and the capacity to cope with recovery from such losses from natural and anthropogenic hazards.

2.2.1.1.7 Exposure

Exposure has specific connotations for the insurance industry that are important to risk calculations. When an insurer accepts a 'book' or portfolio of risks, it knows that "its maximum exposure to losses is the value of that book of risks" (Crichton 1999 p.103).

When a disaster occurs, the insurer writes a cheque and has fulfilled its contract obligations: problem resolved, job completed.

Granger (1998) expanded this interpretation of exposure to apply it to emergency management in a model and a quasi-mathematical equation. This was used as the starting point from which to expand the model developed in this thesis. Granger included this specific element of risk (exposure) to describe not only the maximum loss potential, but also to include a description of all those elements of the business or community that are exposed to hazards. This leads to a better understanding of precisely what 'elements' are therefore vulnerable. Its insurance application is also included in what is termed the 'risk triangle' (Crichton 1999). This risk triangle has been adapted in the thesis for specific application to tourism risk management. The term 'exposure' in the thesis therefore has a specific meaning for tourism risk management; namely, the elements of a specific business or community in a state of being exposed to natural and anthropogenic hazards.

Guralink offers a simple meaning of exposure in relation to natural elements of weather: "the fact of being exposed in a helpless condition to the elements" (Guralink 1984 p.494). This is not helpful to risk management. Zamecka and Buchanan (2000) do not even attempt a definition of exposure and leave this element out of their disaster risk management process, where risks are measured in terms of likelihood and consequence "arising from the interaction of hazards, community, and the environment" (Zamecka and Buchanan 2000 p.9). This definition of risk is adapted in the section to follow.

2.2.1.1.8 Risk

The word risk stems from the early Italian word, *riscare*, which meant 'to dare'. This means that risk denotes a conscious selection of an alternative, rather than being a question of fate. The use of the term does vary considerably in connection to the discipline or industry to which it is applied. The Australian Standards Risk Management document (AS/NZS 4360:1999) considers risk to be a function of likelihood and consequence, where risks are measured in terms of their consequences (i.e. the outcome

of an event, or what actually happens as a result of an event), and likelihood (used to describe the probability or the frequency, how often an event occurs).

In occupational health and safety usage, risk is considered a function of consequence, exposure, and probability. In emergency management, it is often considered as a function of hazard and vulnerability. For the purposes of this thesis, risk is considered as a product of the collective concepts of vulnerability, exposure, hazards, and the environment within which the risk occurs. This general definition is drawn from the various definitions offered below.

Risk is defined in many ways; however the most basic description is that risk is the chance of something occurring that varies from expectations, and which can and does occur randomly. One could say that a risk is an obstacle that stands between a predictable future and the present.

As Guralink describes it, risk has very specific meaning for the insurance industry. "1. the chance of injury, damage, or loss; dangerous chance; hazard; 2. (Insurance) the chance of loss, the degree of probability of loss; 3. to expose to the chance of injury, damage, or loss" .(Guralink 1984 p.1228). Swiss Re defines risk as having several meanings; "risk is a possible hazard that is measured in terms of the probability that a loss will occur and the scope or consequences that it will have. In insurance jargon, however, the term risk is also used to denote insured objects, perils or interests" .(Swiss Re 1998 p.12).

Beck defines risk as "… a systematic way of dealing with hazards and insecurities, induced and introduced by modernity itself" (Beck 1992 p.32). In this definition, he is suggesting that it is the attributes of current modern society that are responsible for our perception of risk, consistent with his comprehensive 'risk society' theories.

Crichton, however, sees risk as "… the probability of a loss, and this depends on three elements, hazard, vulnerability, and exposure" Crichton (1999 p.103). He bases this definition on his theory of the development of what he terms the risk triangle. While this

is a more thorough definition than that of earlier theories of risk as being a product of only hazard and vulnerability, it still does not account for a variety of socio-cultural, economic, environmental and organisational influences that have a significant impact on the perception of risk in different locations.

Another definition of risk is "… the chance of something happening that will have an impact upon objectives. It is measured in terms of consequences and likelihood" (Standards Association of Australia 1999 p.4). This generic definition is useful in its generality, particularly with its reference to the relationship to objectives, indicating a link to planning and management.

The following definitions of various types of risk are drawn from Zamecka and Buchanan (2000 p.9), and refer specifically to their use in disaster management. The Zamecka and Buchanan definitions are based on AS/NZS 4360:1999.

> *Risk Avoidance* is "an informed decision not to become involved in a risk situation".
>
> *Risk Reduction* is "a selective application of appropriate techniques and management principles to reduce either the likelihood of an occurrence or its consequences, or both".
>
> *Risk Retention* is "intentionally or unintentionally retaining the responsibility for loss, or financial burden of loss within the organisation".
>
> *Risk Transfer* is "shifting the responsibility or burden for a loss to another party through legislation, contract, insurance or other means. Risk transfer can also refer to shifting a physical risk or part thereof elsewhere".
>
> *Risk* is defined as "a concept used to describe the likelihood of harmful consequences rising from the interaction of hazards, community and the environment" (Zamecka and Buchanan 2000 p.9).

Risk has also be defined as "… a combination of the probability, or frequency of occurrence of a defined hazard and the magnitude of the consequences of the occurrence" (Warner 1992 p.4). Defined in this way, a hazard becomes a component within risk, making hazard management a subset of risk management. Vaughan suggests

that risk can be defined as a condition in which there is a possibility of an adverse deviation from a desired outcome that is expected or hoped for (Vaughan 1997).

As described above, for the purposes of this thesis, risk is considered as a product of the collective concepts of vulnerability, exposure, hazards, and the environment within which the risk occurs. These concepts are developed further in Chapter 5: Tourism Risk Management, which expands this definition of risk to apply to a model represented by a diagram and quasi-mathematical equation. Risk is then defined as the chance of incurring a loss that will have an impact upon objectives and is a product of the collective concepts of vulnerability, exposure, hazards, and the environment within which the risk occurs.

2.2.1.1.9 Risk Management

"Risk management is a discipline that offers methods for identifying and assessing risks on the basis of scientific, technical, economic, and statistical experience. The aim of risk management is to implement technical and organisational measures to avoid or at least reduce potential losses" (Swiss Re 1998 p.70). This definition does not indicate the practical management dimension, or the way in which risk can be managed.

"Risk management is a systematic process of identifying, assessing, and taking action to prevent or manage administrative, financial and managerial risk in the company" (Emerald Reviews 2000 no page number). This definition is apparently aimed primarily at financial risk management.

According to the Standards Association of Australia, "… the culture, processes, and structures that are directed towards the effective management of potential opportunities and adverse effects" (Standards Association of Australia 1999 p.2). This very broad definition offers the dimension of practicality and recognises risk as not only offering threats to be dealt with but also offering opportunity for development or loss minimisation.

"Risk management is the process of identifying, assessing, and controlling risks arising from operational factors and making decisions that balance risk costs with mission benefits" (Department of the Army 1998 p.1-1). This simplified cost-benefit analogy of risk management applies to military actions and the costs and benefits of warfare.

Risk management has also been defined as "… examples of both qualitative and quantitative measures for determining the impact of risk" (Rieley 2000 p.36). Again, this definition is narrowly focused on financial risk management.

"Decision making under conditions of uncertainty" (Lempert 2004). This definition from the RAND Corporation is the broadest and most widely applicable definition of risk management. It is a good starting point but is too broad to have a meaningful application to tourism risk management.

"Risk Management guides decision making through a logical and systematic process of considering all possible future outcomes at all time scales taking into account all the risks to all the stakeholders, as well as all the costs and all the benefits" (Kishore 2003 p.11). This definition, typical of UN jargon, is necessarily all encompassing, and all-inclusive, indicating the commendable comprehensive approach of large multi-lateral organisations. The net effect is one of an over-ambitious approach that may or may not be achievable.

"A technology (also a profession) whereby risk exposures are systematically identified and quantified and determinations are made about whether to eliminate or modify the risk, self-insure the risk, or purchase traditional insurance protection" (Evans 1996 p.62). This definition, clearly aimed at insurance risk management, recognises the profession of risk management and the insurance alternatives to manage risk.

"Risk management is an independent function responsible for planning, directing and organising measures to reduce, mitigate, and control the impact on an institution of risks arising from its operations. More specifically, risk management may be defined as the systematic application of management policies, procedures and practices to the tasks of

identifying, analysing, assessing, treating and monitoring risk. Risk management helps to mitigate the consequences of adverse events that may occur. This includes taking action to avoid or reduce exposures to the costs or other effects of events occurring rather than reacting after an event has taken place. Risk management, if conducted effectively, will help to achieve more effective corporate performance" (Asian Development Bank 2002 p.6). This detailed description of risk management from ADB provides a thorough understanding of the objectives of risk management and its processes, and points out the significance of mitigation efforts that can be included in the risk management process. This definition is closest to the basic concept of the risk triangle described by Crichton above. In the end however, risk management for ADB is aimed at their corporate performance, insurance, and financial management of risk.

Risk management from an insurance perspective is concerned with pure risks and managing those risks (see the section below on Risk Classification for a definition of pure risks). Risk management for tourism must take a scientific approach to risk, be proactive, and offer a means to minimise potential loss. Vaughan (1997 p.97) suggests most appropriately that, "Risk management is a scientific approach to dealing with pure risks by anticipating possible accidental losses and designing and implementing procedures that minimise the occurrence of loss or the financial impact of the losses that do occur" (Vaughan 1997 p.97). This is the definition utilised throughout the remainder of the thesis.

The varied topics in the remainder of this chapter are indicative of both the variety of disciplines from which relevant information was drawn, and of the comprehensive approach taken throughout the review process. The order in which the topics are reviewed does not indicate priority for any one topic; rather it is hoped that the order of topics will lead the reader through a cumulative understanding of the phenomenon of risk and its relevance to tourism in tropical coastal areas. The four main subheadings generally follow those used as the four topic areas of the survey in the Delphi Tourism Futures Study 2003 described in Chapters 3 and 4. The conclusions in Chapter 6 also follow these topic areas.

2.3 TOURISM AND COASTAL TROPICAL AREAS

The geographic region of coastal tropical areas was selected for the focus of the research for several reasons: i) the concentrated hazard exposure of tropical coastal areas; ii) the increasing vulnerability of tropical coastal areas; and iii) the growing popularity and accessibility of these tourism destinations around the globe. Concentrations of tourism facilities exist in coastal areas throughout the tropical regions of the world. In these areas, tourism is environmentally dependent, i.e. tourism relies on the availability of natural habitat and ecology. The environment is vulnerable to the impacts of tourism activities of all kinds. The World Tourism Organization and the United Nations Environment Program first documented the environment and tourism dependency in 1982 (World Tourism Organization 1982). This joint declaration established the necessary link between tourism and environmental responsibility.

Over the last decade there has been a growing understanding of the necessity for a harmonious relationship between tourism and the environment, particularly or especially in coastal areas (Whelan 1991; Gee, Fayos-Solá *et al.* 1997; World Tourism Organization 1998; Eagles, McCool *et al.* 2002). It simply makes good business sense. Turner and Ash (1975) trace the historical use of coastal areas for recreation to Roman times, boosted in the mid- eighteenth century by reports of the therapeutic effects of sea water and in the early twentieth century by the suntan craze heralding the growth of the traditional seaside resort (Lavery 1974).

The International Geographical Union - Commission on the Coastal Environment undertook a number of initiatives from 1988 to 1992, including the publication of an extensive review of tourism and coastal environments. Given the significance of this segment of the global tourism marketplace (i.e. coastal tourism), it is perhaps surprising that physical features and natural phenomena such as tropical climate and coastal geomorphology have not featured more prominently in the study of coastal tourism. Wong (1996) suggests that the negative effects of tourism on coastal areas are due mainly to either ignorance of the coastal environment, or poor (or inadequate) planning. I would add that tourism developments have increased the susceptibility and

vulnerability of coastal areas to damage from natural and anthropogenic hazards, and added to the fragility of these environments.

2.3.1 Coastal Tourism

Coastlines are critical to the global tourism product. Coastal tourism (inclusive of tropical coastal tourism) is a common nomenclature amongst tourism analysts. The term 'coastal tourism' embraces the full range of tourism, leisure, and recreational activities that take place in the coastal zone and the offshore coastal waters. These include coastal tourism development (hotels, resorts, restaurants, food industry, vacation homes, second homes), and the infrastructure supporting coastal development (retail businesses, marinas, fishing tackle stores, dive shops, fishing piers, recreational boating harbours, beaches, recreational fishing facilities, and the like). Also included is ecotourism and recreational activities such as recreational boating, cruises, swimming, recreational fishing, snorkelling and diving. Coastal tourism and recreation also includes the public and private programs that affect all the aforementioned activities.

Tourism risk management is especially pertinent to the communities and businesses engaged in tourism goods and services provision in coastal areas. Whatever path development takes in coastal tropical areas, it must have the support of the population affected by that development. The participation of all legitimate stakeholders in a more participatory model of development would, in the long term, have a positive effect on sustainable coastal development and better coastal management. This would of course include tourism developers whose impact on coastal and urban planning is significant.

Coastal tourism is highly nature-dependent, placing demands on local resources such as drinking water, waste disposal, fisheries and 'attractive' or exotic flora and fauna. Noronha, Laurenco *et al* (2003) view tourism as a 'driver' or the origin of pressures on the environment. In this way, tourism development must necessarily be planned comprehensively, accounting for the social, cultural, economic and environmental dimensions of tourism activities in order to protect the future sustainability of the resources upon which the industry depends.

The onslaught of human activity along the world's coastlines is especially visible in developing countries, particularly Asian coasts, from the west coast of India to Indonesia and Thailand and to the east coast of China. Coasts have assumed special significance due to logistical advantages, more developed infrastructure, the potential for and attractiveness to tourism, and the capacity to support export-oriented industries such as aquaculture and fisheries. The commodification of coasts is however "often to the neglect of ecological processes" (Noronha, Lourenço *et al.* 2003 p.2). Noronha *et al* (2003) suggest six major reasons for the attractiveness of the natural and social systems of coastal areas to tourism:

i) Commonly better-quality infrastructure, more cosmopolitan population, better access to global capital movement;
ii) The land-ocean interface which makes the zone complex, uncertain, and vulnerable to natural and anthropogenic hazards;
iii) The mixture of public and private property systems and resources;
iv) A mixture of economic and environmental values associated with coastal ecosystems (private and business concerns);
v) The multiple users, stakeholders and competition for coastal space; and,
vi) The multifunctionality and diversity of coastal resources.

These six points illustrate the diversity of value and use offered by coastal areas. Coasts are therefore multifunctional in the sense that they support multiple societal goals. A number of these uses however place excessively competitive and growing demands on fixed coastal resources. Tourism in coastal areas comprises a large movement of leisure-seeking consumers, often searching out untouched and unspoilt areas only to populate those areas.

As with other economic activities, tourism experiences the typical cycle of establishment, maturation, obsolescence, and possible re-conversion (Butler 1980). The effects of this cycle of development over time are best demonstrated by the changes in the supply components of the industry, including the natural and cultural resources, the built environment, and the hospitality and operating sectors of the industry. In coastal areas, the ecological and environmental considerations are vital to the quality and

sustainability of the tourism product. Inadequacies in any aspect of the supply will result in overcrowding, resource degradation and subsequent depreciation of the holiday experience.

Tourism 'carrying capacity' is an under-utilised planning and management tool with relevance to coastal tourism. While there are many positive aspects of tourism development, uncontrolled conventional tourism threatens coastal areas throughout the world (Shaw and Williams 1997). The natural assimilative or carrying capacity of the coastal ecosystems must be compared to the demands placed on these natural systems by increased human activities such as tourism. The economic impacts and advantages of tourism most often provide the driving force behind the development process, sadly ignoring the questions of environment and culture. Community development, critical to sustainable tourism, is best described as "the process and capacity of [a community] making decisions that consider the long-term economy, ecology, and equity of all communities" (Noronha, Lourenço *et al.* 2003 p.50). Clark and Stankey use another nine-step process that is also useful to determine 'limits of acceptable change' (LAC) which recommends the use of various qualitative indicators to determine limitations to development and acceptability (Clark and Stankey 1979).

Figure 2-4 below indicates a typical array of concerns that local communities have with respect to tourism development, described in this case as 'drivers' of the development process. They are both positive and negative, i.e. they comprise concerns that have both adverse and favourable impacts on the community.

Figure 2-4 Factors Affecting Tourism Development in Coastal Areas
Source: Adapted from Noronha *et al.* 2003 p.353.

There are then a variety of trends or drivers that are outside the control of local communities or businesses (or their ability to influence change) termed external drivers. These would include international political decision-making, technological change (and information technologies), and national level decision-making on environmental and industrial development, changing consumer habits, and religious issues.

The ability of coastal areas to sustain the pressures of tourism development can be understood in terms of the 'system performance' of the location or area, measured by the concepts of: i) reliability (how likely the system is to fail); ii) resilience, (how quickly the system returns to a satisfactory state once a failure has occurred); and iii) vulnerability (how severe the likely consequences of failure may be). The ability of communities and tourism businesses in coastal areas to cope with natural and anthropogenic disasters can also be assessed using these three concepts of system

performance where ‘failure’ can be substituted for ‘disaster’. This can be a useful tool for tourism risk management.

In conclusion, it can be said that risks to the future sustainability of tourism in tropical coastal areas can be analysed in terms of the interactions of human activities and the environment, and that this must be undertaken in conjunction with the specificities of the location and spatial relations that are particular to that location (location of most vulnerable zones, pollution, land-use demands, deforestation, aquaculture, and population movements). This has significant implications for the generic risk management method described in AS/NZS 4360:1999. Coastal tourism must be developed and managed as an activity that generates profits to the industry and contributes to the livelihoods and sustainability of local communities, without placing undue or excessive stress on the natural and social environment.

2.3.2 Tourism and the Environment

While the impacts of tourism and the potential effects of natural and anthropogenic hazards have been the subject of many analyses and reviews, Green and Hunter (1992) in their review of the environmental impact of tourism found a lack of any truly multidisciplinary perspective or broad comprehensive approach to the topic. In the literature reviewed to date, there has been a focus on the negative impacts of tourism (De Kadt, World Bank *et al.* 1979; France and Earthscan. 1997; Serageldin, Shluger *et al.* 2001), with only a relatively recent discussion emerging which recognises the forces of the environment and ecology as positive contributions to sustainable tourism development (Whelan 1991; Boyd and Butler 2000; Eagles, McCool *et al.* 2002; Noronha, Lourenço *et al.* 2003).

The cumulative impacts of tourism activities can, and do, lead to predominantly anthropogenic catastrophes. Poor planning and design, coupled with natural forces, pose potentially disastrous conditions for tourism sites in fragile coastal environments. At the present time, the concepts applied to environment-tourism relationships are not comprehensive. Responsible planning and management of tourism development in the remainder of this millennium cannot afford to continue this approach. Rather, a more

predictive approach is needed, one which enables better disaster mitigation, response, preparation and execution, in the case of: i) predictable and foreseeable change; and ii) catastrophic and unforeseen change in coastal areas.

There are several thorough and concise views on the various potential impacts of tourism on the environment (Pearce 1989, and Hall 1991, which show a distinctly regional Australian bias). There are, however, few texts available on the planning needs for foreseeable and unforeseeable catastrophes, either natural or anthropogenic. Passing mention of disaster preparedness, response and mitigation are included variously in Cohen (1978), Pearce, (1989), and Farrell and McLellan (1987). Both Green and Hunter (1992), and Farrell and Runyan (1991) focus on the effects of tourism on the natural environment, but again, a multidisciplinary approach to include disaster planning needs and analyses is missing.

Tourism statistics indicate continued and significant growth in this enormous global service industry well into the future of the second millennium. Preliminary investigations and field experience indicate that research into minimising the adverse impacts of such growth in all geographic regions is not keeping pace with the overall growth of the industry. This is especially the case for coastal areas. Tourism is here to stay, and adequate support for conservation of the natural environment, coupled with managing environmental risk, is at the very heart of sustainable growth for that marketplace. Much has yet to be achieved in this endeavour before tourism can be truly sustainable on a global scale.

2.4 DISASTERS AND CATASTROPHIC EVENTS

Considerable data is available on catastrophic events and their impacts on economies, and the social and natural environment (Evans 1996; Mihalic 1996; World Tourism Organization 2001; Luhrman 2002). The *post hoc* impact assessment of catastrophic events on the tourism industry is also well documented (Drabek 1994; Bar-On 1996; Federal Emergency Management Agency 1996; Bryant, Burke *et al.* 1998; Belau 2003). While long-term forecasting of the likely occurrence of catastrophic events is a well-developed skill in the insurance industry, the tourism industry on the other hand tends to

understate all risks to minimise adverse economic impacts of catastrophic events (Inskeep 1994). Data specific to the tourism industry on insured losses due to all catastrophe and hazard types is not available in the literature. The proprietary nature of much of the data held by the reinsurance companies makes access impossible for all but employees. The data could be compiled with the cooperation of one of the larger reinsurers such as Munich Re or Swiss Re[3].

As an example of the extent of insurance data on catastrophic events, Figure 2-5 below shows the costs of insured losses (global) in 1999 due to natural catastrophes. It indicates the scale of risk that insurance companies are carrying in financial terms. This is over seventeen billion dollars of insured loss, and 1999 was a good year. In 1992, Hurricane Andrew in Florida resulted in $15.5 billion in insured damages, doubling the estimated maximum insurable loss for a hurricane ($8.0 billion). Hurricane Andrew's insured loss total has since been doubled following the events of September 11, 2001.

Climate change could be a significant hazard posing a risk to future tourism industry development. It is occurring at a largely unknown but increasing rate. Since the 1960s the economic, social, and environmental impacts of large weather-related catastrophic events have increased exponentially, particularly in vulnerable areas of peak tourist congestion. Climate change has been attributed with the cause of a variety of recent catastrophes in tourist destinations including such events as the rafting deaths in Switzerland in 1999, recent avalanches in British Columbia, massive flooding in many areas of the US[4]. Other similar events have been attributed to climatic instability, El Niño/La Niña effects, ozone depletion, or global warming. The insurance sector, along with banking and industries such as tourism, will be amongst the first of the industrial sectors to feel the full impacts of climate change (Salt 2000). This poses significant uncertainty for the future of the tourism industry, particularly in tropical coastal areas (see Section 2.6 below).

[3] A proposal, prepared by the author in 2003, was accepted by the Geosciences Research Group of Munich Re in Germany, to investigate the scale of insured loss specific to tourism infrastructure, plant and equipment, (as well as gross life figures) with the objective of ascertaining if a product could be developed for this industry-specific purpose. This work will be followed up upon completion of the thesis.

[4] These impacts are as yet unsubstantiated causal effects of climate change.

Figure 2-5 Global Insured Losses Due to Natural Catastrophes in 1999. Source: Swiss Re, Insurance Information Institute, 2000.

2.4.1 Tourism and Disasters

For most observers, disasters are generally referenced by location, hazard agent, and time, with the focus on the hazard agent in the case of natural disasters. The perception communicated, and therefore the dominant paradigm, is that disasters are caused by hazards. This has been a traditional geographers' perspective (Saiter 1995). Heathcote's (1976) description of disasters illustrates this focus on the extreme event, avoiding any mention of vulnerability, and describing risk in terms of the quantification of probability and consequence: "…[disasters are] extreme geophysical events greatly exceeding normal human expectations in terms of their magnitude or frequency, and causing significant material damage to man and his works with possible loss of life" (Heathcote 1976 p.96).

Although the tourism industry represents a disaster vulnerability of catastrophic potential, the situation need not worsen. The industry needs to respond proactively to a rapidly expanding vulnerability, and failure to do so will keep an expanding tourist population at risk (Drabek 1994). The costs of settling liability costs, together with "the marketing costs of offsetting customer ill will" (Drabek 1994 p.88) after a disaster or crisis, are massive compared to the minimal costs of investment in disaster planning and

tourism risk management. Recent global crises have had a massive impact on the tourism industry in virtually all parts of the world (Wilks and Moore 2003). These events have provided the impetus for disaster planning and risk management for the tourism industry to improve greatly in the recent past. Clearly the 'do nothing' scenario is no longer an option.

Books, articles, media coverage, international meetings, specialist committees and other formal and informal groups representing many aspects of the tourism industry planning and management fraternity have come to the fore over the last three years (to 2004) to support the development of better, more efficient ways of coping with disaster and uncertainty in the future (see for example World Tourism Organization 2001; Cunliffe 2002; Luhrman 2002; Mintel 2002; Belau 2003; Glaesser 2003; Noronha, Lourenço *et al.* 2003; Wilks and Moore 2003; World Tourism Organization 2003; Cunliffe 2004).

The World Tourism Organisation, the World Travel and Tourism Council and others at an international level have led the way in recognising the need to plan for catastrophe in the tourism industry, now, more than ever before in the history of tourism (Kreimer and Arnold 2000; Serageldin, Shluger *et al.* 2001; World Tourism Organization 2001; World Travel & Tourism Council 2002; World Tourism Organization 2003).

These organisations (including most United Nations Organisations) can of course act as advocacy providers only and have no legislative control at a national level. Minimising the impacts of potentially catastrophic events that affect tourism is therefore largely a combination of national and local responsibility. The existence of good advice is of no value until it is delivered to communities in clear, jargon-free language, and is implemented with and for that specific community (Hatton 1999; Anderson-Berry 2002). Disaster reduction strategies are largely aimed at community level and it is the responsibility of local and national governments to oversee the delivery, and to monitor implementation (World Tourism Organization 1998).

Government and local authorities (jointly and severally) have a significant role in vulnerability reduction and strategies to manage disaster risks. Through incentives,

legislative controls and the powers to veto development proposals, the sometimes-sophisticated analyses required to assess potential risk and vulnerability to hazards, should be undertaken in consultation with all stakeholders. As Inskeep (1998) clearly demonstrates, top-down policy-making often fails at the local level.

Regulatory controls, when developed and implemented with community (stakeholder) approval can protect tourism infrastructure developments and reduce vulnerabilities to natural hazards. Local approval must be stressed. Top-down regulations are less likely to succeed than those developed with and for stakeholders (Inskeep 1998). Simple regulatory measures, seen as capable of minimising the impacts of disasters and encouraging vulnerability reduction, can be divided into two categories:

1. Non-Structural:
    - Identification of hazard-prone areas and limits on their use
    - Land-use allocation and control, including building-line distances
    - Use of incentives
2. Structural:
    - Use of building codes and materials specifications
    - Retrofitting existing structures
    - Use of protective devices

2.4.2 Natural and Anthropogenic Hazards

In the section to follow, the terms disasters and catastrophes are used to describe the results of a variety of natural and anthropogenic hazards. A list of specific natural and anthropogenic hazards is included in Section 2.2 above (page 39).

It is all but certain that we will face more disasters in the future in terms of frequency and impact (Quarantelli 1999), due primarily to two worldwide social trends: industrialisation and urbanisation (including population growth). To this could now be added terrorism. Quarantelli argues that, if the right policies and measures are put in place, “the future will not be the past revisited nor will it be only the present repeated” (Quarantelli 1999 p.9). He suggests that there exists a very real sense of urgency to ensure that we have learnt from recent disasters, and that the threat and impacts of repeat

events on an escalating scale can be minimised or even avoided. The tourism industry has responded to this need, including the publication of a variety of disaster and risk management publications (see for example World Tourism Organization 2001; Glaesser 2003; Wilks and Moore 2003).

Referring to the root causes of disasters and catastrophic events, Blaikie suggests that "it is not only natural events that cause them" (Blaikie, Cannon *et al.* 1994 p.9), but rather, they are the product of the social, political, economic, and natural environmental context within which the events occur. This is because of the way in which disasters affect social structures, the people, communities, and their livelihoods that are destroyed or damaged. As Blaikie points out, there is often too much emphasis placed on doing something about the natural hazards themselves, "and not nearly enough on the social environment and its processes" (Blaikie, Cannon *et al.* 1994 p.9). Similarly, Mileti (1999) points out that, in the United States, short-sighted and narrow conceptions of the human relationship to the natural environment account for the nation's failure to reduce the way in which natural disasters result in major catastrophic events.

Natural disasters are also often thought to be one of the major instruments of catastrophic events. While this is true to some extent, statistically, in the nine decades 1900 to 1990 (using the death toll as an indicator), the ratio of deaths from natural disasters reported was less than twenty-two percent of the total. Civil strife accounted for 48.6 percent, and famine a further 39.1 percent (Office of Foreign Disaster Assistance 1990). This does not mean that death from natural disasters is insignificant. Tourists generally avoid areas where famine and civil strife are occurring, but are frequent visitors to areas where natural hazards are common, e.g. tropical coastal areas. The economic (and insured) costs of natural disasters are continuing to escalate alarmingly. In 2003 for example, natural disasters cost the world over $60 billion in economic losses (up from around $55 billion in 2002), most of which were weather-related catastrophes (United Nations Environment Program 2003).

Tourists are generally unfamiliar with many and often all of the places they visit, particularly with respect to potential hazards, and even more particularly with respect to

natural hazards (Cunliffe and Kuehlbrandt 2000). The predilection of tourists to visit potentially hazardous sites, directly on the waterfront or precipice with the best views, or other scenically spectacular locations, resort hotels on the beachfront, places tourists amongst the most vulnerable of the entire community, alongside the old and infirm. Neither the tourism businesses nor the host communities wish to frighten away visitors with unnecessary warnings of pending catastrophe, but there exists a need and responsibility, shared by local authorities and the goods and services providers themselves, to adequately apprise visitors "of both potential dangers [of natural disasters] and appropriate life-saving actions" (Murphy 1989 p.38). Safety drills on air and sea transportation services are commonplace, but the dangers of the impacts of extreme weather are not commonly delivered in an organised manner to tourists in tropical coastal areas.

This paradox of not wishing to promote a potential danger for fear of a negative response from visitors (decreasing arrival numbers for instance), while at the same time not wishing to be irresponsible in terms of safety and preparedness, is all too common to tourism service providers in tropical coastal areas. Issuing disaster preparedness and response information to clients does not always have negative connotations. The survey of backpackers undertaken in Cairns, Australia in 2000 (Cunliffe and Kuehlbrandt 2000) indicated a high level of interest on the part of these young tourists to actually having the opportunity to physically experience the onset of a cyclone, despite an extremely low level of understanding of possible consequences, response actions and evacuation procedures.

Disasters, or at least potential disasters, can have an 'attraction' value, but this is rarely part of marketing campaigns, apart from certain extreme adventure travel experiences designed for a small but important niche market. Murphy (1989) goes even further, suggesting that natural disasters can be positive free advertising: "Media exposure and consequent public awareness would usually have cost the tourist industry vast sums under normal circumstances, but if it can capitalise on this free, sensational exposure it can increase a flow of visitors and revenue, that, in turn, can facilitate recovery and lead

to a better landscape in the aftermath of a disaster" (Murphy 1989 p.46). This would likely only occur in the most exceptional of circumstances.

The impacts of natural disasters in coastal tropical areas of developing countries is often devastating, given the reliance on tourism in overall gross domestic product of many countries, particularly the small island states in tropical areas. As an example, Figure 2-6 below shows the change in GDP growth, before and after the impact of three major hurricane events in the Caribbean. This is illustrative of the severe, negative impacts on GDP of natural disasters in small island states.

Figure 2-6 Impact of Natural Catastrophes on GDP Growth.
Source: (Evans 1996).

Tourism is affected by the largest natural disasters (great natural catastrophes or 'NatCats' as the insurance industry refers to them) even when the impacts are indirect, or the catastrophe occurs in apparently distant geographic locations. Natural catastrophes are classed as great if the ability of the region to help itself is distinctly overtaxed, making interregional or international assistance necessary, or when thousands of people are killed, hundreds of thousands are made homeless, or when a country suffers substantial economic losses. Figures 2-7 and 2-8 present the losses caused by great natural catastrophes since 1950. There are between 500 and 700 loss events registered every year around the world (Munich Re 2000). These figures show only 'great' natural catastrophes, selected on the basis of monetary and human loss. In 2000 there were ten such events. The vast majority of these massive natural catastrophes had direct and indirect impacts on tourism flows. The 2004 Indian Ocean tsunami was no exception to this. See JANUARY 2005 PREAMBLE at the commencement of Chapter 1 of this thesis for a brief overview of the tsunami recovery needs.

Figure 2-7 Great Natural Disasters 1950-1999.
Source: Munich Re, NatCat Service, 2000.

The trend line on Figure 2-8 below shows clearly the alarming trend towards rapidly escalating economic losses from these major events. Insured losses are increasing at a much lower rate, reflecting the ability of primary and reinsurers to accept greater risk and greater potential losses. It can be estimated that this general trend is equally applicable to the tourism industry: rapidly increasing economic losses from natural disasters with a much lower level of increase in insured losses.

Figure 2-8 Economic and Insured Losses for Great Natural Catastrophes.
Source: Munich Re, NatCat Service, 2000.

There were around 11,000 fatalities from natural catastrophes in 2002. The earthquake in Afghanistan claimed some 2000 fatalities, halting the meagre domestic and international tourist flows in that country for much of the year. In 2002, a relatively good year for the insurance industry, insured losses were US$13.5 billion, of which US$11.4 billion were from natural catastrophes (Swiss Re 2003b). Around thirty-nine percent of global insured losses in 2002 were in Europe, even though more than half of the total number of catastrophic events occurred in Asia, which also suffered 48.4 percent of total fatalities for 2002 (Swiss Re 2003b).

On September 11, 2001, terrorism took on a new dimension the world over. Insurers have responded by minimising terrorism exposure (reducing policy conditions, increasing premiums and exclusions), and changing the scope of coverage for terrorism-related losses. The USA, Germany and France have introduced new forms of terrorism coverage in which the state carries a substantial share of the loss. In 2002, the insurance

industry registered 13,000 fatalities from anthropogenic disasters, including more than 800 fatalities from terrorist attacks. Although insurers in 2002 did not have to contend with the scale of major losses from terrorism experienced in 2001 the direct targeting of tourists in Bali, Indonesia, (claiming 202 lives) and Djerba, Tunisia in 2002 had devastating effects on their respective local and national economies and indeed on global tourism figures in the immediate aftermath. The arson attack on a train in India caused only a short-term decrease in overall Indian tourism arrivals. On a global scale, if broken down by cause, road fatalities (second to floods) caused more than 3,300 deaths in 2002.

Possibly the greatest threat to a stable tourism industry in tropical coastal areas in the long-term are the potential effects of natural hazards of an unknown dimension, and the as yet unknown impacts of climate change. This phenomenon, coupled with the current demographic patterns of change around the world, will have an impact of a dimension that is also unknown other than to say it will be significant. These issues are discussed in detail in Section 2.6.1 and further in Chapter 6: Conclusions.

2.4.3 Vulnerability Reduction

The long-term future of the viability of tourism in tropical coastal areas is dependent upon the active development of vulnerability reduction and mitigation measures (Saiter 1995; Intergovernmental Panel on Climate Change 2001a; World Meteorological Organization. 2002). These are broadly accepted as the highest impact and most cost-effective mechanisms to reduce losses from catastrophes, the ensuing reconstruction debt, and other adverse consequences (Evans 1996). Beachfront tourist resorts are especially prevalent examples of the need for effective vulnerability reduction, as are population centres sited at coastal and seismic-risk locations.

The Asian Development Bank (2002) in its poverty reduction initiatives has recognised the vulnerability of communities to a variety of uncertainties (hazards) that can have a significant impact on the livelihoods of those communities. Figure 2-9 below illustrates the assets of a community and the aspects of its livelihood (economy and lifestyle) that are vulnerable and at risk.

(Figure caption for page to follow).

Figure 2-9 Community Assets and Vulnerability.
Source: Adapted from Asian Development Bank (2002 p.117)


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King and McGregor (2000) have produced a somewhat less complex diagram aimed at illustrating all the elements that contribute to community vulnerability. This is a useful reference diagram, as it illustrates the many aspects of a community that are crucial to understanding what the factors might be that make a community vulnerable to the impacts of hazard events. The King and McGregor vulnerability diagram is shown in Figure 2-10 below.

Figure 2-10 King and McGregor Community Vulnerability Diagram
Source King and McGregor (2000 p.20).

"By vulnerability we mean the characteristics of a person or group in terms of their capacity to anticipate, cope with, resist and recover from the impact of a natural hazard. It involves a combination of factors that determine the degree to which someone's life and livelihood are put at risk by a discrete and identifiable event in nature or in society." (Blaikie *et al* 1994 p.48). Blaikie's 1994 definition is important as it describes vulnerability in terms of people's capacity to avoid, cope with and recover from hazard impact. It illustrates two trends in explaining vulnerability that are both reflected in the disaster literature: "Firstly, the shift in focus away from the hazard event being the primary cause of loss (with people characterised as victims, passive onlookers that are subordinate to the hazard), towards a focus on the human community and people's living

conditions, social and economic resources, livelihood patterns and social power. Secondly, it includes a consideration of resilience, which is a more positive (empowering) concept" (Anderson-Berry 2002 p.45).

Recognition of the significance of clearly understanding the vulnerability of a business or community is critical to a thorough and comprehensive risk management process. Esnard *et al.* (2001) description of those characteristics of a community that have an effect on their vulnerability is a useful tabulation of factors that can be used in an analysis of all aspects of vulnerability. These factors are described in Figure 2.11. Below this, in Figure 2-12, is a list of the potential costs that can also assist with further defining where the vulnerabilities lie and their potential consequences.

Figure 2-11 Community Vulnerability Factors
Source: (Esnard, Pendall *et al.* 2001).

Figure 2-12 Community Cost Categories of Catastrophic Events
Source: Adapted from Queensland State Planning Policy
(QLD Department of Emergency Services 2001 p.4).

The World Bank recognises the potential dangers of ever-swelling urban populations that create conditions for more and worse environmental and social disasters. Of the estimated over five hundred mega-cities[5] (with population over 1 million) in 2010, most will be within one hundred kilometres of the coast and, for the first time, the majority (51.8 percent) of the world's population will be urban (Jones 1992). The implications for tourism are widespread, particularly given the primacy or dominance of these large urban conurbations as both cultural centres and transportation hubs for travellers.

Although the fundamental value of vulnerability reduction to catastrophe-prone coastal tropical areas is not in dispute, the adoption of an effective policy is hampered by complex behavioural, political, and institutional factors. There are three basic principles that could initiate the process of establishing a vulnerability reduction approach for tourism facilities in coastal tropical areas at a national and regional level:

i. A National Strategy;

   Vulnerability reduction should become a committed national strategy covering not only the tourism sector, but also all sectors of the economy (a long-term and non-partisan strategy);

[5] Often mega-cities are described as those with a population of over ten million. there are fifteen such cities at present (2005).

ii. Leadership and Partnership;
With the tourism ministry as the lead agency (headed by a cabinet-level chairman), the strategy should be institutionalised through the creation of a council of the nation's leaders from all sectors. This office, with technical and financial support from international development funding agencies, could act as a clearing house serving all sectors, providing best practices information, and monitoring and publishing plans, performance criteria, and results of its activities; and

iii. Education and Training:
School curricula at all levels should include specific content covering vulnerability reduction and tourism development. Institutions of higher education should be encouraged to establish departments focusing on the advancement of vulnerability-reduction technology and its effectiveness, in conjunction with natural and anthropogenic hazard mitigation. Tourism schools have a particular responsibility in this regard, but the current situation is not positive. For example, in a recognised authoritative university-level text titled “Tourism Analysis: A Handbook” (Smith 1995), there is no mention of risk analysis, risk management, disasters, or catastrophic events in the index, and only passing mention of these topics within the text itself.

Any effective strategy to manage disaster risk at tourism destinations must begin with an identification of the hazards and what is vulnerable and exposed to those hazards. This involves information on the nature and extent of risk that characterises a particular location, including information on the nature of particular physical hazards obtained through hazard assessments, as well as information and data on the degree of exposure to those hazards of businesses, the population, and its infrastructure and built environment. In this way informed decisions can be made on where to invest and how to design sustainable tourism developments that will withstand the impacts of potential disaster events.

Hazard mitigation measures are working tools that can be used to minimise losses through lowering levels of vulnerability, increasing levels of preparedness, response, and recovery mechanisms, and insurance. Some general steps that can be taken are described

below. Insurance however, is not often understood as a mitigation tool, but rather something that is part of disaster preparedness, the value of which comes into effect in the recovery stage. It is also a potentially valuable tool to encourage vulnerable businesses and communities "to adopt cost effective measures voluntarily" (Kunreuther 1996 p.184). Premium reductions, lower deductibles, and higher limits of coverage are a few examples where the primary insurers could offer incentives to policyholders. This is an area where, surprisingly, given the wealth of information and resources available to insurers and reinsurers, much more could be done by making incentives available to assist businesses and communities help themselves to minimise vulnerability to catastrophic loss. Tourism business would also benefit from a closer relationship with insurers to reduce vulnerability and share risks. As costs of insurance continue to escalate for all tourism businesses, adopting cost effective measures has become a necessity.

Vulnerabilities are therefore increasing. There are more built-up areas for natural and anthropogenic disasters to have a negative impact, particularly areas developed along coastlines containing tourism infrastructure. Concentrations of population and infrastructure are increasingly vulnerable to the relatively sudden natural and anthropogenic disaster agents (such as tropical storms, hurricanes, earthquakes, forest fires, floods and landslides, explosions, transportation accidents, volcanic eruptions, structural failures and avalanches), to more slow-moving insidious disaster agents (such as famine, drought, toxic poisonings, air and water pollution, epidemics), and other crises (such as war, terrorism, riots, sabotage, political unrest and other hostilities) (Quarantelli 1993). Vulnerability reduction is therefore at the very heart of the risk management processes for tourism in coastal tropical areas.

2.4.4 Natural Disasters in Developing Countries

According to the World Bank, "Natural disasters are a tragic interruption to the development process. Lives are lost; social networks are disrupted; and capital investments are destroyed. When development plans are laid and disaster strikes, development funds are diverted to the emergency. Additional aid is directed to relief and

reconstruction needs to get the country 'back on track' toward economic and social development" (Kreimer and Arnold 2000 p.12).

In recent years, development agencies, including GTZ (the German bilateral aid organisation) and the World Bank, have recognised the important links between disasters and development. This was inevitable given the disproportionately high costs that developing countries pay for disasters and their impacts. Also, natural disasters in developing countries can and often do have more disastrous impacts than those in developed countries. Freeman (1999) estimates that, because of the enormous disparity in the GDP, the per capita cost of natural disasters in relation to GDP in the developing world is twenty times higher than it is in developed countries. The Centre for the Epidemiology of Disasters (CRED) in Brussels sets this figure at a more conservative six times higher than that of developed countries (Centre for the Epidemiology of Disasters 2000). Either way, the disparity is significant (see Figure 2-13 below). Figure 2-13 indicates the significance or value of tourism receipts to the overall GDP of countries in the APEC region, which is, in some cases, the main industry contributor to GDP.

Figure 2-13 The Contribution of the Travel and Tourism Sector to GDP in APEC Countries.

Source: World Tourism Organization 2002 (T&T Economy is T&T contribution to national economy, T&T Industry is T&T direct national industry revenue).

In GTZ's Technical Cooperation projects, disaster risk management is comprised of: i) action (programs, projects and/or measures); and ii) instruments, the intended impacts of which are expressly aimed at reducing disaster risk in endangered regions and mitigating the extent of disasters. Disaster risk management for GTZ is the generic term for the operational areas of risk assessment, disaster prevention and mitigation and disaster preparedness (Deutsche Gesellschaft für Technische Zusammenarbeit GmbH 2003).

Despite the awareness raised by the United Nations International Decade for Natural Disaster Reduction (UN-IDNDR), disaster risks have continued to accumulate in most developing countries. Isolated successful experiences at 'piloting' risk management approaches have, however, begun to build a substantial body of knowledge, particularly in the Asian region (Kishore 2003). The vast majority of national and international efforts by bilateral and multi-lateral development agencies remain fundamentally focused on disaster preparedness and response, which are seen as the most urgent needs. Preparedness and response are terms used to describe the before and after processes. The concept of mitigation, requiring a more analytical and proactive approach to minimising losses is, however, slowly gaining respect as an important approach to risk reduction (Berz 1999; QLD Department of Emergency Services 2001). Evans (1996 p.5) suggests that "the use of mitigation as a primary strategy in facing the consequences of natural disasters is slowly, but increasingly, gaining acceptance in public and private sectors around the world".

Not all opinions of the decade of work by the UN-IDNDR have been positive, as is evidenced in a critical editorial in the *New Scientist* (1989 p.3): "All the aims of the IDNDR will cost money, and, in particular, money for things that appear to have no immediate benefit … for ten or twenty years. Add to this the fact that many of the measures that could cut the death toll from disasters will disrupt people's lives, and you have a very good excuse for doing nothing". The *New Scientist* view summarises a commonly held opinion that the large multilateral organisations' global approaches (policy guidelines for example) commonly fail to filter down to specific locations and

can become meaningless to communities at risk. This article also recognises the short-term political horizons of most governments in developing countries and their subsequent capacity and willingness to create and pay for long-term strategies to deal with natural catastrophes.

In the Caribbean, with its intense coastal tourism developments, the development agencies' responses to assist the region to manage natural hazard risks fall into two basic categories:

1. Hazard mitigation and vulnerability reduction measures adopted prior to a hazard event to optimise protection from damage; and
2. Economic mechanisms aimed at pre-financing the repair of the damage caused by disasters *post hoc* (the mechanism of insurance is in this category).

The former can be considered ultimately more efficient than the latter, which does not prevent or minimise the impact of the damage. This distinction is at the heart of cost-effective natural hazard risk management in developing countries.

An important finding of the UN-IDNDR was that global data sets are missing substantial numbers of disasters at the national level, due to deficiencies in international reporting. National datasets capture a greater proportion of the total losses but most developing countries do not maintain consistent and comparable records. There are immeasurable variations in methods and standards, making comparison difficult, if not impossible. Economic losses are inadequately captured and recorded. For instance, in Jamaica around eleven percent of disaster events with more than ten persons killed and/or one hundred persons affected are not captured at all by international reporting. Of disaster events with fewer than ten persons killed and/or fewer than one hundred persons affected, around eighty-four percent are not captured at all by international reporting (United Nations Development Program 2004). The figures are similar for Chile, Columbia and many other developing countries.

In the developed world, the insurance companies and national emergency management agencies fill that gap more thoroughly. The insured loss potentials ensure that insurers

have a good grasp of the necessary data for modelling and underwriting. Developing countries are well behind in the sharing of risk through insurance.

In 1998 for example, catastrophes claimed the loss of around 50,000 lives worldwide, and estimates of economic damage are in the range of US$90 billion, the second highest financial loss in history (Munich Re 1998a). The rising worldwide costs of catastrophes and disasters can be explained mainly by the increasing concentrations of populations and capital, and fragile infrastructure in hazard-prone areas (Linnerooth-Bayer 1999), particularly in developing countries. Obviously, the hazard-prone coastal tropical areas with concentrations of both tourists and infrastructure development are increasingly vulnerable for the same reasons. As Figure 2-14 indicates, disaster losses, calculated by the Centre for Research on the Epidemiology of Disasters, are significantly higher in developing countries, but not as high as Freeman suggests (1999).

Disaster losses include not only the spectacle of direct impacts reported in the news, such as the loss of life, housing, livelihood, and infrastructure, but also indirect impacts such as the foregone production in utility services, transport, labour supplies, suppliers, or markets. Secondary losses include impacts on such macroeconomic variables as economic growth, balance of payments, public spending, and inflation. The process of recovery from disaster in developing countries is exacerbated by poverty at the community level, and the lack of emergency resources and strategies at government level.

Figure 2-14 Disaster Losses 1985-1999.
Source: CRED, Belgium (2000).

Climate- related disasters in the Asian region over the last one hundred years accounted for around sixty-eight percent of all disaster events, many of which occurred in coastal areas having a significant impact on tourism business, causing immediate and long-term business disruption (CRED 2000). Total economic losses, and those individuals and businesses affected by natural disasters, were climate-related in the vast majority of cases as Figure 2-14 above indicates. The impact of natural disaster losses on GDP for developed versus less developed countries in Asia in the same period is illustrated in

Figure 2-15 below. While the economic losses were numerically greater in developed countries, the losses in less developed countries, as a percentage of GDP, were more than five times that of developed countries.

Figure 2-15 100 Years of Natural Disaster Losses in Selected Asian Countries.
Source: CRED (includes Afghanistan, Bhutan, Bangladesh, Cambodia, Laos, Maldives, Myanmar, & Nepal)

Asia, with more than half the world's population, is also the region with the most catastrophes. For example, in 1996, Asia suffered about half the catastrophes registered around the world, with about seventy percent of the fatalities. The low insurance density in Asia meant the region had only a 6.3 percent share of the global sum insured (Swiss Re 1998b). The situation is, however, improving as disaster response and preparedness improve (stockpiling of relief goods, warehouses, contingency planning), and with the increased applications of engineering solutions (dams and embankments, early warning systems). Vulnerability reduction and improved emergency management remain central themes to address in the necessary improvements to integrated, comprehensive risk management.

Although the situation of underinsurance, particularly in Asia, is likely to change considerably in the coming decade, effective risk reduction cannot be carried by insurance alone, and should involve mitigation measures in hazard prone developing countries. Such measures include land use planning, structural design and construction practices, and disaster warning systems (United Nations Development Programme

2004). In addition to employing scientific and technical knowledge, risk reduction may also involve overcoming the socio-economic, institutional and political barriers to the adoption of effective risk reduction strategies and measures in developing countries (Parasuraman and Unnikrishnan 2000). Tools have to be developed to assist the very poor to be able to manage the risk of disaster more effectively. This includes micro finance mechanisms that can respond to a variety of risks and disaster hazards, and that build social capital and encourage risk mitigation for the very poor (Asian Development Bank 2002). In addition to that, measures may include safety nets and calamity funds, and other informal risk sharing mechanisms. The World Bank and the Asian Development Bank in particular have, in the last five years, developed a strong focus on poverty alleviation in all aspects of their technical assistance and lending programs to developing countries. As an example, the initial announcement following the Indian Ocean tsunami by the Asian Development Bank Chief Economist suggested that increased poverty in the region was the most important impact of the catastrophe. The Bank's commitment to poverty alleviation was reflected to the post-disaster recovery pledges of financial support from the Bank.

2.4.5 Tourism, Terrorism and War

"The tourism industry's vulnerability to terrorism is proportionate to its reliance on peace and stability" (Sonmez and Graefe 1998 p.138).

Safety, tranquillity and peace are necessary conditions for a prosperous tourism industry (Pizam and Mansfield 1996), and the effects of wars, terrorist activities and crimes and violence of all kinds can devastate an otherwise healthy destination, national or regional tourism industry. The evidence is clear in the literature: Bar-On (1996) has quantified the impacts of security events on tourist arrivals in Spain, Israel, Egypt and Turkey; Prideaux (1996) attempts to identify what causes an increase in criminal activities against tourists by using a Criminal Crime Cycle model, and there are many other examples. The potential risks calculated prior to the occurrence of such events have not been quantified, and may in the future be a valuable planning and management tool for long-term tourism development planning.

Florida suffered an eleven percent decline in international visitors and a sixteen percent decline in Canadians visiting that state in 1993 as a result of a spate of violence and crimes against tourists. Similar problems in Rio de Janeiro, Brazil; Papua New Guinea; Johannesburg, South Africa and many others, had the same immediate and adverse impacts, namely, billions of dollars of lost revenue.

In 1985, American visitors to Europe fell by more than thirty percent following the TWA hijacking and the attacks on Vienna and Rome airports; military coups in the Pacific islands of Fiji, Vanuatu, and New Caledonia virtually destroyed tourism in those small island states dependent on tourism for their economic well-being (Sonmez and Graefe 1998). The 1992 riots in Los Angeles cost that city billions in lost revenue. The impacts are not localised, as was evidenced by the Gulf War. According to the World Tourism Organization, in 1990 the Gulf War caused the number of international tourists to fall by 1.4 percent globally, the first negative growth period after nine years of strong upward growth. This was a massive and sudden negative swing in global tourism, a downturn which was also felt in Australia (Rowe 1993).

The World Tourism Organization (1980) declared tourism to be a vital force for world peace" while at the same time recognising that tourism needs peace for its development and prosperity (Mihalic 1996). An international conference on "Tourism – A Vital Force for Peace" held in Vancouver, Canada in 1988 advanced the idea that tourism can result in positive changes in the attitudes of tourists towards their hosts and ultimately contributes to world peace (Pizam, 1996). Numerous articles in the literature support this (Pizam 1996).

Mihalic (1996) and her colleague (Vukonic) argue that war is unjustly ignored or neglected in tourism theory, despite the extremely important and negative impacts of war on tourism demand and the reputation of a destination in or following violent conflict. There are, of course, positive aspects to war as a viable tourism product, honorific not maudlin, in the form of commemoration of events, places and heroes (Smith 1996).

A sudden event such as war can annihilate an otherwise dependable forecast for growth and demand, in the same detrimental way as the Chernobyl disaster, the oil crises in 1973 and 1979, and the algae blooming in the Adriatic in 1989 (Martin and Witt 1989). Tourism dropped by fifty percent along areas of the Italian coast the first year following the algae blooming.

Unfortunately we have many examples of war having a negative impact on a national tourism industry: the war in the Balkans, Slovenia, Croatia; the wars in Vietnam, Cambodia and Kashmir, to name just a few. The impact of these events on the national tourism industry is not well documented, apart from negative economic impact assessments. The literature provides little evidence of the total risk that war poses to a nation or a region in conflict. While the social and environmental consequences of war may be quantifiable, the tourism industry as a whole tends to downplay these risks as a 'damage control' strategy, to minimise the longer-term reputation damage and to facilitate a rapid rebuilding of facilities and infrastructure.

The continuous media coverage of wars, terrorism attacks, military coups, civil unrest, and political rebellions, with which we are now bombarded, can and does deter tourists from visiting certain locations and even entire regions such as Lebanon, Afghanistan, and the countries of the Middle East. That political instability is now taken seriously by most big reinsurers (Swiss Re, Munich Re, Aon, and others) is evidenced by the recent establishment of in-house political crisis groups in these companies. "While insurers and reinsurers are already willing and able to provide limited cover for terrorism risk, they are also examining a viable long-term approach" (Swiss Re 2002a p.2). The attacks of September 11 demonstrated to the insurers that this type of threat has become "virtually immeasurable in terms of both the severity and frequency of exposure – making it difficult for the private insurance industry to adequately cover this risk" (Swiss Re 2002a p.2).

Economic losses from the September 11, 2001 events are estimated at US$90 billion, including US$19 billion in insured property losses, 3122 fatalities and 2250 injured persons (Swiss Re 2002a). Prior to this event, the worst terrorist act in terms of insured

property loss was the bombing of the NatWest Towers in London in 1993 resulting in a US$904 million loss. Terrorism loss potentials appeared to be manageable for the private insurance industry before September 11, 2001 and were therefore covered privately except for state coverage obtained by the UK, Spain, South Africa and Israel (and France in 2002). The industry is now looking to share that burden with the state to overcome the insurance capacity shortage, commonly referred to as "governments assuming the role as insurers of last resort" (Swiss Re 2002a p.8). The implications for the tourism industry will be restricted to the large-scale investors in property and infrastructure where insurance is available as a risk- sharing mechanism. This means little for small and medium enterprises at the heart of the tourism industry.

Apart from several earlier commercial aircraft hijackings, terrorism first began to reach the headlines in the 1970s (1972 Munich Olympics) peaking with the attacks in the USA on September 11, 2001. Figure 2-16 below indicates clearly the negative impacts of terrorism on the tourism industry following this event in 2001. As described above, the situation was not dissimilar in 1985 following a spate of attacks, which caused the number of visitors from the USA visiting Europe in 1986 to drop by more than thirty percent (Sonmez and Graefe 1998).

(Caption for figure on the following page).

Figure 2-16 The Estimated Impact of the World Trade Centre Terrorism Crisis on Travel and Tourism (T&T) in 2001 and 2002.
Source: World Travel and Tourism Council (WTTC): The Impact of Travel and Tourism on Jobs and the Economy - 2002 plus; Special Report on September 11th Impacts; released 17 March 2002; up dated by ILO based on: WTTC: The Travel and Tourism Economy 2002; Special End of Year Update, 8 November 2002 .(in Belau 2003 p.8).


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The total crisis impact tabulated in the figure above attempts to illustrate losses in terms of a decrease in demand (measured by arrival numbers primarily), and employment in the tourism and travel industry (measured as percentage growth and decline on the previous year, and in real employment figures). Over six million jobs worldwide were affected. This could be a rather conservative estimate given the difficulty of accounting for small and medium enterprise in smaller destinations and in developing countries, which pose difficulties for accurate measurement. The social and economic impact on the livelihood of support communities at tourism destinations, although largely unrecorded, was probably quite significant.

The effect of the September 11 crisis on the level of revenue from international tourism in 2001 is shown in Figure 2-17 below. The positive growth trend that continued throughout the 1990s stopped suddenly in 2001. The industry's income (from international travellers) dropped by 5.2 percent. It is of interest that the receipts from international tourism dropped deeper than the number of international arrivals due to a change in consumer preference for shorter stays and cheaper services.

Figure 2-17 International Tourism Receipts.
Source: World Tourism Organization (WTO) (cited in Belau 2003 p.9)
(*Based on data collected by WTO up to June 2002).

According to Ryan (1993), tourism symbolises capitalism, and state-sponsored tourism represents government to many people. An attack on tourism symbolises therefore an attack on the government that the terrorists oppose. The Palestinian attack during the Munich Olympics proved a huge success (for the terrorists) by securing media attention

(estimated at some 800 million viewers), which handed terrorists a cost-effective communications tool, now emulated all too frequently. Tourists are targets. When victimised, tourists provide the impetus to escalate media coverage to a broad scale of attention.

Thirteen separate terrorist incidents in 1985 are recorded by Sonmez and Graefe (1998 p.113) that occurred during the peak period of tourism at airports (Narita, Madrid, Frankfurt, Rome, and Vienna), city tourist offices and hotels (Rome, Madrid, Athens), including hijackings (Egyptian Airlines, TWA, Achille Lauro cruise ship), and aircraft bombings (Air India twice bombed). A further 30 incidents of terrorist attacks involving tourists are recorded for the four years 1993-1996 (Sonmez and Graefe 1998 p.116). The sensationalism of the international media often magnifies terrorism so that it becomes a significant deterrent to travellers despite the low probability of their being the victims of a terror attack. Tourists' behaviour is as constrained by perceived risk as it is by actual or real risk.

2.5 RISK MANAGEMENT FOR TOURISM

This section introduces and discusses the concept of risk management. The main objectives are then: i) to review the theory and applications of risk management from the perspective of other relevant disciplines; ii) to briefly evaluate risk management standards which may be applicable to the tourism industry in tropical coastal areas; and iii) to introduce the tourism risk management model, based on the two prior objectives, that has practical application for tourism policy-makers and managers. The model that is introduced here is developed in detail in Chapter 5: Tourism Risk Management.

Humans very often react curatively to catastrophic events rather than employing a preventive approach to future uncertainties. Similarly, we commonly use a disaster or catastrophe as an incentive to change policy, rather than proactively planning for the same future uncertainties. Exceptions to this include the emergency management discipline, security systems planning and the insurance industry, which are necessarily committed to thorough forward planning. Theory from these disciplines provides the

backbone for the development of a model for tourism risk management, described in Chapter 5: Tourism Risk Management.

Risk management for the tourism industry, as for most businesses, consists of a continual cycle of risk criteria formulation, risk assessment, risk reduction, and review. Risk management is a logical process that provides for systematic identification, analysis, and evaluation of risks in order to lead to the development of an appropriate risk treatment strategy (Bowden, Lane *et al.* 2001). This is based on the likelihood and consequence of the risks identified (Bar-On 1996). In short, this means that risk management is good for business, in fact is critical for a sustainable business. For both strategic and operational decision-making of tourism organisations, the identification and assessment of business risks is critical to demonstrating a responsible and sustainable investment to shareholders.

Tourism as an industry is in a constant state of change, adapting to specific demand. While the scope of risks in tourism is broad, the capacity to minimise the impacts of certain risks such as climate change does exist, and the time is ripe to ignore these futures no longer. Forecasting long-term climate-related risks is not well understood by the tourism industry. Risk assessment is however a regularly utilised methodology of the insurance and reinsurance industries.

It should be noted that, while there is no collective agreement on precisely what constitutes ‘the tourism industry’, the term has been used throughout the thesis to indicate all those individuals and organisations providing goods and services directly and indirectly to persons, groups, and organisations deemed to be tourists. The definition of a ‘tourist’ in this context has been drawn from World Tourism Organization documentation (see definitions in Chapter 1: Introduction).

There are mechanisms for risk analysis, risk transfer, and reducing risk exposure developed by the insurance and reinsurance industries which may be adapted and applied to the tourism development context (real property and life) to manage risk by looking to the future to assist with today’s decision making. The advancement of

industry-specific risk management strategies and long-term risk identification for tourism appears to be an appropriate area of research requiring the close collaboration of both tourism and insurance.

Tropical coastal areas are geographically more exposed than other locations to natural catastrophes due to climate and location, and are also more vulnerable due to fragile marine environments and coastal ecology. Concentrations of tourism facilities exist in coastal areas throughout the tropical regions of the world. In these areas, tourism is environmentally dependent, i.e. tourism relies heavily on the availability of natural habitat and an intact ecology. If the environment is at risk, the tourism industry is unstable. Clearly, the tourism industry is experiencing a significant increase in risk exposure and a considered view of the future can serve to plan for and manage change and uncertainty, and to minimise the impacts of adverse catastrophic events.

2.5.1 Risk Management Theory and Background

There has been a gradual shift from a more descriptive approach in insurance risk management (i.e. how and why people choose among options) to a more normative decision theory of risk management, focusing on how decisions are made. The changes have signalled a realisation that risk could be managed and therefore held to the lowest levels possible. While risk management has its roots in corporate insurance buying, military engineering applications, financial theory and security systems improvement have all contributed to the discipline's development. During the early 1970s, academia responded with courses and qualifications in risk management and the insurance industry embraced the concept wholeheartedly. Risk management terms are now familiar to a wide variety of industries and business practices. It is beginning to make a foothold in tourism planning and management.

Anticipating risks is the subject of an immense amount of research and effort by insurers who are in the business of forecasting uncertainty. For at least three decades, in the field of natural hazard research, there has been recognition of five main groupings of anticipatory measures (or adjustments) that can lessen impacts and reduce potential losses (Burton, Kates *et al.* 1978):

i. Actions designed to limit the magnitude and/or frequency of potentially threatening circumstances.
ii. Actions designed to constrain/control threatening events by means of deflection.
iii. Actions designed to modify loss potential through improved prognostication and risk communication.
iv. Actions taken to plan for financial losses in terms of insurance schemes.
v. Actions taken to spread potential losses through reinsurance, government responsibility, international relief, and so on (Jones 1996 p.18).

Groups i ii and iii can be described as technocratic, involving the application of science, technology, and engineering, while groups iv and v are clearly risk sharing mechanisms offered by the insurance industry. In the twentieth century, huge advances were made in all five of these anticipatory measures, particularly in groups i and ii which Jones refers to as the hazard management adjustments (Jones 1996). It is group iii however, that is of interest to this section, which together with groups iv and v, is referred to by Jones as vulnerability management (Jones 1996).

From a disaster-related perspective, "risk is socially constructed in contexts where hazards interact with exposed and vulnerable communities or societies" (Kishore 2003 p.1). Quarantelli's (1998) disaster research in the social sciences over the last half-century has attempted to arrive at a consensus on the central concepts of what constitutes a 'disaster'. While there are diverse views on the components contributing to a disaster situation or event, there is general agreement (throughout the social sciences) that disaster is fundamentally a social and cultural construct.

This view of risk as a social construct is critical to the development of tourism risk management as a working planning and management tool. There is strong support for Beck's 'risk society' model, which suggests that risk is a systematic way of dealing with hazards and insecurities, induced and introduced by modernity itself (Beck 1992). Modernity, in Beck's definition, would include all manner of collective and individual modern societal manifestations. While responsibility for controlling risk can be

understood as both an individual and collective responsibility, Douglas does not hold this view of the responsibility of the individual, suggesting that each person is imbued with cultural and societal baggage "that makes individual choice impossible" (Douglas 1992 p.58).

Risks can be controlled but not eliminated. Risk is a relatively modern concept, "dependent upon societal and sociological contexts" (Giddens 1991 p.109). The overall goal of risk management is to reduce risk. Risk has many dimensions, and it is important therefore to understand our perceptions of risk from a variety of perspectives. The social theorists cited below have contributed to a swelling literature on risk in society. The concluding remarks summarise the options offered by these theorists and analysts by describing the impact that one's perception of risk has on the process of managing risk at tourism destinations. How risk is managed, or not managed as the case may be, is as dependent on circumstances as the perception of risk itself[6].

2.5.2 Risk and Socio-Cultural Theory

There is a traditional analytical distinction in risk research which is important to the discussion to follow. Boholm (1996 pp.64-65) summarises the distinction between 'objective risk' (defined according to statistical calculations of the probabilities of adverse events such as how an insurer approaches risk) and 'perceived risk' (referring to the way in which people understand the likelihood and consequences of such adverse events).

People think about risk in different ways. For professionals in the disaster business, it has to do with likelihood and consequences, exposure and vulnerability, and implies a need for control and management. The terms 'control' and 'lack of control' correspond to the common understanding of the words, including the concern for potential catastrophe and the fear of the consequences of a disaster of some kind. For most people, risk has to do with uncertainty and the possibility of unforeseen effects that such risk may have. Douglas (1992) goes further to suggest that the perception, not only of the

risk, but also of disasters, is dependent upon "the organisation or groupings to which a person belongs or with which he [or she] identifies" (Douglas 1992 p.78). There are strong socio-cultural ties to our perception of risk in any context or location.

The phenomenon of risk and the role it plays in contemporary society are the subjects of a current theoretical debate in social and cultural theory. Three main streams of theory have emerged in the last twenty-five years: i) cultural / symbolic, as in the cultural anthropologist approach of Mary Douglas (1992); ii) the risk society as perceived by the German sociologist Ulrich Beck (1992) who has produced an important sociological examination of risk (the English sociologist Anthony Giddens (1991) adopts a similar perspective to that of Beck); and iii) governmentality as described by Michel Focault (1991) who writes on governmentality and the associated risk discourses. These three theorists are in agreement in their general approach to risk (i.e. taking into account the broader social, cultural, and in some cases historical contexts in which risk as a concept derives its meaning and resonance), despite their differing theories of the perception of risk.

Douglas' (1966) work from the 1960s has focused on notions of purity and contamination. That which is contaminating and polluting is what then poses a threat to social order, and this is culturally specific. She later describes risk as a means of establishing social boundaries (Douglas 1992), and maintains that the failure to take culture into account in any discussion of risk is baffling. Risks are therefore perceived in a social context from a 'culturalist' approach.

The risk society theorists have focused their analyses on macro-structural factors that show an intensification of concern for risks of all kinds, maintaining that risks in late modernity have increased in magnitude and become globalised and are therefore now more difficult to predict and to quantify, manage or avoid. Beck and Giddens single out the three institutions of government, science and industry as the main producers of risk. Modern society then uses risk as a means of self-critique, an integral feature of a society

[6] The word perception is used in the literature and here to refer to "various kinds of attitudes and judgements" **Slovic, P.** (2000). The Perception of Risk. London, Earthscan..

that has come to reflect upon itself; thus, the 'risk society' concept and the 'realist' approach. In comparison with earlier eras, we are now better positioned to exercise a higher level of control over the circumstances under which we expose ourselves to danger. We are therefore more culpable for becoming prey to risk. In the risk society, "risk is primarily understood as a human responsibility, both in its production and management, rather than the outcome of fate or destiny as was the case in pre-modern times" (Lupton 1999 p.4). This is the view adopted for the development of the model in Chapter 5: Tourism Risk Management.

An additional late modern development has been the role played by experts in constructing and mediating discourses on risk. Focault (1991) and the exponents of the governmentality approach have described how, since the sixteenth century, a huge network of expert knowledge has developed, as have apparatuses and institutions built around the capacities of such knowledge. These institutions would include all the structures of liberal government rule and order maintenance. According to Lupton (1999), in this context, risk is understood as a means of reinforcing disciplinary power and government strategies by which populations and individuals are monitored and managed. Those who are determined to deviate from the established norms are typically identified as being 'at risk'. To be determined to be at risk is to be positioned within a network of factors drawn from the observations of others. The implication of this view is that risk is ultimately controllable as long as expert knowledge can be brought to bear.

There is little critique of the others' theories from any exponents of the three major socio-cultural perspectives (in Lupton 1999), each confirming and elaborating on a single line of theory with little evidence of empirical data from which risk in everyday life could be understood in practical terms. To what extent, for example, have people in late modern societies adopted the highly rationalistic approach to risk claimed for them by the exponents of the risk society thesis? This is in clear contrast to the techno-scientific approaches in science, engineering, psychology, medicine and economics, where risk is largely seen as a 'taken for granted' objective phenomenon.

Before the era of modernity, risk was a neutral term, concerned with the probability of loss or gain (now termed pure and speculative risk respectively). In modern times, risk has been defined in terms of a negative or undesirable outcome. As such it is synonymous with the terms 'danger' or 'hazard' (Fox 1999). The modern science of risk calculation and determination is evident in the rationalist, actuarial tables of insurers and risk analyses employed by those in the business of risk, the proponents of capitalism. For today's insurance industry, "risk is a form of calculation based on a statistical table that establishes the regularity of events and a calculus of probabilities in order to evaluate the chances of that event actually occurring" (Dean 1999 p.138). This constitutes the 'rationalist' perspective of risk, best illustrated by the insurers' approach.

The insurers' rationalism allows them to place a value on seemingly incalculable losses. The effects and cost of the loss of a limb, for example, seem incalculable. How much is an arm worth? For an insurer, the compensation is assigned a price "based on the calculus of probabilities of such an event and the contractually agreed upon contribution of the insured" (Dean 1999 p.138). In such cases, the insured can never be fully compensated for the suffering. This is clear from the history of conflicts between insurers and the insured.

Johnstone-Bryden (1995) offers a 'materialist' position, often found in the risk assessment and risk management literature, in which the objective is risk reduction and given the presence of a hazard with the potential to cause harm, strategies are required to minimise the likelihood of, and exposure to, the hazard. Johnstone-Bryden however places the emphasis on the individual rather than the collective:

> People represent the real risk. Human greed, malice and error are the primary threats. It could be argued that almost every risk, perhaps even every risk, relates back to human error, or deliberate human actions (Johnston-Bryden 1995 p.57)

In conclusion, the literature suggests that the way one perceives risk and the hazard/risk dichotomy, leaves only two choices based on the socio-cultural theories of the twentieth century: either one adopts the 'realist' (the scientific, empirical understanding of risk) or the 'culturalist' (the view that risks are culturally constructed) perspective. To these,

may be added the hybrid 'materialist' view of Johnston-Bryden. This position suggests that risks are not absolutes, and neither are the hazards (the circumstances which constitute risks). Rather, the concepts of risk are tied to the values of a culture, and the society within which that culture exists. The 'society' in this instance is inclusive of the accepted norms of commerce and science, just as insurance is understood and utilised in European society very differently from the way that it is in Asian societies, where the perception of risk is similarly culturally dependent.

A final point is that one should always be aware of the political dimensions of risk; that is, how "society's value priorities and sound scientific knowledge might be best combined in risk decision-making" (Pidgeon 1996 p.167). These two issues need to be combined so as not to disenfranchise the general public and to ensure that the values of the society are reflected in policies to manage risk. A good example is the common goal of many risk assessment and risk management approaches: to minimise loss of life for a given investment. While this appears acceptable to almost everyone, and in fact is taken for granted in many cultures, it assumes that economic efficiency in reducing loss of life is a universal value (Rayner 1989) and this is not the case. Douglas (1992) for example, suggests that the acceptability of risk is inherently 'political'. To try to reduce questions and discussion concerning risk to purely scientific terms and scientific issues is to ignore the political and value dimensions of risk policy that individuals in a democratic society should in fact control, rather than being excluded from participation. This is probably the simplest and most obvious argument for the acceptance of the necessity of comprehensive participation in all forms of risk decision-making. If it can be concluded that scientific evidence therefore has to be intimately related to societal, political, and ethical issues, then there exists a need for a broader participation of stakeholders in decision-making. In short, risk management should be a participatory process.

This discussion underscores the need to ensure that, before the process of managing risks in tourism destinations is begun, there is a thorough understanding of the meaning and use of the term risk as it applies to a specific location, culture, and the societal values within which it is applied. The cultural sensitivity of the risk manager will be critical to the acceptance, understanding, and successful application of risk management

principles. This adds further credence to the development of generic guidelines, which include a clear and unequivocal caveat that such guidelines would require cultural and technological adaptation prior to and then throughout the development of risk management strategies.

2.5.3 Risk Management and Insurance

Insurance is a method of coping with risk. Its primary function is to substitute certainty for uncertainty with regard to the economic cost of loss-producing events. The insurer, for a premium usually agreed upon in advance, promises to reimburse the insured or to render services to the insured in the event that certain accidental occurrences result in losses during a given period. There are many different kinds of insurance. For the tourism industry, the main insurance products of interest include:

1. Property insurance (two main types, homeowner's and commercial, to insure against loss from accidental destruction);
2. Liability insurance (arises mainly from the operation of the law of negligence);
3. Professional liability insurance (known also as malpractice, or errors-and-omissions insurance);
4. Personal liability insurance (the most common form of personal liability insurance is an all-risk agreement and contains relatively few exclusions);
5. Workers compensation and healthcare insurance;
6. Aviation and Marine insurance;
7. Quality, Performance, and Delay guarantees;
8. Contingent business interruption (including cancellation of events, non-appearance, denial of access, product tampering, malicious acts, and others) (Swiss Re 2002b p.33); and
9. Other site-specific coverage.

The law of large numbers, or the Bernouli Principle of probability theory, developed by Jakob Bernouli in 1700, forms the basis of the modern insurance industry. While first evidence of the concept of insurance can be found in marine commerce of the pre-Christian era, the oldest insurance contract dates from 1370 in Genoa, Italy. It was not

until the devastating fires in German cities in the mid-nineteenth century that the utter inadequacy of direct insurance was recognised, leading to the formation of the first professional reinsurance companies. Munich Re is now the largest reinsurer in the world (Swiss Re, formed in 1863, is the second largest).

Insurance business is generally divided into two categories, life (life and health insurance, fifty-eight percent of all direct insurance worldwide) and non-life (property/casualty insurance, forty-two percent of all direct insurance worldwide). A direct insurer (often called the primary insurer) is in direct contractual relationship with the insured; worldwide there are about 13,000 direct insurers. Reinsurance is insurance for the primary insurers; reinsurers cover a share or part of the risk assumed by the primary insurer. One misconception of risk management is that it is applicable only to large organisations. Another is that the approach to pure risk is aimed at minimising the role of insurance. The principles of risk management are basically common sense applied to the process of dealing with certain risks. Irrespective of the size of the business, the principles remain the same while the approach may differ in scope and complexity.

Insurers are cognizant of the need to adapt their approach to risk management to today's socio-political and economic environment. Prior to 2003, Swiss Re's description of risk management focused on risk that could be clearly identified and assessed in monetary terms. To this was added an 'extended' risk management category where risk management must inevitably be extended to include visionary and futuristic risks. Swiss Re, in its recent publication on "Emerging Risks: A Challenge for Liability Underwriters" (2003a p.8), suggests that:

> Visions and futuristic scenarios are often not taken seriously... Nevertheless, history demonstrates time and again that well-founded visions and futuristic scenarios should by all means be taken into account in current considerations and decisions, to avoid being confronted with unpleasant [costly] surprises, sooner or later (Swiss Re 2003a p.8).

Such forward-looking recognition of future uncertainties is not evident in the vast majority of tourism businesses, big and small, nor is there much in the way of recognition or understanding of future uncertainties. The insurance industry has much to offer the risk manager in the tourism sector. The basic principles of risk management employed by the insurance industry are one such example, illustrated in Figure 2-18 below. The four steps listed are not optional but are to be taken sequentially. They apply specifically to liability risks, "the risk of having to pay compensation for bodily injuries, property damage, or financial loss sustained by third parties" (Swiss Re 2003a p.7).

Figure 2-18 The Stages of Risk Management.
Source: Swiss Re (2003a p.7).

All human activity entails risks. The purpose of insurance is to assume those risks in return for a sum of money: the premium. Insurance risk, in business terminology, has its origins in the insurance industry where it is generally defined as an exposure to adversity or a situation in which an exposure to a loss exists. A risk then has two common elements: indeterminacy and loss. Risk management involves the application of scientific methods to the process of managing risks and the use of decision theory in solving risk management problems (Swiss Re 2003a). In virtually all instances, a variety

of methodologies is likely to be brought to bear on a significant problem in the risk management process. The selection of the instruments that are appropriate to managing risk will be wholly dependent on the context or needs of the business, and the nature of the risks to be managed, in terms of their frequency of potential occurrence, and the likely severity of those potential risks.

2.5.4 Risk Management Standards

Over the last ten years, the International Standards Organization[7] (ISO) has been trying to reach consensus on a set of global definitions for risk management and risk-based decision-making. Simply stated, good risk management supports consistent decision-making and the consistent use of terms can enhance public understanding of risk decisions. The development of an international standard for risk management might provide the impetus necessary for the tourism industry to garner support for "improved, effective corporate governance" (Knight 2003 p.24) and responsible management of risk, particularly for tourism service providers.

Standards Australia and other organisations have, since 1999, produced a number of additional supporting standards: SAA HB141-1999 Risk Financing Guidelines, SAA HB142-1999 A Basic Introduction to Managing Risk using the Australian and New Zealand Risk Management Standard, SAA HB 231-2000 Information Security Risk Management Guidelines, and Emergency Risk Management - Applications Guide, (Emergency Management Australia 2000). Canada has also produced CAN/CSA-Q850-1997 - Risk Management: Guideline for Decision-Makers, and in 2000, the United Kingdom published its own risk management "standard" BS 6079-3:2000.

The strength of AS/NZS 4360:1999 can be attributed to the deliberate decision of the committee overseeing the development of the document that the standard should be generic, and should outline a process capable of general application. "The temptation to

[7] An Australian, Kevin Knight, Chairman of the International Standards Organization (ISO) Working Group on Risk Management Terminology in Geneva, was a primary author of the world's first risk management standard with Standards Australia and New Zealand Standards AS/NZS 4360. This document has been available since 1995, updated in 1999 to AS/NZS 4360: 1999, and is currently under further review (2004).

confine it to insurance-related corporate risk was firmly rejected by the Committee in favour of it being a generic process, independent of any specific industry or economic sector" (Knight 2000 p.3).

AS/NZS 4360:1999 clearly and concisely describes the elements of the risk management process. The purpose of the standard is not to enforce uniformity of systems or risk management processes. It states clearly that the design and implementation of any risk management process or system must be guided by the specific needs of the user, its particular objectives, its products and services, and business practices.

What AS/NZS 4360:1999 provides to tourism businesses (as risk takers), as well as national tourism organisations (as risk advisors), is a 'template' that not only explains, but also maps the technical steps in the risk management process in an adaptable generic way, listing available approaches, methodologies, and detailed proforma. Focusing on technical aspects of risk assessment in a systematic way, this template includes the generic components of decision-making, including the common elements in defining risk criteria, but avoids laying down what may be considered an 'acceptable' level of risk as this is wholly value-laden. The method accommodates a necessarily multi-disciplinary approach, and an all-hazards approach recommended by emergency management officials around the world .(Emergency Management Australia 2000). The Emergency Risk Management guidelines document, produced by Emergency Management Australia in 2000, is also based on AS/NZS 4360:1999.

Having reviewed a variety of documents on the risk management process, the opinion expressed by Knight (2000) that AS/NZS 4360:1999 provides the most comprehensive and systematic process of risk-based decision making is valid. The process can be broken down relatively easily into a few basic steps, such as identification, analysis, assessment, management, and decision-making; a sequence that could, although there are differences in terminology, be widely accepted in principle across industries, including tourism development. As Knight (2003 p.23) suggests, "There will be increasing demands to develop standards or guidelines to enable organisations to demonstrate they need definable levels of professionalism and accountability". The

tourism industry will need to recognise that this demand exists amongst tourism policy-makers and business managers. The value and necessity of including total risk calculations in the development and on-going management of tourism facilities, infrastructure and natural resource attractions are the prime sources of impetus for the development of the tourism risk management model to follow.

2.5.5 Risk and Risk Communications

The tourism industry literature discussing risk is concentrated in three general areas: i) marketing research of perceived risk; ii) consumer behaviour risks; and, iii) risk related to health and safety, mainly war, terrorism, dangerous tourist activity, crime and vandalism (Bettman 1973; Ryan 1991; Department of Tourism Studies 1995; Wilks 2001). For this research investigation, risk is understood as a condition or process of the real world, in specific geographic locations, namely tourism destinations in tropical coastal areas. As the research also looked at future events, risk is also a condition in which there is a possibility of an adverse deviation from a desired outcome that is expected or hoped for (Vaughan 1997).

According to Gutteling (1996), the general public is not well informed about risk. In a thorough review of the state of the art of risk communications, he suggests that there is little doubt about this lack of awareness, evidenced by disappointing experiences in risk communications practice, and empirical evidence that supports his findings. It is the news media's coverage of risk that is the most significant factor in the public understanding of risk (Gutteling and Wiegman 1996). For a tourist travelling to exotic locations, the tour operator has a major role in risk communication, albeit biased, given a commercial interest in communicating and underestimation of risk. Gutteling and Wiegman (1996), in an assessment of the interpretations by individuals of the news media, found that the significance of risk and catastrophic events was highly personal and subjective, tending more to an overestimation of risk. The power of the mass media was spectacularly illustrated by the 1938 broadcast of the *War of the Worlds* by Orson Welles when over a million people panicked upon hearing the radio description of Martians invading the world.

While the general public is not continuously exposed to the possibility of a severe catastrophe, tourists visiting tropical coastal areas increase their exposure and vulnerability in a variety of ways: they are out of their familiar home environment; culture, language and customs may be different; social and legal norms are likely to be different, and their support systems are likely not available in the same way, if at all. Tourists' direct experience or their vicarious experiences through the media provide risk signals and information that can result in a negative perception of certain destinations or facilities (Sellnow and Sarabakhsh 1999; Glaesser 2003). Risk communication must therefore be systematically planned to minimise the adverse impact of risk information on the cognitive and behavioural reactions of tourists, while at the same time not to alarm tourists unnecessarily, to underestimate or indeed understate the risks. Mazur (1981) suggests that the news media can contribute to a biased and inaccurate public risk perception.

This raises at least two key questions: 'Do the persons or organisations possessing risk information make it available (accurately) to those who need it?' and 'Do the receivers of risk information (tourists and industry persons or organisations) use it objectively and adequately?' These risk communication questions for the tourism industry were not specifically investigated in the research, but are significant for further research investigations.

2.5.6 Risk Classification

Risks that are unknown and unidentified (future risks), are seen by the general public as significant concerns (Chichilnisky and Heal 1998; Quarantelli 1999). An opinion poll in the USA (Harris 1980) showed that about eighty percent of the American people feel more at risk than they did twenty years ago, particularly with respect to environmental issues. The 1980s witnessed an unprecedented increase in awareness of environmental issues and public concern for environmental quality (Dunlap 1991). Critical issues, such as global warming and ozone depletion as well as countless localised environmental concerns, fuelled the increase.

Risk can then be understood as a combination of circumstances in the external environment. In this combination of circumstances, there is a possibility of loss. To say that an event is possible means that it has a probability between zero and one; it is neither impossible nor definite. It is likely that not all risks defined in the research are readily measurable. However, while the research may not be able to measure the degree of risk, the probability of an outcome must be between zero and one.

There is some element of risk in virtually all aspects of human endeavour. Classifications of risk are based on both the different causes and the different effects of specific actions or events. To use insurance terminology (Willett 1951), the sources of risk can be classified as dynamic or static, pure or speculative, and fundamental and particular (described below). The classification of financial and non-financial risk is less relevant to the research.

The research was concerned primarily with four categories of risk that are most relevant to the tourism industry:

i. static risk (static risk is a risk that arises from the normal course of business activities and does not involve changes in the environment or technology. Static risk can only result in a loss (Rupp's Insurance & Risk Management 2002);
ii. dynamic risk (a dynamic risk is a risk that arises from the continuous change that exists in the business or economic environment or in technology. Dynamic risk can produce a gain or savings as well as a loss or expenses). (Rupp's Insurance & Risk Management 2002);
iii. pure risk[8] (situations that involve only the chance of loss or no loss, e.g. property ownership, as opposed to speculative risk that describes a situation that holds a possibility of either loss or gain, e.g. gambling) (Willett 1951); and
iv. fundamental risk (or particular risk) is again based on the difference between the origin and consequences of the losses. The tourism industry is exposed to

[8] The insurance industry for instance is first and foremost concerned with pure risk, which can be further broken down into personal risks, property risks, liability risks and risks arising from the failure of others.

both fundamental risks (involving losses that are impersonal in origin and consequence) and particular risks (that arise out of individual events and are felt by individuals rather than the group) (Vaughan 1997). Fundamental or particular risks are a subset of i and ii above and can therefore be static or dynamic.

The tourism industry is subject to potential loss from static risk, as is any business operation, and to significant dynamic risk resulting from changes to the economy (local, national and/or international). Dynamic risks occur often as a result of changes to the external environment (competition, marketing, development, consumers, etc.), and are largely uncontrollable events, common to tourism businesses. Dynamic risk may result in a variety of losses, including financial loss. Management decisions can also affect the dynamic risk of a destination, a facility, or indeed individual tourists. Typical fundamental risks in tourism are war, terrorism, natural catastrophes and inflation and unemployment. Petty crime on individual tourists or bodily damage from an accident is a particular risk that may be static or dynamic.

2.6 FUTURE FORECASTS AND CLIMATE CHANGE

Figure 2-19 below illustrates the main characteristics and methodologies of forecasting. Armstrong (2001), in one of the most up-to-date and extensive texts on forecasting, describes 139 principles organised into sixteen categories, covering problem formulation, obtaining information, implementing methods, evaluating methods, and using forecasts. These principles are conditional on the characteristics of the situation, i.e., they cover a wide range of situations where forecasts of all kinds are required. Figure 2-19 uses an initial breakdown of ‘judgemental’ versus ‘statistical’ methods, which can be equated to qualitative and quantitative methods. Qualitative methods were used primarily for this primary research in this thesis.

Figure 2-19 Characteristics of Forecasting Methods and Their Relationships.
Source: (Armstrong 2001).

Scenario planning, which falls into Armstrong's judgemental category of forecasting techniques, is an important working tool of long-term forecasters. In whichever way it is most appropriate to view the future, scenarios provide a method of providing alternative descriptions of how the future may unfold (Royal Dutch Shell 2002). Scenarios have multiple advantages over conventional planning methodologies in the making of better strategic decisions, and Shell have shown the value and power of this tool, not least by the well known Mont Fleur Scenarios prepared for the South African government in 1991-1992 (Global Business Network 2000). The purpose of scenario planning is not to pinpoint specific future events but to highlight large-scale forces that push the future in certain directions. Anything that can help make decisions in the midst of uncertainty can be valuable to the decision-making process.

Scenario planning for tourism development can help stakeholders to consider multiple futures and what might be critical in the future, to consider things we know but which may be non-linear, such as surprises or potential accidents, to better understand the variety of viewpoints that a group may have for alternative futures, and to recognise key signals from the world around us. It provides a chance to think the unthinkable and to anticipate the unknowable, and to utilise both to make better strategic decisions (Royal Dutch Shell 2002). It is however, "a relatively underused tourism forecasting technique" (Calantone, Benedetto *et al.* 1987).

Specific tourism futures scenarios have not been developed in the thesis; however the Delphi Tourism Futures Study 2003 provides considerable input to the basic background information required of a scenario planning exercise. This would be a logical extension of the research.

2.6.1 Climate Change

Over the last decade, and particularly since the inception (in 1990) of the Intergovernmental Panel on Climate Change (IPCC), climate research has generated a wealth of knowledge but, as yet, little certainty about the future of our climate. Despite this gap between knowledge and certainty, and although the development of climate is uncertain and is likely to remain uncertain into the foreseeable future, there exists both the need and the possibility to act. Climate change can be viewed as comprising two main issues: i) climate variability; and ii) the influence of human activity on the climate system. The opportunity exists to act on the latter (the influence of human activity) while building the knowledge base of the former (climate variability) (Intergovernmental Panel on Climate Change 2001a).

Anthropogenic influences do effect changes in the climate system, increasing its complexity and making it even more difficult to forecast likely changes. Humankind has adapted well to extreme weather all over the world making small changes in weather conditions almost unnoticeable. Damage from extreme weather results from "the ill-adaptation of human systems to the possible weather events" (Swiss Re 1998b p.2). There are no such things as purely natural disasters, or disasters that are produced by

nature. Rather, the natural phenomena of extreme weather for example, are just "the 'triggers' for processes; the outcomes are decided by humans" (Swiss Re 1998b p.2). This is how we can understand the way that tropical cyclones cause disproportionately fewer deaths in industrialised countries than they do in developing countries that lack appropriate warning systems, civil defence or emergency management organisations.

The protection of our human systems (communities, commerce, industry and infrastructure) is almost impossible within the scope of what is economically feasible, due to climate variability and the fact that the natural climate system is extremely sensitive to human influences. One of the most important realisations of climatologists is that reliable probability statements about future meteorological events are simply not possible. Therefore they do not discuss 'forecasts' but rather 'projections' defined as "the estimation of possible meteorological events as a result of possible climatic changes" (Swiss Re 1998b p.5). These projections are what are currently available to researchers, published most thoroughly by the IPCC. The IPCC do not talk of 'probabilities' of likely outcomes of climate change because the result of such a discussion is evident; everything is possible.

Climate change, in IPCC usage, refers to "any change in climate over time, whether due to natural variability or as a result of human activity" (Intergovernmental Panel on Climate Change 2001b p.1). Observed changes have occurred in the shrinkage of glaciers, lengthening of mid- to high latitude growing seasons, poleward shifts of plant and animal movement ranges, earlier flowering of trees, changes in the timing of the emergence of insects and the egg-laying of birds, changes in regional temperatures, and observed changes in physical and biological systems in aquatic, terrestrial, and marine environments.

Coastal tourism is one of the many human systems sensitive to climate change as the natural systems supporting or inherent in these areas are especially sensitive to climate change due to limited adaptive capacity. In this context, sensitivity refers to "the degree to which a system is affected either adversely of beneficially, by climate-related stimuli" (Intergovernmental Panel on Climate Change 2001b p.3). These stimuli include all the

elements of climate change including mean climate characteristics, climate variability, and the frequency and magnitude of extremes, which have both direct effects (for example, loss of water supply or water quality due to changed precipitation rates) or indirect effects (for example, damage from coastal flooding due to sea-level rise). The adaptive capacity of a community or a business is the ability of that community or business to adapt to climate change, to moderate potential damage, to take advantage of opportunities, or to cope with the consequences (see also the section on The Climate System below). Vulnerability is described by the IPCC as "the degree to which a system is susceptible to, or able to cope with, adverse effects of climate change including climate variability and extremes" (Intergovernmental Panel on Climate Change 2001b p.3).

Climate change will have a significant impact on tourism as it will have a significant impact on those communities that support the industry, the natural environment, the social context, and the economic well -being of those communities.

A Chronology of Climate Change[9]

From ancient times people suspected that human activity could change the climate (Smith 1990; Intergovernmental Panel on Climate Change 1995). In the nineteenth century many Americans believed that cutting down forests brought more rainfall to a region (Smith 1990). The discovery of ice ages in the distant past suggested that climate could change by itself, and change significantly. In 1896 a Swedish scientist, Svante Arrhenius, published a new idea: as humans burned fossil fuels such as coal and oil (adding carbon dioxide gas to the Earth's atmosphere), the planet's average temperature would increase. This 'greenhouse effect' was one of many speculations about climate at the time. Other scientists found good reason to believe that fossil fuels' emissions could not radically change the climate and that such major change seemed impossible except over tens of thousands of years.

[9] Included in Appendix 10: Global Warming Timeline, is a brief 200 year timeline of the history of Climate Change science including major influences external to the science itself, from "The Discovery of Global Warming" by Spencer Weart, Harvard University Press, 2003.

It became clear in the 1930s that there had been significant warming in the northern hemisphere during the previous four or five decades. Scientific consensus was that this was caused by a mild but unknown natural cycle. One lone voice, scientist G. S. Callendar, (Fleming 2003) insisted that global warming due to this greenhouse effect was on a steady upward increase. This was investigated more thoroughly in the 1950s, and it was confirmed in 1961 that indeed the level of greenhouse gasses was increasing annually. A definitive 1967 calculation (with the assistance of computer-aided modelling) suggested that average temperatures might rise by a few degrees over the next century, but these calculations still appeared speculative.

In the early 1970s, curiosity about climate change turned into anxious concern. The limited mass media coverage of climate change was confused, predicting flooded coastal areas with melting ice caps, and the prospect of a catastrophic new future climate change posing a severe threat to the health and future of life on earth. Scientists agreed that they scarcely understood the climate system, and much more research was needed. Research was accelerated, including large-scale data-gathering schemes that mobilised international fleets of oceanographic ships and orbiting satellites. By the late 1970s it was obvious that global temperatures were indeed rising (see Figure 2-20 below).

By the end of the twentieth century, research had intensified, and an international intergovernmental panel was created under the auspices of a United Nations Organisation (Intergovernmental Panel on Climate Change - IPCC) to establish a scientific consensus on the causes and likely future impacts of climate change on a global scale. It was not long before an announcement was made that our civilization faced severe global warming. The debate continues to this day (Weart 2003). There has been much uncertainty regarding the likely impacts of climate change in the last fifteen years; however, we now know that there are foreseeable probable impacts for which we need to prepare now.

In short, during the twentieth century, the earth warmed about 0.6°C and the sea level rose about fifteen centimetres (Intergovernmental Panel on Climate Change 2001a). We know that most of this warming process over the last fifty years has been due to human

influences. Scientists expect this slow warming trend to continue to alter our regional climate characteristics in the following ways (there will be regional variations to the general trends described below):

i) As the earth's surface continues to rise in temperature, so will sea-surface temperature, causing a gradual rise in sea levels;

ii) Increases in average temperature can cause changes in the numbers of extremely hot and extremely cold days (relative to local climate norms);

iii) Warmer conditions will lead to increased evaporation. Climate change models indicate an increase in extreme daily rainfall in some areas leading to more frequent heavy rainfall events and flooding;

iv) It is uncertain how future El Niño and La Niña events will influence climate variability although they have been attributed as prime sources of the cause of natural climate variability;

v) Tropical cyclone wind speeds may increase by as much as five to twenty percent by the end of this century. Thus an increasing storm surge will be exacerbated by the rise in sea level.

As one example of observed variability, Figure 2-20 below indicates the variations of the Earth's surface temperature for the last 140 years and for the last millennium. Notable in these diagrams are the measured increases over the most recent four to five decades.

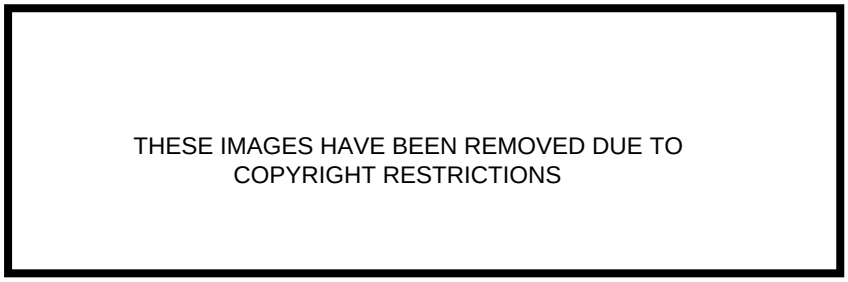

Figure 2-20 Variations of the Earth's Surface Temperature for the Last 140 Years and for the Last Millennium.
Source: IPCC, Group II 2001 p.3.

The dramatic changes illustrated in the above example suggest that action is required to manage the consequences of climate change. The chronology of change to global climate indicates that the rate of change is increasing, thus increasing potential climate-related risks for future tourism development in tropical coastal areas.

Climate Change: Risk and Opportunities

> *"The human race can lead itself into this climatic catastrophe – or it can avert it, since human beings are capable of learning and adapting ... at a practical level, the question is not only how to adapt but also, and with increasing urgency, what should we adapt to, and when to start"* (Swiss Re 2002c pp.10, 14).

Climate change is the change in average weather conditions, which affects everyone as the weather has an influence on all aspects of human life on earth, both positive and negative. Weather and climate are fundamentally different, weather being a set of real phenomena we can both feel and measure (heat, cold, humidity, wind, clouds, fog), while climate is a set of figures that are without sensory perception and are less readily measured. Climate is a record of average weather. Weather changes constantly, climate changes gradually; it is therefore the weather that determines climate.

The relationship between tourism and climatic conditions at destinations is obviously critical to the tourists' experience as it affects satisfaction levels, spending patterns and overall attractiveness, as well as general health and safety. Tropical coastal destinations are more climate-dependent than other forms of tourism. The ability of goods and services providers to provide the quality and consistency of product expected by tourists is similarly climate-dependent. Change to climatic conditions can mean potential disaster for business (coral bleaching destroying a popular snorkelling reef, for instance) or it can be positive (increased number of sunny warmer days in temperate areas). Climate is a key determinant of tourism destination sustainability.

Climate change is both a risk (possible loss) and an opportunity (possible gain). The risk is "if climate change accelerates and we fail to adapt to it in time" (Swiss Re 2002c p.3). The inherent opportunity is that "if we learn to manage our natural resources responsibly, and adapt readily and intelligently … we can maintain and even enhance safety and prosperity" (Swiss Re 2002c p.3). Although it is not known how climate changes, we know that it is changing and will continue to change because the weather-generating factors are changing and will continue to change. We also do not know precisely what the human contribution is or will be in the future to such changes, but we

do know that humans can and do influence weather conditions, and thus climate. The risks are therefore twofold: risks associated with climate variability, and risks resulting from the human impact on the climate.

Swiss Re (2002c p.10) climate experts suggest a twofold strategy of 'weather protection' (optimum adaptation of our socio-economic and technical systems to the anticipated weather conditions) and 'climate protection' (the most effective way of dealing with the risks posed by the human impact on the climate is to reduce the degree of human intervention in the natural climatic system). Both strategies are interdependent, with the critical connection between the two being the fact that "there is a danger that human intervention will accelerate and intensify natural climate changes to such a point that it will become impossible to adapt our socio-economic systems in time" (Swiss Re 2002 p.10).

It is clear that there has been a gradual increase in damage to life and property caused by storms, but weather observations to date have not substantiated the claim that this is a result of increased storm intensity or violence (Intergovernmental Panel on Climate Change 2001c). The increases in population density and value concentrations (economic and financial investments in buildings, equipment and infrastructure for example) are the more likely reasons for the escalating cost of damage figures. This is obviously the case for tourism destinations in tropical coastal areas. We cannot conclusively determine that such damage increases are a result of climate-related impacts alone, whether natural or human-induced. Figure 2-21 below illustrates the complex processes and potential impacts of changes in climate, including important social impacts.

Figure 2-21 Climate Change Process and Impacts.
Source: (Bryant, Burke *et al.* 1998).

Swiss Re is closely monitoring global changes in climate because of the potential effects on businesses, including tourism, both directly and indirectly. Their climate modellers agree that human activities can change the climate in global dimensions, resulting in more frequent and more catastrophic extreme weather events. Figures 2-22 and 2-23 below show the extent of temperature changes over the last 150 years, and projected

temperature change to 2047. Marine environments are amongst the most fragile with respect to temperature change as evidenced by the global extent of coral bleaching and die-off in 1998. Figure 2-24 below describes some of the consequences of climate change for coral reefs and marine environments.

Figure 2-22 Absolute Mean Global Temperature Change 1866 – 1992.
Source: Crichton (1999 p.103).

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Figure 2-23 Projected and Observed Global Temperature Rise 1863 – 2047.
Source: Crichton (1999 p.103).

Figure 2-24 Estimates of Effects of Extreme Weather and Climate Events on Coral Reefs. Source: Summary for Policymakers, A Report of Working Group I of the Intergovernmental Panel on Climate Change, 2001c.

"Climate variability, forecasting skills, and responsiveness are three critical factors of risk and opportunities posed by climate change" (Swiss Re 2002c p.15). By the year 2100, the IPCC predicts that global mean annual temperature may increase by 5.8°C. The fact that this prediction may be correct should be enough for managers and policymakers to give attention to the potential consequences rather than to debate the validity or scientific basis of this potential eventuality. The value and purpose of a climate forecast is not to accurately predict the future as such, but rather to assist us in shaping our response to potential outcomes. The three factors of climate variability, forecasting skills, and responsiveness are a means of organising our response and preparedness, and accumulating the best available knowledge as the basis of preparing for the uncertainties of climate change.

The Climate System

"Everybody talks about the weather but nobody does anything about it". Mark Twain

Figure 2-25 The Earth's Climate System.
Source: Adapted from Lewis 1995 p.1.

In the simplified Figure 2-25 above, the basic inputs and outputs of the climate system are described. This does not however illustrate the fact that climate change is more specifically about the human impact on the earth's dynamic and changing climate (Lewis 1995). The climate system above, through the day-to-day weather phenomena that we experience, has a multitude of influences on businesses, communities and individuals in tropical coastal areas. This includes general well-being, productivity and efficiency, creativity, life expectancy, cash slow, revenue, profit, demand, sales, attendance/visitation figures, resilience, error rates, accidents, sickness rates, damage and outages. While it is impossible to generalise about the impacts of weather phenomena on businesses, individuals and communities, it can be stated that one's sensitivity to weather must be individualised or collectivised. That is, either as individuals or as a group, dealing with the variations in weather and climate requires that weather sensitivities must be system-specific (for a group of businesses, for a certain geographic location, for certain times of the year). Understanding how weather phenomena affect one's life and business is therefore the first step towards identifying and preparing for known and uncertain climate variations.

Climate Change and Small Island States

"Most coastal changes currently experienced in the small island states are attributable to human activity. With the projected increase in sea level over the next fifty to one hundred years superimposed on further shoreline development, however, the coastal assets of these states will be further stressed. This added stress, will in turn, increase the vulnerability of coastal environments by reducing natural resilience, while increasing the economic and social costs of adaptation". (Intergovernmental Panel on Climate Change 2001c p.62)

Tourism is a significant, if not dominant, source of GDP earnings and employment in many small island states. In most small island states, the numbers of visitors will often outnumber the inhabitants. The highest ratios of tourists to local population include Maldives (130 percent), Antigua and Barbuda (364 percent), and the Bahamas (586 percent) (Waters, 1998). Tourism provides jobs for seventy percent of the labour force in the Bahamas, forty percent in Malta, and twenty percent in Seychelles (Waters 1998). The effects of climate change on tourism will be direct (for example, sea-level rise causing beach loss, inundation, degradation of coastal ecosystems, saline intrusion into fresh-water aquifers, and damage to critical infrastructure) and indirect (such as loss of attractiveness of coral reefs due to bleaching and die-off) (Waters 1998).

Figure 2-26 below indicates visitor numbers and receipts as a percentage of GNP and exports, indicating the range of reliance on tourism as a primary economic activity in a variety of small island states. Papua New Guinea, the Solomon Islands, and Haiti provide clear examples of the long-term consequences of internal conflict and political instability thwarting tourism visitation numbers and growth to almost one tenth of that of nearly all the other island states listed in Figure 2-26 below, At the other extreme are Maldives, Barbuda and Antigua where tourist receipts dominate GNP and exports.

In spite of economic and environmental vulnerability, "many small island states register relatively high GNP per capita compared to other developing countries. High GNP gives the impression of economic strength, and masks the fact that economic success may be quite fragile and dependent to a high degree on conditions outside the country's control"

(Briguglio 2001 p.4).

Figure 2-26 Tourist Inflows and Receipts, Various Years, for Select Small Island States. Source: (Waters 1998 in Intergovernmental Panel on Climate Change 2001c).

Maldives is a good example to illustrate the extreme vulnerability to the impacts of climate change of a small island state[10]. Almost 1200 coral atolls, mostly less than one meter above sea level, support a tourism industry that accounts for ninety-five percent of GNP and 68.4 percent of foreign exchange receipts. Around forty percent of visitors are there primarily for scuba diving. The elevation of the islands means at current IPCC (1995) predicted rates (four to ten centimeters rise in sea-level per decade), a significant proportion of the 300 square kilometer landmass could be submerged in the next thirty years (Agnew and Viner 2001 p.40), a situation which would be worsened by concurrent coastal erosion. President Maumoon Abdul Gayoom of the Maldives was one of the first

[10] The author served as Team Leader for a World Tourism Organisation project in Maldives in 1999 to prepare an environmental, social, and economic impacts project document under UNDP funding.

political leaders to alert the international community to the potential threat of climate change. He has stressed again and again that, unless action is taken to curb global warming, his nation could literally disappear beneath the waves. Kiribati and the Marshall Islands in the Pacific are similarly at risk from sea-level rise. Two small islets have already (by 2001) disappeared in Kiribati (Tutangata 2001). The impact of the tsunami has again heightened the urgency and concern for weather-related impact mitigation. The loss of several larger hotel operations in Maldives has caused a total loss of livelihood of Maldivians on adjacent islands who were employed by those hotels that have ceased operations indefinitely. Maldives are expecting a significant downturn in visitor numbers for most of 2005.

The 1998 global coral-bleaching event reduced Maldivian reefs by similar proportions to those of other tropical islands (Seychelles lost an estimated seventy percent of all live coral in 1998 when the sea temperature rose to 33°C from a normal 29°C) (Bryant, Burke *et al.* 1998). Apart from the natural phenomenon of sea temperature rise, Bryant *et al* (1998) estimated that around fifty-eight percent of the world's coral reefs are seriously at risk from damaging human activity which could lead to a total loss of US$140 billion in tourism revenues if allowed to proceed unchecked.

Small island states are at the leading edge of vulnerability to adverse impact of climate change. The extent and potential costs of this adversity cannot be accurately predicted, as both the magnitude and extent of climate impacts cannot be accurately measured. The significance of tourism to the local and national economies of small island states also contributes to vulnerability, as does their ability and capacity to prepare for and adapt to changing environmental conditions.

2.6.2 Tourist Health, Safety and Security

Tourist safety is now possibly the most important criterion for holidaymakers when deciding on a destination (Wilks 1999; Bowden, Lane *et al.* 2001; Mintel 2002) (see also Chapter 4: Delphi Tourism Futures Study Results). This criterion is likely to continue for the foreseeable future. Health and safety have become more than just an issue of tourist satisfaction,; they have effects on every aspect of the travel experience from pre-

travel planning, the journey from home to destination, and safety and security guarantees given at the chosen destination, to tourist health upon return home. Growing research evidence since the early 1990s and data from travel medicine practitioners suggest that tourists' experience "is affected by a continuum of incidents" (Mintel 2002 p.7) ranging from minor accidents, trips, falls and slips (low severity, high incident rate), to major catastrophic events including terrorism attacks and hijacking, and natural catastrophes such as cyclones and heat waves (high level of severity, low likelihood of incident rate).

There is a variety of agencies and tourism bodies involved in health and safety issues in most countries and responsible agencies vary, of course, from country to country. These would include for instance the National Tourism Organisation, Police, Customs, transport companies, Health Departments, accommodation providers, tourism industry associations, insurers, and local tourism authorities. The World Health Organization provides a global coverage of emergency response and preparedness information relevant to the tourism industry, including a variety of publications directed specifically at tourists and national (tourism industry) personnel listed above. Various Government Consular and Foreign Affairs offices offer travel warnings and travel advisories to which travel agents will commonly refer clients for the most up-to-date information on specific destinations.

As a direct result of the SARS crisis in 2003 (which caused global travel numbers to decrease more significantly than the impact of either the September 11 terrorism attack or the war in Iraq), the World Health Organization (WHO) announced, in May 2004, the establishment of a high-tech "Situation Room" designed to help the global travel and tourism industry, the media and consumers get twenty-four-hour online information about the dangerous diseases that are widely predicted to be on the horizon. WHO predicts that if a SARS-type crisis were to recur on a larger scale, it is probable that the current technical, management and information-dissemination capacity would be overwhelmed, with potentially devastating consequences. It is heartening to know that these preparations are underway.

The Centre for Research on the Epidemiology of Disasters in the Medical Faculty of Louvain University in Brussels compiles and updates a global database of diseases and health issues related to disasters of all kinds. According to their database, the common health problems of travellers to developing countries include (in order of regular to less common occurrence, selection only, not a complete list) diarrhoea, malaria, Hepatitis A, animal bites, Hepatitis B, typhoid, HIV infection, and Legionella. Tourist morbidity is twenty-five times more likely as a result of a car crash than from infectious diseases. The most common form of morbidity for European tourists over sixty years old travelling in Australia is from a car accident (Wilks 1999).

A recent study in Australia of nearly 1000 travel insurance claims provides an overview of health and safety issues where the risk has been shared with an insurer. The study shows that two- thirds of claims were for medical and dental conditions and one- third for theft, loss and damage to personal property (Leggat and Leggat 2002). Respiratory problems were the most common medical problem (20.4 percent of medical claims). No data has been found on the breakdown of the most costly claims for compensation from insurers on other issues. Claims made against airlines by passengers suffering from deep vein thrombosis (DVT) in 2000 sparked an airline industry campaign to educate passengers on the need to move, exercise, consume less alcohol, and drink more water whilst in-flight in an attempt to minimise future massive claims from this life-threatening affliction. The airline industry takes passenger health and safety very seriously knowing their reputation is built on such records.

As indicated by Sonmez and Graefe (1998), theoretical discussion of the issues of tourism safety and security have been elevated by the work of Pizam and Mansfield (1996). However, a dearth of research on this topic remained until 2002. The first research conference on the topic occurred in Sweden in 1995 (mid-Sweden University), followed by another in Croatia in 1997 (Institute for Tourism) The Croatian Institute for Tourism is planning another conference on the issue in 2005.

2.6.3 Tourism Futures Forecasting

Tourism development forecasting is rarely undertaken with a focus on potential disasters or catastrophes of the future. This is an opportunity that would greatly enhance both mitigation efforts and overall destination preparedness for potential disasters when undertaken on a site-specific basis.

Tourism and the overall performance of the industry are most commonly measured in terms of tourist arrivals and tourism receipts. The job of global composition of statistical data is one of the most important roles of the World Tourism Organization (WTO). World Tourism Organization statistical figures (World Tourism Organization 2001a) indicate that, in the year 2000, tourism provided direct and indirect employment for 212 million people, generated US$3.4 trillion in gross output, and continues to maintain its position as the largest and fastest growing industry in the world[11]. Over the last ten years tourist arrivals grew by forty-three percent, or 3.6 percent per annum, to a staggering 657 million in 1999, and receipts grew by just under seventy percent, or 5.5 percent per annum, to an estimated US$655 billion in 1999. This trend was expected to continue through 2000 with an estimated three to four percent increase in international arrivals to around 699 million. Since the events of September 11, 2001, the WTO expected a one percent increase in arrivals for 2002 overall; thus it would still be a year of positive growth .(World Tourism Organization 2001). Such generally accurate forecasts are the primary means by which the short-term future of the industry is understood and described. Long-term forecasts are a significantly different issue.

Forecasting, as defined by Cornish (1977) takes historical fact together with scientific knowledge to create images or ideas of what may happen in the future. The forecasting literature (see particularly Armstrong 2001) is in agreement that there are two basic options or classes of forecasting with which to develop images of possible future events in the tourism industry: i) manipulating quantitative and statistical data by mathematical rules (a quantitative analysis); and ii) analysing the opinions of experts (a qualitative

[11] For example, WTO predicts that China will be the leading tourist destination in 2020 with an estimated 130 million visitors, of which Hong Kong will receive almost forty percent or fifty-six million visitors in 2020.

analysis). Frechtling (1996) breaks these two classes into several subcategories including two major subcategories of quantitative methods (extrapolative and causal), and four different qualitative or judgmental methods, one of which is the Delphi technique.

Calantone *et al* (1987) in their review of tourism forecasting literature, categorise or distinguish the four forms of forecasting as: exploratory; speculative; normative; and integrative. Qualitative methods described by Frechtling include: jury of executive opinion; speculative probability assessment; and a consumer intentions survey. Frechtling's subcategories are simplified by Smith (1995). Smith (1995) considers Frechtling's subcategories to be unnecessarily theoretical by comparison with his own more practical categories. Of the four basic forecasting models in tourism described by Smith (trend extrapolation, structural models, simulation models and qualitative methods) the best-known qualitative method is the Delphi technique. Smith's four models are those most commonly used in tourism research today.

Smith (1995 p.119) points out that the choice of method or model requires trade-offs between accuracy, precision and constraints of time and financial resources. Rather than providing a lengthy discussion of the four basic models available, Figure 2-27 below has been adapted from Smith (1995 p.120) to provide a summary of the requirements and characteristics of the key forecasting models.

Figure 2-27 Summary of Requirements and Characteristics of Tourism Forecasting Models. Source: Adapted from Smith 1995, p.120.

Makridakis and Wheelwright (1987) reviewed a variety of forecasting techniques and concluded that different empirical studies have reached different conclusions as to the performance of various methods, and that there is no clear superiority of one method over another. Moreover, he found that there was not any single method, which, over time, consistently outperformed the remaining methods. He also suggested that the forecasting horizon will largely dictate the appropriate method and, further, that no single method was superior for all accuracy measures and forecasting horizons.

Witt and Witt (1992) supports this in a detailed study of tourism forecasting methods. Their review however, is restricted to quantitative methods available to the average

tourism manager and excludes qualitative techniques such as Delphi, and more sophisticated statistical methods such as the Box-Jenkins approach. The Box-Jenkins method is an advanced and rather complex extrapolative method, which was not appropriate for this qualitative research. Witt (1992) recommends areas of further research, including long-term forecasts for different sectors of the tourism industry, and the need for further research into forecasting methods over different time horizons.

Throughout the tourism industry, organisations and enterprises of all scales commonly plan goals and strategies to deliver the services or goods the market demands, in a timely manner, to meet customer needs, and to investigate growth opportunities. Risk is frequently overlooked or, at best, is not systematically considered in planning and management decisions. In this context, risk can be defined as the factors, situations, or elements that potentially endanger the operations of a business or organisation (Rieley 2000). For example, the impacts of climate change in the future will have significant and possibly catastrophic impacts on tourism business and development.

Businesses including tourism operations that want to be sustainable in the twenty-first century would be well advised to adopt the philosophy that risk management is a process of building preparedness and of continuous improvement "directed towards the effective management of potential opportunities and adverse effects" (Standards Association of Australia 1999 p.4). From an opportunist's view, successful management of business risk has vast potential to improve the so-called triple bottom line, the social, environmental, and financial accountability of a business (Elkington 1999). Significant environmental challenges remain, despite growing awareness of the damaging effects of tourism in many fragile areas, particularly tropical coastal areas.

The International Millennium Conference on Tourism and Hospitality in the Twenty-First Century, at the University of Surrey in January 2000, provided a recent forum for forecasting emerging issues and future trends of the tourism industry (Cockerell 2000). Cockerell suggests that, amongst the key issues likely to have an impact on future tourism growth, three issues emerged at this conference: i) the changing market, ii) the impact of technology, and iii) concerns for sustainable development. Commenting on the

same Millennium Conference, Bergsma (2000 p.76) concluded that experts' arguments "seemed to polarise between the econometric statement of statisticians and the visionary views of strategists". The research methods and results to follow in Chapters 3 and 4 are therefore strategic and visionary under the above categorisation. Cockerell's (2000) description of the Millennium Conference included a general view of the future based on the past, by suggesting that prospects for international tourism seem to be healthy. His view, based on many factors including past growth trends, suggests that continued growth is expected for all regions. This was prior to September 11, 2001, which caused a considerable slow-down with growth at lower-than-lower-than-expected rates.

While income growth rates substantially affect travel volumes, the econometric methods and models discussions highlighted the fact that forecasted volumes of tourist flows are an insufficient planning basis for tour operators (Hazari and Sgro 1995; Lanza and Fondazione Eni Enrico Mattei. 1995). Qualitative information on how and why certain factors will affect travel patterns in the future (demographic growth trends for instance) is necessary for a comprehensive forecast (World Tourism Organization 1993; Neuman 2000). In short, the future is not necessarily a simple extrapolation from the past.

In contrast to the past, today's tourism consumers are now a major force in the competition battle, and are better informed, value-conscious and sophisticated. It can therefore be inferred that consumers are more risk-conscious and better equipped to avoid potentially hazardous destinations. This is particularly pertinent to the fast-growing and relatively high-spending seniors market. This generation of travellers have significantly different travel needs and requirements from those of younger generations. This is also the case for the changing availability of destination information where, for example, E-commerce quadrupled between 1998 and 2000 with companies that use the web for advertising growing from less than half to more than three-quarters in the same period. The younger generations are using the web as their main source of information (Cunliffe, King *et al.* 2003). Much of the literature does not agree with Bergsma's generalised finding that today's travellers show a preference for low-risk experiences. This is generally the case for the older generations of travellers (Gee, Fayos-Solá *et al.* 1997). The growing variety of adventure travel niche markets for younger generations

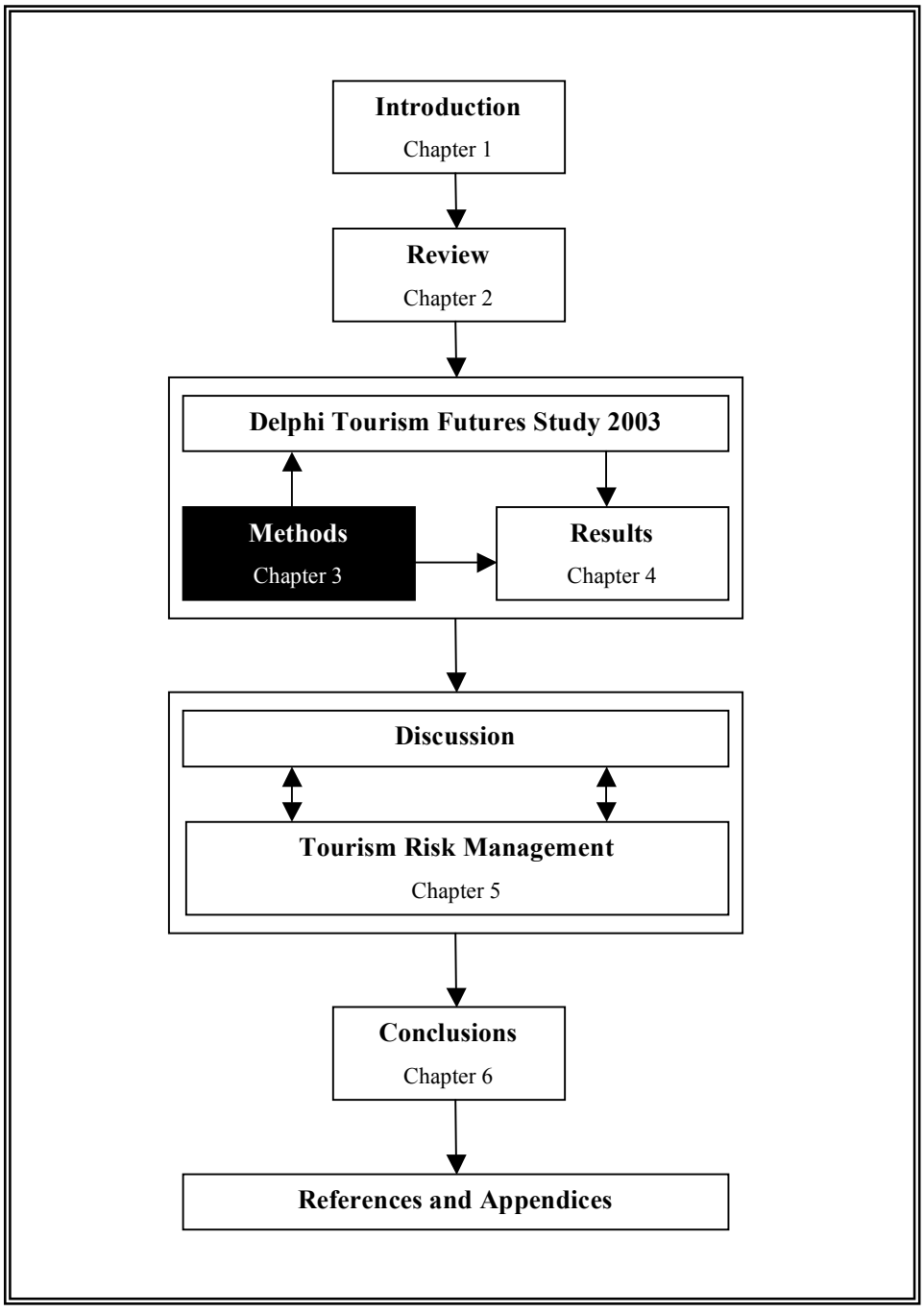
commonly uses controlled danger and the excitement of exploring new destinations as an important and successful marketing tool. The small businesses in the tourism niche-marketplace are growing (the ecotourism market is one obvious example), the middle-sized operators are on the decline and tending to merge with or join bigger players, and the larger operators continue to build on their brand loyalty support (Bergsma 2000). Bergsma also suggests that the tourists of the future are projected to require an authentic personalised experience that provides them with education, entertainment, excitement, or a mix of these experiences, delivered with a high-quality service that optimises new technology (Bergsma 2000).

Although there is an increase in both available disposable income and leisure time, today's consumer is money-rich but time-poor. The ability to pay for additional small luxuries and personalised services is an indicator of a changing consumer who requires greater comfort and minimal risk exposure. Confidence in a tour operator who can illustrate a risk management capacity could therefore be added to Bergsma's description of the future traveller. It is the consumer who is demanding this. Tour operators and destination managers in the future will need to be more consumer-responsive by creating a greater confidence and trust amongst their clients, particularly with respect to issues of health and safety.

Risks of all kinds need to be identified and managed throughout the tourism industry in response to consumer demands. Image development, branding and other marketing 'stunts' will no longer be sufficient without the requisite product quality and consumer satisfaction in today's tourism marketplace. Repeat visitors to a destination have been shown to have a greater influence and cost-benefit efficiency on the long-term return on investment in resorts and destinations than expensive advertising campaigns (Um and Crompton 1990; Dann 1996). Both tourism research and product delivery in the future will need to focus more on the consumer (consumer needs), to minimise risk and to maximise satisfaction to boost the return visitor rate. Many of these aspects of tourism futures, forecasting and likely future growth trends are discussed and analysed in the primary research described in the two chapters to follow.

Chapter 3

Delphi Tourism Futures Study Methodology



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3.1 CHAPTER SUMMARY

The main objective of this section is: i) to describe the selection of the Delphi technique for undertaking long-term forecasts for the tourism industry in consideration of future natural and anthropogenic hazards (and the reasons behind selecting this qualitative forecasting tool), and ii) to describe the methodology used to design and implement the Delphi Tourism Futures Study (DTFS).

Considerable detail has been provided in this chapter on the methodology, as it formed a significant part of the research itself and required the adaptation of a technique to suit the specific research topic and needs. It is hoped that the resultant methodology may have some potential for future application to long-term tourism development planning and forecasting. The Appendices include many of the documents prepared for panelists including correspondence and communications that were significant to the survey process, and copies of material made available to panelists throughout the process to keep them informed of all relevant aspects of the research.

Forecasting the potential impacts of catastrophic events on current and future tourism developments is likely to become an increasingly necessary component of both long-term planning and long-term forecasting of tourism development. The Delphi technique provides a valuable working tool for this purpose. Employment of the Delphi technique offered an opportunity to add to the body of knowledge on tourism futures forecasting that is not well developed in the literature and provides a basis for the methodology required to investigate expert opinion from a variety of professionals from disciplines relevant to disasters, tourism, forecasting and insurance. The technique and survey methodology implemented in this study were chosen to match the data and information needs of the research questions.

An on-line (world wide web based) survey method provided the practical means for surveying experts from countries all over the world. It was possible to use the Delphi

technique as the methodological framework of the survey with this web-based system to examine the risks and impacts of natural and anthropogenic catastrophic events on the future of the tourism development in tropical coastal areas. Relying primarily on the intuitive judgment of experts, the Delphi technique, with thorough preplanning and rigorous management of the survey, can provide futures information that other conventional extrapolative methods cannot. The step-by-step procedures implemented in this study are described in detail. The Appendices contain documents illustrating the actual guidelines for completing the survey, and the assistance given to the survey panelists throughout the process (see Appendix 3 DTFS Web Site Information, Appendix 4 DFTS 2003, Appendix 5 DFTS Instructions to Panelists, and Appendix 7 DTFS Panelist Correspondence).

The second half of this section describes: i) how the Delphi technique was adapted to the specific requirements of soliciting long-term tourism futures information; ii) the survey design; and iii) its application to this research, and the procedures for carrying out the study. The value, usefulness, and practical application of this methodology to tourism futures research are demonstrated in the results of the survey of experts (Chapter 4 Delphi Tourism Futures Study Results).

3.2 QUALITATIVE RESEARCH

The qualitative research contained in the thesis is not an unplanned personal view of a situation, but is rather a descriptive and analytic presentation of data that have been laboriously and systematically collected and interpreted. The technique applied to this research is not unique. Its development and adaptation to the context and setting of tourism, risks, and catastrophe may, however, be unique. Exploring new settings or constructing new theory is a common goal in qualitative research. Any new theory arising from this research flows out of evidence, detailed descriptions and interpretations of that evidence.

The survey questions were aimed primarily at achieving an understanding of processes, reasons behind certain trends, and when, where, and why specific events have occurred or are likely to occur. Six of the forty-seven questions asked for specific quantities or

numeric forecasts within a given range of possible responses. The focus was, however, on the qualitative aspects of likely future tourism development trends and needs, for which purpose the Delphi technique was both appropriate and adaptable. As can be seen from the survey questionnaire (see Appendix 4 DFTS 2003), panelists were asked for their opinions on a variety of issues including tourism and economic growth, catastrophic events, insurance, and long-term tourism development forecasts. Fifteen of the forty-seven questions were open-ended, requiring a written response, again reinforcing the qualitative nature of the survey. These open-ended questions provided the researcher with an opportunity to solicit qualitative reasoning and assessment by expert opinion on the related research questions described in the Research Design.

At the commencement of the survey, there was a perceived danger that these open-ended questions might be too arduous or time-consuming for the panelists to complete. However, as the results indicate, this aspect of the survey provided the necessary opportunity for panelists to express individual opinion, both positive and negative, and to add significantly to the richness of the resultant data. Ethical risks were addressed prior to the commencement of the survey as a standard requirement of James Cook University (see Appendix 20 Ethics Approval). The thoroughness of the pre-planning for the survey and data collection ensured that the survey method and procedure were communicated as clearly as possible to all panelists throughout the process (Neuman 2000 p. 497). This thoroughness indicates that it can be more difficult to undertake qualitative research than quantitative research.

The World Tourism Organization (WTO) maintains a global statistical database of tourism growth and development that is a most valuable quantitative resource (see for example World Tourism Organization 1994; World Tourism Organization 1997b; World Tourism Organization 2000; World Tourism Organization 2001a; World Tourism Organization 2001b; World Tourism Organization 2002). Infrequently, WTO does however assess and analyse quantitative data (World Tourism Organization 1993), but this is an exception to the rule. The first long-range forecasts by WTO were completed in 2001 (World Tourism Organization 2001b) to provide a twenty-year global forecast of national and regional profiles and market segments from the year 2001 to 2020. The

risk of inaccuracy of long-term forecasting has ensured that WTO and other tourism organisations do not commonly undertake such long-term forecasts. Interestingly, the 2020 Vision document (World Tourism Organization 2001b) was intended to be a type of Delphi study; however time and budget constraints limited the range of expert opinion that was, in the end, able to contribute to the findings (Cunliffe 2001). The methodology described in the remainder of this section is therefore not common in tourism growth and development forecasting, but is one that has useful future potential as described in Chapter 7: Conclusions.

3.3 THE DELPHI TECHNIQUE

The Delphi technique is a facilitated, anonymous, group decision process about the likelihood that certain events will occur. It is a set of procedures for eliciting and refining the opinions of a group, usually a panel of experts (Dalkey 1967). The Delphi technique is amongst the best known qualitative, structured and indirect interaction futures methods in use today (Woudenberg 1991). Based on the early RAND reports (Dalkey 1967; Dalkey and Helmer 1968), and applications of the technique in a variety of disciplines (Frechtling 1996 pp.195-196), Delphi has gone on to become the subject of numerous books and journal articles (Armstrong 1985). Lang (undated) agrees with Armstrong (2001) that the Delphi was designed to optimise the use of group opinion whilst minimizing the adverse qualities of interacting groups.

Armstrong (2001) describes the Delphi technique as "a method for obtaining independent forecasts from an expert panel over two or more rounds, with summaries of the anonymous forecasts (and perhaps the reasons for them) provided after each round. Delphi has been widely used in business. By applying well-researched principles, Delphi provides more accurate forecasts than unstructured groups." (Armstrong 2001 p.776). It continues to be used for a variety of futures forecasting applications including environmental, technological, marketing and sales forecasting. The technique makes use of a panel of experts selected by the facilitator, based on the (multi-) disciplinary areas of expertise required. Responses from the panel to a series of questionnaires are anonymous. Each questionnaire builds on the precedent. The facilitator or principal

investigator provides the panelists with a summary of opinions before designing the next questionnaire.

Dalkey and Helmer (1968) suggests that, with well-organized information feedback provided after each round, the process will usually result in a convergence of group opinion. After several (two or more) 'rounds' of rethinking the problem with the assistance of information feedback provided after each round, the group will converge towards agreement on the quantitative and qualitative responses through this consensus-building process. (Figure 3-2 below, illustrates a flowchart of the proposed study.) The theory behind the methodology is that well-informed, anonymous, and uninhibited individuals or experts, who are able to apply all their insights and experience to an innovative questionnaire, are better equipped to predict the future than theoretical approaches or mathematical/statistical trend extrapolation (Taylor and Judd 1994). As the responses are anonymous and the panelists do not have the opportunity to 'perform' in the flesh, the threats of ego, domineering personalities, inhibitions, or various other subjective disruptions are avoided. It should be noted, however, that the process is intended to provide a general perspective on the future rather than a sharp picture (Moeller and Shafer 1994).

Analysing the responses does not require complex statistical analysis. The midpoint of responses (using a Lickert scale) can be statistically established by the median score. In each succeeding round of questionnaires, the range of responses by the panelists will decrease and the median will move toward what is the most acceptable conclusion for the greatest number of panelists. The technique does not require agreement or consensus from all panelists as the majority opinion is represented by the median. Statistical aggregation of the group response can indicate general consensus at the end of the process, indicated by the median response of the panelists, and the spread of the interquartile range as the degree of consensus (Rowe, Wright *et al.* 1991).

Figure 3-1 below provides a tabulated summary of the proposed steps and procedures for the study. These steps did not change during the course of the investigations. The required number of iterations of the questionnaire was determined by the response rate

and level of consensus achieved after two rounds. As can be seen in this figure, the procedures proposed by Wright and Rowe were adapted in two ways: Lickert scales were not used to determine the median score, and ii) responses to all questions (other than the open-ended questions) categorically required one or more specific response based on the options for that question. In this way, responses could be collectively represented by frequency distributions. Responses in subsequent rounds were compared to those of the previous round to illustrate changes of opinion in panelists' responses. Although absolute consensus was not a prerequisite to concluding the survey, the results indicated a surprisingly strong agreement amongst panelists, after the second round, on all categorical questions.

The first round open-ended questions were reviewed and summarized by the principal investigator, and made available to panelists in the form of a short report. Questions selected for the second round were chosen from those in Round One where there was no clear overall agreement. This revised questionnaire prompted participants to review all items identified in Round One. Panelists were asked to comment on the rationale for their responses and given the opportunity to add additional items or opinions to their responses in the open-ended questions.

The feedback process made the Delphi panelists aware of the range of opinions expressed and the reasons underlying those opinions. A review of Delphi-related literature by Altschuld (1993) found that, in most instances, two or three iterations were enough. Further iterations often did not gain enough new information to warrant the cost or the effort. For the Delphi Tourism Futures Study survey, two rounds were adequate to achieve an acceptable level of general consensus of opinion amongst panelists. This was a value judgement on the part of the principal investigator, following the Hegelian Principle discussed in the section to follow.

Step	Procedures	
Identify relevant events	Various events will be derived from theoretical models, futures scenarios and the literature on forecasting tourism development. Initial background papers and web resource links will be circulated to panelists to suggest events and issues to be included in the questionnaire (see Questionnaire design below).	
Prepare event statements	Statements attached to selected questions will be brief and clear, 2-to 30 words maximum.	
Establish web communications page	Design, test and mount a website on the JCU server (see website design below).	
Select and establish a panel of experts	Panelists will be selected in accordance with the expertise and preeminence in the field or discipline required for knowledge of the research problem and variables. Peer recognition and contributions to the literature will be important selection criteria.	
Questionnaire design and Draft Round One	Panelists will be informed of the availability of background papers on the website, and a brief description of Issues and Events** to which a selection of panelists will be asked to analyze and suggest changes. Draft Round One will pre-test the survey by 5% to 10% of panelists. Assign dates or probabilities to events and issues, edit event statements, and solicit information on ambiguous statements and clarifying issues.	
Round One Questionnaire	Panelists will be issued with passwords to enter the website database to complete Round One Questionnaire. Instructions and guidelines will be issued with passwords and repeated upon entering the Panelist window of the website.	
Round Two Questionnaire	Panelists will be asked to evaluate their initial responses based on the summary distributions of Round One Questionnaire and respond to a reduced number of questions.	
	Panelists will be asked to provide comments or reasons for changing or not changing their initial responses in the Round One Questionnaire	** These issues and events will be formulated by the PI into the first round questionnaire. Summary information sent to panelists.
Round Three Questionnaire (if required)	As above if required.	Issue questionnaire with additional background information on issues and events available on the website for panelists to refer to and add links where possible. This information must be kept objective so as not to influence the panelists' responses.
	Panelists will be given a final chance to reevaluate their Round Two or Three responses based on summary information	Response summary distributions will be prepared and distributed to panelists as feed-back on the first questionnaire, on schedule (posted on the website).
Data Analysis	Prepare summaries of frequency distributions of responses to all rounds.	Summaries of frequency distribution and response summaries will be prepared for Round Two Questionnaire.
	Panelists will be asked to rate their expertise at the commencement of the survey.	The questionnaire will continue for a maximum of three rounds or two if an acceptable consensus emerges.

* PI is the Principal Investigator for the research

Figure 3-1 Procedures for Carrying Out a Delphi Survey.
Adapted from George H. Moeller and Elwood L. Shafer (1994, pp. 476).

3.3.1 Delphi Technique and Theory of Consensus

Consensus, according to Webster's New World Dictionary (1984), is **"**1. an opinion held by all or most 2. general agreement, esp. in opinion" (Guralink 1984 p.302). An essential foundation of the development of the Delphi technique is consensus amongst the group or panelists. Early eighteenth and nineteenth century philosophers viewed consensus as a coming together of minds for the benefit of improving human relations. In the early 1950s the RAND Corporation (Santa Monica, California, USA) adapted this philosophical principle and applied it to the development of a practical analytical tool (Linstone and Turoff 1975). The technique was named after the site of the great Greek oracles at Delphi where the Greeks congregated to hear discussions on philosophy and scientific and societal predictions of the future.

In the early nineteenth century, the German philosopher Hegel (1770-1831), a philosophical idealist, formulated what is now known as The Hegelian Principle (Collinson 1987). He maintained that the individual mind was the source of all reality, and that all individual minds formed part of a collective, which, through the process of 'rational dialectic', could become like one, or achieve consensus amongst the group. This rational dialectic is the basis of the Hegelian Principle or Dialectic, summarized as a three-part process:

1. Thesis: embodying a particular view or position;
2. Antithesis: providing an opposing or contrary position; and
3. Synthesis: which reconciles the two previous positions and then becomes the basis of a new thesis (Collinson 1987).

The approach adopted by the author for the Delphi Tourism Futures Study survey is a form of the general Hegelian Principle, assuming that the panelists' responses would be likely to provide both thesis and antithesis positions on many questions, and that it would be the job of the Principal Investigator to formulate the synthesis. This is common practice for Delphi technique investigations (Rescher 1967; Dalkey and Helmer 1968; Linstone and Turoff 1975; Cunliffe 2002). While the Principle Investigator must maintain strict objectivity throughout the process, the synthesis stage will require value judgements to be made on what is an acceptable outcome after two or more rounds. It

should be understood that, in this case, consensus was a goal and not a prerequisite. That is, a lack of consensus is also a valid result.

Although consensus is described by Linstone and Turoff (1975) as a key objective of the Delphi technique, this study found that the consensus-building component of the exercise was less of a priority than the opportunity for panelists to freely express individual opinion and therefore contribute to the currency of the body of knowledge on the subject matter. This may be a subjective preference on the part of the researcher, i.e. to be able to achieve such rich and varied opinion on a wide variety of subject matter in a short span of time. The level of consensus achieved in only two rounds of the survey was unexpected, given the vast array of topics in the survey and the variety of cultures and processional backgrounds from which the panelists were drawn. Of the thirty-two categorical questions (those with optional responses) in Round One, twenty-three showed a strong level of consensus amongst all panelists, leaving only nine questions to be reiterated in Round Two.

Although collective wisdom has long been recognized as a validity-enhancing tool for consensus building, it was not until 1953 that Olaf Helmer and Norman Dalkey of the RAND Corporation developed the Delphi technique. They created a formalised, qualitative methodology to address future military planning and development issues, code named the Delphi Project, which was further developed to address large scale technological forecasting and corporate planning (Dalkey 1967).

In the foreword to the first thorough compilation of Delphi theory and applications in 1975, Helmer admitted that Delphi could still be further developed. He was confident that two aspects of the technique had considerable development potential: its application to the social sciences, and the use of computer networking to systematize the process and lend greater objectivity to its ‘adversarial’ aspects. Almost thirty years later, this research will contribute to that evolution in both the areas suggested by Helmer in 1975.

3.3.2 Strengths and Weaknesses

Weaver (1972), in a critical review of the Delphi technique, found there has been considerable criticism of Delphi in the relevant literature. This was supported by Moeller and Shafer (1994) and Helmer (1983). Problems identified include: identification of appropriate panelists, the possibility of severe panel attrition, the tendency to treat events individually or independently and not consider their interaction, and the effect of the principal investigator on the content of the questionnaire. Linstone and Turoff (1975) also outline some of the common reasons for failure of the Delphi. These are:

- Imposing monitor views and preconceptions of a problem upon the respondent group by over-specifying the structure of the Delphi and not allowing for the contribution of other perspectives related to the problem;
- Assuming that Delphi can be a surrogate for all other human communications in a given situation;
- Employing poor techniques for summarizing and presenting the group response and ensuring common interpretations of the evaluation scales utilised in the exercises;
- Ignoring and not exploring disagreements, so that discouraged dissenters drop out and an artificial consensus is generated; and
- Underestimating the demanding nature of a Delphi and the fact that the respondents should be recognized as consultants and properly compensated for their time if the Delphi is not an integral part of their job function.

These shortcomings were integral to guiding the formulation and implementation of the current survey. Knowledge of such potential pitfalls provided a solid background to the way the questions were formulated, the clarity of correspondence with panelists, and the thoroughness of the survey pre-planning. The success of the survey would be gauged by the manner in which the mistakes of the past could be avoided in this adapted application of the Delphi technique. The most significant challenge would be the adaptation of the technique to tourism futures investigations.

According to Moeller and Shafer (1994) Delphi has been extensively tested in predicting events related to technology and technological change and has had limited application in

predicting events involving human interaction. Smith (1995) is of the same opinion, and goes on to provide a thorough description of the Delphi process and procedures (Smith 1995 pp.145-146). In his overview of tourism analysis techniques, Smith considers that Delphi is one of the best known and sometimes more controversial forecasting methods for tourism futures research. He uses an instructive golf analogy, suggesting that, like the golfer approaching the green who will encounter doglegs, bunkers and other hazards therefore requiring different clubs, the forecaster rarely has a clear shot at the ultimate goal. Delphi, however, can accommodate the necessary exploratory and descriptive techniques. While the series of questionnaires increases the investigator's workload, the process offers an opportunity to improve the accuracy of the forecasts using these different tools at each stage of the process.

Lang (undated) undertook a thorough evaluation of four futures methodologies, (Delphi, Environmental Scanning, Issues Management and Emerging Issue Analysis), before concluding that the Delphi technique could be considered one of the core tools of futures forecasting and going on to make a number of suggestions for improving the execution of a Delphi study following discussions of both positive and negative aspects of the methodology. A number of these recommendations for improvement have been incorporated into the discussion of the value of the Delphi technique by Ludwig (1997) who describes Delphi as one of the most valuable futures forecasting methodologies available.

While an advantage of the technique is that the panelists never need to be brought together physically, and indeed could reside anywhere in the world, this can be a disadvantage as well. Evidence has shown that keeping panelists' interest and enthusiasm active throughout the process, for the numerous rounds of questionnaires, is a potential threat to the success of the exercise.

Frechtling (1996) cites a number of successful applications of the technique in the travel, tourism and hospitality industry over the last twenty years, including the 1973-74 study of future park and recreation management analysed by Smith (1995) and by Moeller and Shafer (1994). They explain that to meet tomorrow's needs in the tourism industry,

today's decision makers must take a long look into the future and the Delphi technique can focus that process. In their summary of the 1973 to 1974 study on future issues (recreation and tourism) and events in the development of parks and recreation areas management, they conclude that, "taken as a whole, the predictions represent a future perspective, with clearly identified underlying trends. This future perspective and the trends on which it is based are perhaps the most valuable product of a Delphi" (Moeller and Shafer 1994 p.479). Smith (1995) also analyses this example case study in some detail. In this early tourism industry Delphi, a large (904) sample produced some startling findings. A selection of the tourism-related findings is described below.

In 1973, a panel of 904 multidisciplinary experts was asked in the first round to list events with a greater than fifty percent likelihood of occurrence before the year 2000. Two more rounds were conducted using the techniques described earlier in this section. Attrition of fifty-five percent of the panel left only 405 panelists at its conclusion, and, at the second stage, the year 2050 was substituted for 2000 as a time horizon. Some of the findings drawn from Smith's (1995) summary of the 1973 study, include:

- by 1980 computers will be used to advise recreation [persons] where to go; interpretive material on flora and fauna as well as historic sites will be available to a majority of the general public with access to computers;
- by 1985 tax credits will be created for private landowners to protect resources; cable television will be available at a majority of campgrounds; and the use of wilderness areas will be restricted;
- by 1990 there will be year-round skiing on artificial surfaces; and most homes will have videotape systems;
- by 2000 eight hundred kilometres will be considered a reasonable one-way distance for weekend pleasure travel; the average retirement age will be fifty years of age; and travel in large parks will be limited to low-impact mass transit, e.g. tramways, air transport and underground rapid transit;
- by 2020 man-made islands will be created solely for tourism and recreation;
- by 2050 the first park will be on the moon; there will be self-contained underwater resorts; and the average human lifespan will be one hundred years of age.

Even with a panel attrition rate of around fifty-five per cent, this study achieved some significant findings, many of which are now known to be accurate forecasts and predictions. There have, of course, been examples of extraordinarily inaccurate forecasts using Delphi. Linstone and Turoff (1975), for example, consider in some detail the frequency and cost of inaccurate forecasts, ways of averting potential data pitfalls and other methodological steps to ensure the best possible accuracy of the data analysis.

3.3.3 Delphi and Triangulation

In this study, the selection of the Delphi panelists from a range of relevant professional and academic backgrounds provided a variety of data sources, which is in itself a method of data triangulation. In addition to the primary data collected from the Delphi survey, secondary data were made available to all panelists on the Delphi web site. The secondary data available on the web site were organized thematically around the intended and subsequent line of interrogation in the questionnaires. It was important to ensure that these secondary data were as objective as possible. This was achieved by including quantitative data from a range of sources. Panelists were also asked to contribute to the compilation of secondary data over the course of the study.

The questionnaires included a combination of qualitative and quantitative questioning. Forecasting risk and risk management issues facing tourism in the coming decades requires these multiple methods to generate more credible and dependable information (Decrop 1999). The questionnaire, therefore, provided a means of method triangulation in that panelists were given the opportunity to justify their responses to a number of questions or to explain the reasoning behind their responses. This information could then be compared to all responses to identify any consistency of reasoning. This is further described in the section to follow.

For the Delphi Tourism Futures Study investigation, it was envisaged at the commencement of the survey, that it might be necessary to supplement this method triangulation with a series of semi-structured interviews undertaken at the conclusion of the Delphi study, should the soundness of certain data require method triangulation for

verification purposes. This was not required as the level of consensus and overall agreement of opinion was beyond what had been expected. This was again confirmed in the second round where opinions substantially strengthened on most of the second round questions. Had opinion been more diverse, with a wider spread of responses over the options provided, then semi-structured interviews might have been used to supplement the combination of qualitative and quantitative questioning.

There are a number of examples of method triangulation relevant to Delphi in the tourism research literature. Corey (1996), for example, conducted Delphi research related to marketing, which combined focus groups and structured questionnaires with content analysis as required of Delphi. Other triangulation combinations include open-ended interviews and photography (Dann 1996).

Two types of investigator triangulation were built into the research by utilising Delphi. The feedback to all the panelists at each stage of the questionnaire ensured consistency and rigour in the research process as panelists had the opportunity to comment individually on the summaries to determine if the findings were an accurate reflection of their responses. Indeed, this is critical to the Delphi technique. Research supervisors[12] and one other independent person provided an additional form of investigator triangulation by being asked to independently examine part of the data and findings to confirm, comment on, or nullify the interpretations of that data. This form of triangulation assisted in identifying any subjectivity of the researcher or other analytical biases.

These three types of triangulation offer some criteria for maintaining a high standard of qualitative research and the procedure was strictly adhered to throughout the study. An indicator of the thoroughness and attention to detail of the researcher and the ultimate success of the research investigation was evident in the attrition rate of the panelists. Fifty percent (or more than fifty per cent) of the panelists remaining at the conclusion of

[12] Associate Professor David King, Director, Centre for Disaster Studies, and Dr. Alison Cottrell, Centre for Disaster Studies, School of Tropical Environment Studies and Geography, James Cook University, Australia.

the investigation would have been a very positive result. Less than thirty-five percent would have brought the findings' validity and reliability into question. Of the panelists asked to participate, ninety-two percent responded positively to the invitation, and of those who agreed to participate and were issued passwords to complete the survey, eighty-four percent completed both rounds. This was a satisfactory result and one of very low attrition.

3.3.4 Strengthening Delphi Findings

The positivist paradigm is persistent and dominant in many areas of tourism development research (Decrop 1999). Research that follows the phenomenological paradigm with qualitative methods is greeted with some scepticism in the tourism literature (see for example World Tourism Organization 1993; Decrop 1999; Neuman 2000). This stems from a perceived lack of accountability and monitoring of the methodology's performance during an investigation. Is the method sound for the purpose? Could it be improved or streamlined? This can be addressed by a well-designed and managed qualitative investigation, with the emphasis on thorough planning and rigorous management.

Decrop (1999 p.160) points out that "if we accept the principle that science is not a question of numbers but of reasoning, a qualitative study can be as sound as a quantitative one". At issue is the trustworthiness of the data, and the criteria by which trustworthiness can be assessed. In a Delphi investigation, trustworthiness or soundness of the project findings can be readily evaluated against clearly stated criteria, as is the case for any type of research. Two basic requirements recommended by Decrop (1999) are: i) listing the criteria for trustworthiness assessment, and ii) using triangulation to strengthen qualitative findings. For precisely this reason, Lincoln and Guba (1985) developed the following four criteria which can be included in the research design and implemented in the research investigations (interestingly, the terminology of these criteria closely resemble those used for quantitative investigations):

- Credibility (internal validity): How truthful are particular findings?

- Transferability (external validity): How applicable are the research findings to another setting or group?
- Dependability (reliability): Are the results consistent and reproducible?
- Confirmability (objectivity): How neutral are the findings (in terms of whether they are reflective of the informants and the inquiry, and not a product of the researcher's biases and prejudices) (Lincoln and Guba 1985)?

These criteria are considered critical to a successful Delphi study in order to strengthen rigour and validity. Triangulation (described above) is another accepted method used to reinforce qualitative findings by convergent validation, or by looking at the research problem from more than one source of data or information. The nature and basic principles of the Delphi technique include both data and method triangulation as a matter of course.

3.4 DELPHI STUDY PLANNING

The technique has developed several specialist applications including the Conventional Delphi, the Policy Delphi, and the Decision Delphi (van Dijk 1990). This research adopted the Conventional Delphi. The other two specialist applications provide more of a forum for resolving specific issues or group decision-making (Rowe, Wright *et al.* 1991). The study planning procedures were drawn from all the literature reviewed to date, and include recommendations from experienced Delphi researchers and facilitators. Linstone and Turoff provide a comprehensive list of situations in which it would be best to employ the Delphi technique. These occur when:

i. The problem does not lend itself to precise analytical techniques but can benefit from subjective judgments on a collective basis;
ii. The individuals needed to contribute to the examination of a broad or complex problem have no history of adequate communication and may represent diverse backgrounds with respect to experience or expertise;
iii. More individuals are needed than can effectively interact in a face-to-face exchange;
iv. Time and cost make frequent group meetings not feasible;

v. The efficiency of face to face meeting can be increased by a supplemental group communication process;
vi. Disagreements among individuals are so severe or politically unpalatable that the communication process must be refereed and/or anonymity assured;
vii. The heterogeneity of the participants must be preserved to assure validity of the results i.e. avoidance of domination by quantity or by strength of personality (Linstone and Turoff 1975 p.124).

Points i, ii, iii, and iv. above were particularly relevant to the current research. In addition to this, the convenience of being able to conduct the study electronically minimized the time and effort required of panelists who were all busy professionals.

One difference in the adopted methodology from prior Delphi studies was in the division of panelists into two distinct risk-related groups plus a smaller group of panelists from both risk-related groups. A precedent for this occurred when Jillson (1975) divided panelists into experts and non-experts for a large scale Delphi study on drug abuse in the USA. For this research, the two groups were the risk takers and the risk advisers (or risk analysts). Risk takers included tourism facility investors, hotel and resort operators and managers. Tourists were eliminated from this group, as expert opinion was critical to the success of the survey. Risk advisers or risk analysts included international, national, and local-level tourism organizations, professional tourism association or organisation members and academics. Insurance companies bridge both groups so insurance representatives were included in both groups. This has been achieved by the inclusion of these panelists' responses in both the risk taker and risk analyst groups for the statistical analysis only. (The information was introduced to the panelists on the first page of the questionnaire and is illustrated in Appendix 5 DFTS Instructions to Panelists (Self Rating Instructions) as it appeared on the web site.

This division was the basis of two important hypotheses: a) that the two groups will each have internal convergence of opinion, and b) that the responses from the two groups will be separately divergent. A summary of the two main stages of the survey planning is illustrated in Figure 3-2 below.

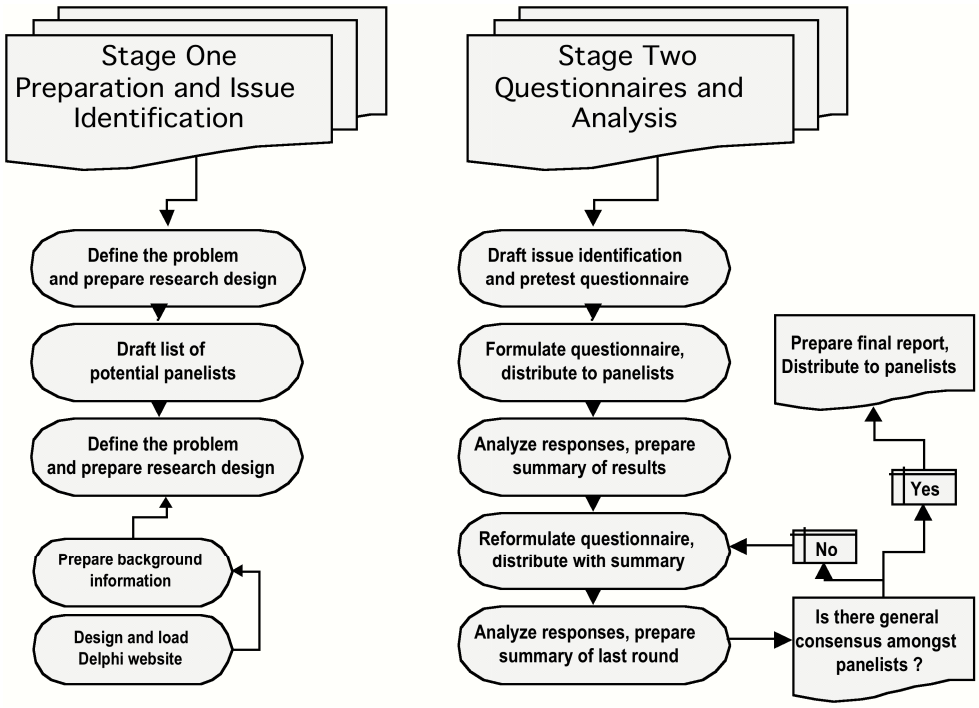


Figure 3-2 Flowchart of the Delphi Survey Stages.

3.4.1 Web Site and Database

A web site (http://www.tesag.jcu.edu.au/tourism_risk) was designed to accommodate access to the survey questionnaire and links to a variety of sources of information on topics relevant to the survey content. There were four main areas on the site (see Figure 3-3 below, DTFS Web Site Opening Page): the title, the questionnaire access point, background information on the research and the survey technique, and the linked list of information sources. The upper right portion of the opening page showed the title, Delphi Tourism Futures Study 2003. The lower right of the opening page allowed entry to the survey with two options: i) as a panelist (the Survey button), and ii) as an observer (the Preview button). The latter gave access to view a copy of the questionnaire to view but not to participate as a Panelist. The first option (entry for Panelists) then asked for a password that opened the questionnaire. An individual password was provided to each

panelist following agreement to an Informed Consent statement. Panelists could then participate in the survey (see two documents in Appendix 5 DFTS Instructions to Panelists – Informed Consent, and Confidentiality).

Considerable background information on the research and the survey technique was also provided in the form of Portable Document Format (PDF) documents so that panelists could understand the research context of the survey (Concepts and the Research Brief prepared for the Confirmation of Candidature Seminar), the overall objectives of the survey (Aims and Focus), and some background to the technique that was adapted for the survey (Methodology). In addition, a copy of a published journal article (Cunliffe 2002) on forecasting risks in the tourism industry, using the Delphi technique, was included in the Methodology background information (see Appendix 6 Delphi - Journal Publication). These documents were linked to the white boxes below the Research Question, and are included in Appendix 3 DTFS Web Site Information.

Figure 3-3 DTFS Web Site Opening Page for Round Two.

The Figure above was the second of three opening pages used on the web site. The first appeared prior to Round One of the survey. The second is shown above, and the third was developed after Round Two when the Final Results Report was posted for all panelists' access. The changes were made to the blue sections in the centre of the page (downloadable PDFs). The rest remained unchanged apart from the addition of new links to the topics listed down the left-hand side of the page. The left hand column contained a list of links, grouped into the following topics related to the questionnaire content:

- Climate Change
- Futures
- Environment
- International Organizations
- Catastrophes

- Insurance
- Risk Management
- Sustainable Tourism
- Futures/forecasting
- Tourism and Risk
- Images

Between five and ten links were provided for each of these topics. Below the main title were five additional links to documents relating to the thesis, background documents on the Aims and Focus of the Research, the Survey Methodology, and the Research Brief prepared for the Confirmation of Candidature Seminar. These documents are included in Appendix 3. The main Research Question and the title of the research are also stated below the survey title.

The author designed the web site and the database requirements to analyse the electronic survey. Additional computer programming assistance was required only to complete the web site coding, and to develop the attached database used to compile and process results. The author maintained the site throughout the survey, posted results of each round on the site, and made updates to the linked sources. Preparation and set-up of this arrangement was time-consuming, but the processing of results was seamless. Overall, the system worked as planned.

Of prime importance to the design of the web site and the database was that it should be of a professional standard that would be acceptable to the professionals asked to be panelists so they would take the survey seriously, and therefore be willing to give up valuable time to contribute to the research. Access to the survey needed to be seamless with all potential problems ironed out prior to its launch to ensure that no repetition was necessary, data would be safely stored, and that anonymity and confidentiality would be secure. This was achieved.

3.4.2 Survey Design

The following research questions provided the basis for the formulation of the survey questions. Further investigations described in Chapters Five and Six were required to substantiate the validity of certain questions, while some issues were too complex to be answered in the survey (risk management practices for example). Discussion of each of these questions is included in Chapter 7: Conclusions.

- What are the key changes in, and growth forecasts for, the nature of tropical coastal tourism to 2025 and 2050?
- What are the likely natural and anthropogenic catastrophes that will impact on tropical coastal areas during this time?
- What are the main risk categories (comprising the combination of hazards, vulnerability and exposure) and how can they be measured?
- Can valid and reliable forecasts be made to 2025 and 2050?
- What is causing the changes to the increase in risk, and how quickly are changes occurring?
- What would be the likely outcomes to 2025 and 2050 of the 'do nothing' scenario?
- How much do the impacts of those changes cost the tourism industry and who will pay?
- How much do the impacts of those changes cost the insurance industry and who will pay?
- Can the tourism industry respond as a collective to the needs of tourism risk management, and does it need to?
- What are the priorities, i.e. what can be done and what needs to be done to slow the negative impacts and reduce the risk of catastrophe and disaster?

For the first round, the questionnaire was divided into four main topic areas (or question categories):

i) Topic One: General tourism industry growth trends
ii) Topic Two: Catastrophic events and risk
iii) Topic Three: Insurance and risk management for the tourism industry

iv) Topic Four: Future forecasts and catastrophic events to 2050

Questions were either multiple choice (panelists were required to choose one of three options, three of six, or other combinations of options) or text answers (open-ended questions where panelists had a limited text box in which to type text of their own). Each open-ended text question followed a multiple choice question where there was either need or opportunity for justification of the above response, or to add comments to either the question content or the issue raised in the question. The First Round Questionnaire Summary Table (see Appendix 3 DTFS Web Site Information) showed four tables of the question categories, listing each question, its type (multiple choice or text), the topic or issue for each question, and whether it was likely to be included in Round Two. This document was posted on the web site for Round One, and updated for Round Two.

The combination of multiple choice and open-ended questions was used to allow panelists the opportunity to provide further thesis or antithesis to topic areas where they had far greater expertise than the investigator. It was envisaged that, in the survey, these text boxes would often be left blank due to the additional effort and time required to write a response as opposed to simply ticking a box or two. As the results will indicate, the unexpected did occur and the panelists responded to almost all the open-ended questions.

A Questionnaire Summary Table was also provided to panelists if they wished to view a short summary of all questions grouped under their respective topic areas. From panelist emails, it became clear that such additional information was very helpful to their understanding of the job at hand and to maintain their enthusiasm throughout the process. Figure 3-4 below lists the four topics and the number of each type of question under that topic (either open-ended questions requiring panelists to write a response, or questions with options provided which required ticking one or more of the boxes). This diagram was initially prepared before the first round for panelist information and posted on the web site, then later updated once the first round was completed. The updated version is shown here.

Delphi Tourism Futures Study 2003

Summary of Questions and Responses

Round One - March-April 2003

∑ # of Questions = 46

		# of Q's	Open Ended Q's.	Q's with options	Consensus in R1	R2 Q's
Topic One	Tourism & economic growth trends	15	6	9	7	2
Topic Two	Catastrophic events and the impacts of climate change	8	2	6	4	2
Topic Three	Insurance and risk management for tourism	7	2	5	3	2
Topic Four	Future forecasts and catastrophic events to 2050	16	4	12	9	3
	∑	46	14	32	23	9

R2 Q. numbers

* *These questions have the benefit of having been further described by Panelists in the open ended question which followed this one.*

Topic One	*10**	*12**		*(both Q's 10 and 12 are followed by an open ended question)*
Topic Two	*20**	*22**		*(both Q's 20 and 22 are followed by an open ended question)*
Topic Thre	*28*	*29**		*(Q's 29 is followed by an open ended question)*
Topic Four	*33*	*35**	*43*	*(Q's 35 is followed by an open ended question)*

Panelists' Info.

92% of invited Panelists responded positively
22 different countries of origin
50+ major organizations represented
4 weeks estimated R1 time req'd
8 weeks foir actual completion of R1

Figure 3-4 Summary of Questions and Responses

The survey questions were derived from the literature review and were related predominantly to the research questions outlined in the Chapter 1 Research Design. In all, there were forty-six questions, summarized in the Figure 3-4. The complete questionnaire, as it appeared on the web site, is included in Appendix 4 DFTS 2003 – DFTS Survey. As part of the survey design, a variety of instructions were issued to panelists throughout the survey process via email to each individual panelist or posted on the web site, or both. Most of these instructions and correspondences are included in Appendix 3 DTFS Web Site Information, Appendix 4 DFTS 2003, and Appendix 5 DFTS Instructions to Panelists.

Lang (undated) recommends that panelists participating in a Delphi study, which is not considered part of their normal duties, should be remunerated for their time. In this

instance, remuneration was not possible. It was hoped that the majority of the panelists would be willing to participate in the panel during working hours. In return for their contributions, each panelist would receive at least complementary copies of the findings and results. All individual opinions and contributions were, and will remain, anonymous. Lang (undated) also suggests that statements used in the questionnaires should be twenty to twenty-five words only. Too many or too few words can reduce the opportunity for consensus and agreement, thus weakening the quality of information obtained. The open-ended questions were important for demonstrating logical reasoning and justifying responses by panelists. The pre-testing (see Section 3.4.5 below) tightened up the wording of questions considerably.

Once a final draft of the survey was completed, the Ethics Review Committee at James Cook University reviewed and approved the survey without alteration (see Appendix 20 Ethics Approval).

3.4.3 Panelist selection

Panelist selection was critical to the success of the survey. The variety of disciplines and areas of expertise represented by the range of questions meant that no one panelist would have expertise in all areas of the questionnaire (see Appendix 5 DFTS Instructions to Panelists – Panelist Categories). Rather, each panelist would have a specific expertise in at least one of the four topic areas or categories described above. Although, for example, an insurance expert may not have any background in tourism growth trends, his or her professional background would accommodate an informed opinion of sorts for that category of questions, supplemented by in-depth opinion on other categories. Panelists were therefore selected to ensure that, as a collective group, they would provide adequate coverage of expertise in all topic categories in the questionnaire. As was expected, around sixty-five percent of panelists had expertise in more than one topic area.

The international nature of the panel was important to achieve a global view of the issues being addressed. Panelists were drawn from the UK, Switzerland, Finland, Netherlands, Austria, Germany, France, Australia, Thailand, Japan, Hong Kong, China,

USA, India, New Zealand, and Indonesia. Individual panelists originated from seven additional countries; in all, twenty-two countries were represented on the panel.

The selection of persons to be panelists was made from three main sources: i) the literature, ii) professional contacts, and iii) web site investigations. It began with compiling potential panelists from names of persons and organisations that came up through literature and world wide web searches, visiting various organisations in Europe and the USA, and adding professional contacts from throughout the tourism industry. Over 200 names were compiled from which a selection was made to ensure that the panel had a comprehensive list of disciplinary experts, not just from tourism, but also from insurance, banking, meteorology, disaster and emergency management, and other disciplines. From this list, ninety persons were asked if they wished to contribute to the research as a panelist, and eighty- three (ninety-two percent) responded positively, but only sixty-nine completed both rounds.

For the purposes of testing one of the hypotheses, all panelists were firstly divided into one of seven general categories described in Figure 3-5 below[13]. Some panelists fell into more than one category. Each of these seven categories was then placed into either one of two distinct groups, the risk takers and the risk advisers. Several key research questions could be tested: Do the risk takers illustrate a convergence of opinion? Do the risk advisers illustrate a convergence of opinion? And do the risk takers have a divergence of opinion compared with the risk advisors?

[13] This Figure is included in Appendix 5 with the description and rationale for this categorization of panelists as it appeared on the web site with other Round One background information.

		3.4.3.1.1.1.1 Category Group	Category Group
	Panelist Categories	Risk advisers	Risk takers
1	tourism administrators/policymakers	⊗	
2	tourism facility/business operators		⊗
3	tourism investor/developer		⊗
4	insurer or banker	⊗	⊗
5	academic	⊗	
6	tourism consultant/independent or salaried professional	⊗	
7	other professional – non-tourism related	⊗	⊗

Figure 3-5 Categories of Panelists' Professional Expertise.

The range of individuals and institutions represented on the panel gave credibility to the results of the study with a wider audience (Bjil 1992). The panel was made up of individuals from varied backgrounds and organizations that are, or may in the future, be directly affected by the range of issues identified for inclusion in the questionnaires (Rowe, Wright *et al.* 1991). All panelists had to have some professional familiarity with the issues in the questionnaires. Scheele (1975) suggests three different types of panelists are required: i) stakeholders, (those who are or will be directly affected by the issue[s] in question; ii) those with expert knowledge and iii) those who can act as

facilitators to stimulate and clarify the opinions of those with alternative views. The selection of panelists followed this recommendation, apart from the third type, the 'facilitator' role, which was the sole responsibility of the researcher.

The summaries of responses prepared by the researcher kept the intent of the respondents' answers intact and consistent between rounds. It was important to monitor the possible occurrence of a polarization of results based on the respondents' background. Should this have occurred, it might have been necessary to undertake semi-structured interviews with a selection of panelists in the final stages of the study. After the survey was completed, this requirement was determined to be unnecessary.

Day (1975) suggests that the Delphi study results should be part of a comprehensive futures planning exercise, joining with other qualitative and quantitative data, a form of cross impact analysis. The use of the Delphi data with other material helps create confidence in the overall package (Day 1975). For this reason, the web site was regularly updated with research work completed by the researcher (data triangulation). For example, a published paper on the use of the Delphi technique for long–term tourism futures planning was posted on the web site immediately after publication. Amara (1989) suggests that the panelists will be as interested in the connections or impacts of stated developments on each other as they are in the developments themselves. While this may have been the case in this study, correspondence with the panelists suggests they were primarily interested in the results.

The internationally diverse panelists formed a necessarily discrete group of experts, including insurance analysts, natural hazard specialists, tourism operators, hoteliers, risk management specialists, academics, demographers, environmentalists, carbon traders, and cultural resource specialists. The heterogeneity of the expert Delphi panel was matched by the diversity of the questions in the survey. While it was envisaged that no one panelist would have expertise in all four topic areas covered in the survey, the professional backgrounds of all panelists included interests in all subject areas covered in the survey. The selection of panelists was based on those available and willing to complete the Delphi process. The commitment and generosity of every panelist in

undertaking the survey with no form of payment resulted in unexpectedly rich results, and a dropout rate of less than sixteen percent.

3.4.4 Instructions to Panelists

Firstly, from the outset, it was explained how and why all responses would be kept completely confidential (see Appendix 3 DTFS Web Site Information, and Appendix 5 Instructions to Panelists). Secondly, clear and regular communications with all panelists was maintained throughout the process. "Instructions to Panelists" were posted on the web site before both rounds. These instructions reiterated earlier instructions sent to each panelist by email, indicating the following:

i. the web site address,
ii. their individual passwords,
iii. a reassurance of confidentiality,
iv. the overall Delphi process and time required to complete the survey,
v. the question types,
vi. the self-ratings page, and
vii. my sincere thanks for their participation.

Instructions for Round Two were a simplified version of the Round One Instructions. The information posted on the web site for Round Two is attached in Appendix 5 DFTS Instructions to Panelists - R2 Instructions to Panelists. A sample of correspondence with panelists is also included in Appendix 7 DTFS Panelist Correspondence, including for example, Instructions to Log-on as a Panelist, Invitation to Complete Round Two, and thanks to panelists for completing each round. This information is included in the appendix to illustrate the necessary thoroughness of the process and as a record of the planning and management of the process that may be of use to researchers in the future.

3.4.5 Pre-testing

The first round of questions and the description of the study intent constituted a critical stage in the study. Potential panelists needed to understand immediately the thoroughness of the preparations for the survey. They needed to be assured of the value of their participation so as not to be put off by sensing a lack of quality in any aspect of

what they were initially being asked to do. A major concern was to simplify and streamline the ease with which they could access the survey web site, enter their passwords, and complete the survey as intended. This required more than a dozen alterations to the interface prior to the pre-testing.

The second aspect, and the most important, was to test the quality, wording, and potential ambiguity of the questions themselves for the following reasons:

- to ensure that the content of the questions matched the objectives of the survey as established in the Research Design,
- to be brief and to the point and to eliminate any repetition,
- to ensure there was adequate opportunity for panelists to offer individual opinions on issues where subjectivity was most obvious, and
- to be accurate and comprehensive with any data or background offered to place certain questions in the context of current knowledge.

All questions and the practical use of the web site were therefore thoroughly pre-tested prior to distribution to the panelists. A sample size of five to ten panelists (ten to fifteen percent of the likely total sample size) was seen to be adequate for the pre-testing. The selection of pre-test panelists included persons with expertise in insurance, tourism planning, and futures forecasting to ensure that questions were in keeping with the standards of their discipline. These experts were asked to pay particular attention to those questions that fell into their area of expertise.

The pre-testing resulted in a number of significant alterations to both the wording and the content of around twenty-five percent of the questionnaire. Due to the large number of panelists whose first language was not English, the use of jargon was minimized. The objectivity maintained by those panelists who offered suggestions on improvement to the survey, during the pre-testing, was not just extremely valuable to the content and web site accessibility; rather, it was critical to the success of the survey. The richness of the results and the high response rate of panelists clearly illustrate the importance of this planning exercise.

3.4.6 Data Analysis Design

Due to the categorical nature of the majority of responses to questions in the survey (other responses being required in the form of written text), descriptive statistical analysis was the prime means of representing frequency distributions of survey data. The Chi squared test was applied to the division of risk takers and risk analysts amongst all panelists to test goodness of fit and to determine the results of the hypothesis that there would be a convergence of opinion within each of these two groups, and a divergence of opinion between the two groups. The primary tool however was the frequency distributions of responses and the difference between these distributions in Round One and Round Two to determine a strengthening or otherwise of consensus. In Round Two, the histograms were combined with those from Round One to make the graphic comparison between the two rounds. Results are presented and discussed in Chapter 6 to follow.

3.4.7 Expected Results

The survey research focused on determining and forecasting the risks and hazards that will face the tourism industry in the next twenty-five and fifty years. Compiling a panel of experts from around the world seemed quite ambitious at first, and some concern was felt as to whether a general consensus of opinion amongst all panelists would, or indeed could, be achieved. At the very least, it was hoped that it would be possible to formulate a set of generally agreed upon forecasts for both quantitative and qualitative factors of growth and development of the tourism industry in tropical coastal areas. A lack of consensus could also be a valid result, indicating a broad spectrum of opinion on the subject or that the subject itself was too broadly defined or described.

Assuming a fair knowledge on the part of the panelists of hazards and the risks those hazards pose for tourism development, it was hoped that the survey might generate a means of indexing risk and risk management for tourism. This did not occur. Specialist advice from insurance experts at the pre-testing stage noted the complexity of indexing without masses of quantitative data to model such criteria geographically. The questionnaire was adjusted accordingly.

Based on the specific aims of the research described in Chapter One, the following results were expected:

1. to gain expert opinion on whether a better understanding and appreciation of the fragility of coastal environments (i.e. their social, environmental or economic aspects) can lead to better management of certain tourism industry activities, and possibly minimize the exposure to, and impacts of catastrophic events;
2. to be able to describe the possible mechanisms for minimizing the impacts of catastrophic events on the tourism industry in tropical coastal areas;
3. to better understand the concept of risk in the context of tourism development in tropical coastal areas;
4. to be able to forecast likely trends in tropical coastal tourism destinations over the next five decades;
5. to investigate expert opinion on the need for long-term forecasts to minimise uncertainty and risk specifically for the tourism industry;
6. to investigate the need for a systematic and organized method or model for representing a comprehensive approach to risk management for the tourism industry.

These results were accomplished.

3.4.8 Recent Delphi Studies

In an upcoming issue of *Tourism - An International Interdisciplinary Journal,* (edited by Reisinger 2004 in press), there is an article describing the cultural differences in tourism utilised the Delphi technique in combination with a complimentary methodology, the Nominal Group technique. This Delphi had its panelists as a captive audience who regularly met as a group. While this was a relatively small Delphi (fewer than 100 panelists) it illustrates the use of the Delphi technique as a framework methodology rather than a prescriptive methodology. Striving for consensus in this instance was seen to be less important than obtaining views that were at least convergent. As a measure of success, the extraction and compilation of opinion was therefore at the heart of the findings, rather than the level of consensus achieved.

There are examples of much larger Delphi studies that use the technique as a framework, with the objective of consensus building rather than using a traditional Delphi methodology with consensus as a goal. A large study (an almost 1000 person Delphi panel) of US National Park user preferences in the 1970s (Linstone and Turoff 1975) gathered expert opinion on future directions of park user preferences for long term planning, and did not strive for consensus. Similarly, in December 2003 there were a number of large scale Delphi studies being conducted to identify future trends and directions of various aspects of societal change, including for example: the American Council for the United Nations University's The Millennium Project (American Council for the United Nations University 2003); an extensive Delphi study of future needs in the medical sciences and technological developments in Finland, and the Curtis study, entitled "Determining expert consensus as to the need for inclusion of ecosystem goods and services in the market system using the Delphi technique" (Curtis 2003).

It is therefore difficult to generalize about the Delphi methodology, as it has been used in so many different ways, rarely in fact in the same way twice in more recent times. The Delphi technique has developed as a tool for gathering and analysing the opinions of a selected group of persons, relying less on the need to achieve consensus, than to provide results upon which generalizations can be made, and from which basic conclusions can be drawn. This is precisely the case with the Delphi Tourism Futures Study 2003. While a strong level of consensus was in fact achieved, a most valuable and unexpected outcome was provided by the individual comments made in the open-ended questions throughout the survey.

3.5 SURVEY – ROUNDS ONE AND TWO

It was estimated that between three and five hours would be required of each panelist over the course of the survey, including both rounds of the survey, review of prior round results, and informal perusal of the background information provided on the web site. The summary list of tasks below briefly describes the two-stage process of formulating and implementing the survey. This list was originally prepared as a check-list that was more detailed and included a scheduling of these tasks using project management software (Microsoft Project) to place priority on certain tasks, to schedule procedures,

and thus generate a critical path of the entire process. A summary diagram of the scheduling process is included in Appendix 4 DTFS Timeline.

Stage One: Planning and Preparation

- A draft list of potential panelists was prepared;
- Initial letters of invitation to panelists were prepared, including a project brief outlining what was required of each panelist;
- The Delphi Study web site was designed and launched, which was the collection and distribution point for posting relevant information. Only the organizations and institutions represented on the panel, could be posted on the web site (as links) not individuals;
- A background paper on the Delphi technique was prepared that explained to all panelists the methodology and the logic behind its selection;
- Introductory background information was prepared for distribution to all panelists via the web site, relating to key issues of risk and risk management in the tourism industry and emphasizing tropical coastal areas;
- All relevant background information was posted on the web site so that panelists might understand the 'big picture' of the research, i.e., aims and objectives, the key research questions, the thesis title, the research brief, and papers published by the researcher on the subject;
- Pre-testing was carried out by six panelists (and both thesis supervisors) drawn from specific disciplines (tourism planning, academic, insurance underwriting, climate/meteorology expert, tour operator, hotelier). This process included soliciting feedback on content, wording, issues presented, and overall presentation of the survey and web site.
- Pre-testing responses were incorporated into the final draft survey, database, and web site.

Stage Two: Questionnaires and Analysis

- A study outline and initial round of open-ended questions was prepared for distribution, including information on aims, methodology, likely outcomes, issues, and relevant research;

- The background material of the study was circulated to the panelists via the web site to enable them to comment on and to clarify issues relating to the survey;
- Round One of the survey was launched;
- Most initial responses were received within a week of launching the survey, immediate confirmation of receipt was sent to all who submitted;
- A response schedule was posted on the web site, and follow-up for individual panelists was done as it was considered necessary to ensure all panelists had successfully accessed the site and completed the survey;
- The first round questionnaire responses were then synthesized by the researcher, summaries of the responses were prepared using frequency histograms, and a summary document was prepared and posted on the web site for Round One feedback to panelists (the feedback also included a brief description of some of the textual responses, indicating the likely Round Two questions which asked panelists to justify or to reconsider their responses in Round One);
- Round One responses to all thirty-two categorical questions and fourteen open-ended text responses were analysed. For twenty-three of the categorical questions, an acceptable level of agreement was determined. The remainder (nine questions in all) were then returned to panelists for Round Two;
- Round Two was completed in less than two weeks, with most panelists returning the responses within one week;
- Round Two responses were analysed and a decision made that a further round would not be required (see Iteration section below);
- A final report was prepared which summarized all the responses, and described the overall findings. This was posted on the web site as a downloadable PDF document, and a hard copy sent to all panelists who requested a paper copy.

3.5.1 Iteration

As a basic principle of the Delphi technique, the survey required reporting back to panelists, after each round, the results of the previous round. In this way, each panelist could see the results of the entire panel as simple frequency histograms. Delphi studies are commonly done with two to four rounds or iterations consisting of a survey and feedback to panelists. In this case, the level of consensus achieved in Round One meant

that of the thirty-two categorical questions (those questions with optional responses), only nine questions were returned to panelists for reconsideration in Round Two. The Delphi Tourism Futures Study then consisted of two rounds with the second round being one iteration. This is a common format for small-scale Delphi studies.

The option of a further iteration was deemed unnecessary for two reasons: i) opinions had strengthened towards consensus in the nine questions of Round Two, and ii) the objectives of the survey had largely been achieved in the two rounds. The majority of panelists had also spent considerably more time doing the survey than had been expected. The volume of responses to the fourteen open-ended questions evidenced this.

3.5.2 Response Rate and Attrition

As described in the Research Design in Chapter One, a very real concern at the commencement of the survey was the potential for attrition or panelists dropping out as a result of one or more of the following:

i. difficult and time consuming access to the questionnaire via the web site;
ii. lack of relevance of the subject matter of the survey to the expertise and professional interests of the panelist;
iii. loss of general interest in the survey content and likely results; or
iv. poorly explicated instructions for the process or overly complex and time-consuming requirements of the survey.

Elements of both the Research Design and the pre-testing process were aimed at eliminating the potentially damaging consequences of the causes of attrition. The literature provided sufficient guidance to ensure that all of the above dangers were avoided, where possible. For the most part, this was achieved. There were however, a small number of panelists who expressed concern at the length of the survey, the time it took to complete all forty-seven questions, and the fact that there was repetition of certain issues. The restriction of keeping the survey to only two rounds may explain the low attrition rate of only sixteen percent although this cannot be confirmed.

3.6 CONCLUSIONS

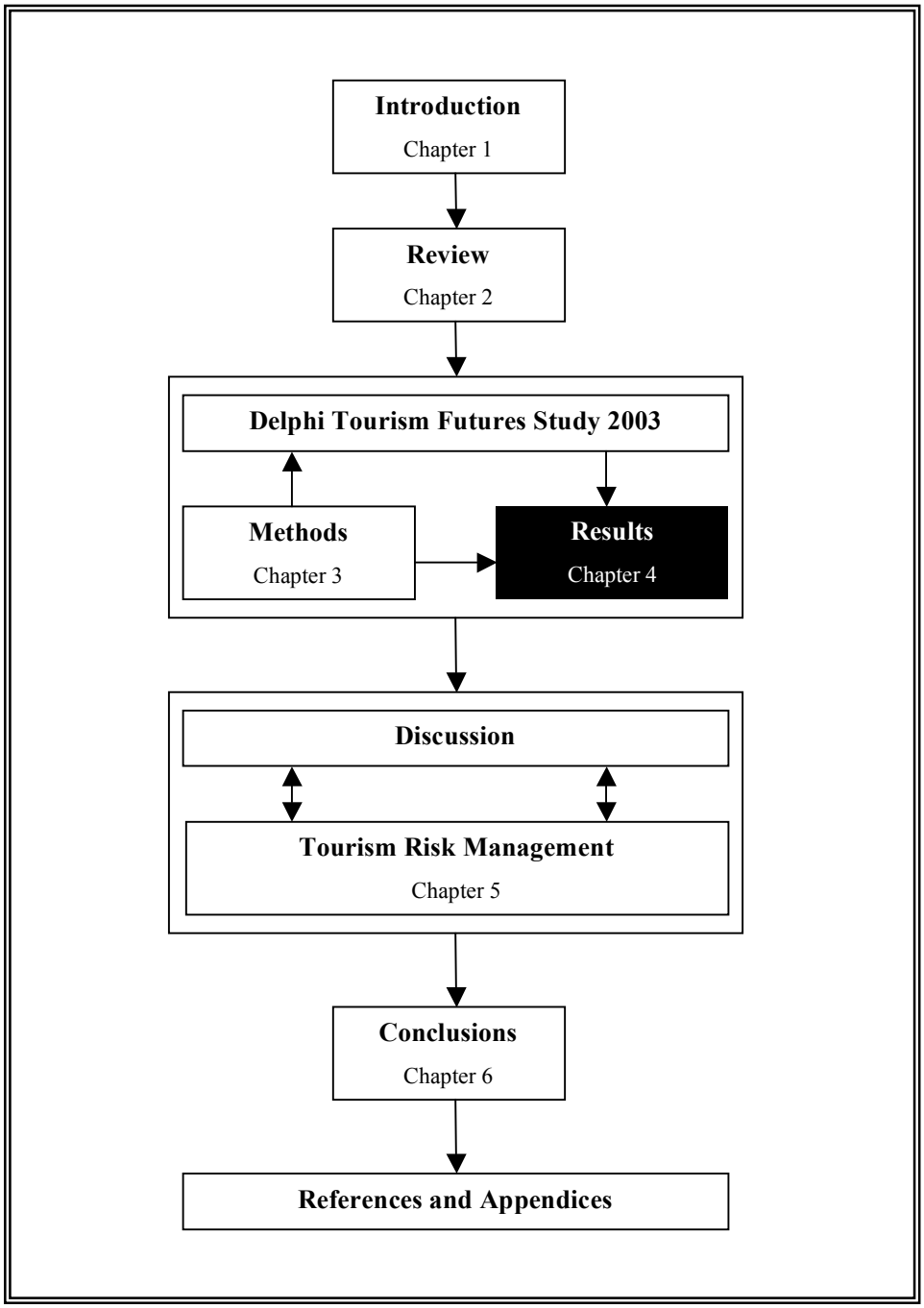
The adaptation of the Delphi technique to investigate tourism futures proved to be a long but straightforward task. The methodology was appropriate for the qualitative research requirements of the thesis, and appears applicable to a variety of futures forecasting tasks for the tourism industry, with only minor adaptation to the structure and processes defined for this research.

The adaptation did not move far from the original intent or methods of earlier Delphi studies; however, the technique is readily adaptable to a variety of applications. Understanding the strengths and weaknesses of the process is a prerequisite to a successful Delphi, as is thorough preparation, and diligent on-going communications throughout the process. The iterations in the technique convey a sense of openness to survey participants and a sense of transparency for the objectivity of the results. The panelists retained a certain ownership of ideas, despite the anonymity of their contributions. As a qualitative research methodology, adaptations of the Delphi technique may provide a valuable working tool for tourism futures planning and development.

The results of the survey to follow (Chapter 4: Delphi Tourism Futures Study Results) illustrate a variety of responses to the apparent lack of preparedness of the tourism industry to plan for and effectively respond to future uncertainties and risks, particularly those related to natural and anthropogenic hazards.

Chapter 4

Delphi Tourism Futures Study Results



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4 DELPHI TOURISM FUTURES STUDY RESULTS

4.1 CHAPTER SUMMARY

The main objectives of this section are: i) to describe the results of the Delphi Tourism Futures Study 2003; ii) to summarize these results, drawing conclusions from the data analysis; and iii) to briefly evaluate the research method in terms of its adequacy, effectiveness and impact.

Results are described in three parts. The first part (Section 4.2: Round One Results) describes the results of the first round of the questionnaire, in the order in which they were presented in the questionnaire, grouped under the four original question categories. The second part (Section 4.3: Round Two Results) provides a description and comparison of responses to questions from Round One that were resubmitted for Round Two. The third part (Section 4.4: Results and Methods) is a summary that contains the initial analysis of results and an evaluation of all aspects of the Delphi Tourism Futures Study. The analysis of results is continued in Chapter 5 in the discussion of risk management for tourism. As the research design required a qualitative research method, the quantitative results from the survey were analysed using descriptive statistics and no in-depth quantitative analyses were required.

There were thirty-two categorical questions in the first round, of which twenty-three achieved an acceptable level of consensus (seventy-two percent). Nine questions were therefore returned to panelists in Round Two. The acceptance (or not) of the level of consensus achieved in the first round was not based on quantitative criteria alone. Given that consensus was not a prerequisite of a satisfactory outcome, the responses to each question in Round One were assessed in terms of: i) whether or not there was general support for the number of options required of the question; and ii) whether or not the researcher considered a further opinion on the question might lead to additional information or an altering of opinion, given that the panelists would have had the opportunity to view responses from all other panelists. Specific reasons for selecting

each of the nine questions for Round Two are described in the discussion of each question in Sections 4.2 and 4.3 below.

Eighty-two panelists agreed to participate in the survey. Seventy-two panelists completed Round One and sixty-nine panelists (eighty-four percent) completed both rounds. This response rate was very positive, indicating significant interest and recognition of the value of the research. It was a high response rate for this type of survey, and thus provided just reward for diligent preparations and pre-planning.

4.2 ROUND ONE RESULTS

Responses to all forty-seven questions are described below. The thirty-two categorical questions are illustrated with frequency histograms to demonstrate graphically the spread of responses. Excerpts from the responses to the fourteen open-ended questions are taken directly from panelists' responses with only minor grammatical and spelling corrections. Only excerpts are included here due to the volume of responses to these fourteen questions (fifteen including the final question which asked for overall comments on the survey). The full text of all responses is included in Appendix 8: DFTS Open-Ended Responses.

Each of these open-ended questions had a precursor, or prior categorical question, with options from which to select. For example, Question 1 (a categorical question in which panelists were asked to chose one of three options) was:

> The tourism industry is widely recognized as being the biggest and one of the fastest growing sectors of the global economy, with annual growth estimated at four to five percent for at least the next two decades. Do you expect this growth trend to continue to rise, flatten off, or decrease until 2050*?*

Panelists were asked to select one option only: decrease; flatten off; or continue to rise. Question 2 was an open-ended question, which asked;

> *What other tourism industry growth patterns can you envisage to 2050?*

This allowed panelists to add further comment, to add further possible options, or to justify their response to the prior question. In this example, there were a large number of comments (more than half of the panelists added comments here) on issues that affected growth, although no one specifically addressed the pattern of growth.

The fourteen questions chosen to have the follow-on open-ended question were those where there was the most uncertainty, or the least amount of knowledge available in the literature. As shown above, the open-ended questions are included in italics in the remainder of this section.

In thirteen of the thirty-two categorical questions (those with optional responses provided in the questionnaire), brief descriptive background information was provided to the panelists as part of the question. This material was drawn from the literature review, and for reasons of brevity in the survey, the sources and citations were not included.

4.2.1 Self-ratings

Prior to commencing the questionnaire proper, all panelists were required to complete a self-ratings question (in the form of a matrix where boxes were ticked), to rate their level of knowledge in four possible areas of expertise. This was a means of verifying the range of skills of the panelists by asking them to rate their skills from four preferences in the histogram legend (4 = highest, most knowledge of subject, to 1 = lowest, and 2 and 3 accordingly). There was a risk that there might be one subject area where few panelists had good knowledge of the subject, and that one area of expertise might be overloaded. As Figure 4-1 below indicates, however, there was a good spread of expertise in all subject areas. This was largely attributed to the process of selecting the panelists. While it was hoped that the most expertise would be in the Insurance and Risk Management for Tourism category, it was not expected that this would be achieved. Panelists could not proceed to the questionnaire until the Self-Ratings matrix was completed.

As the histogram below clearly illustrates, the panelists represented a good spread of knowledge and expertise across the four categories of expertise. These categories correspond to the four topic or subject areas of the questionnaire.

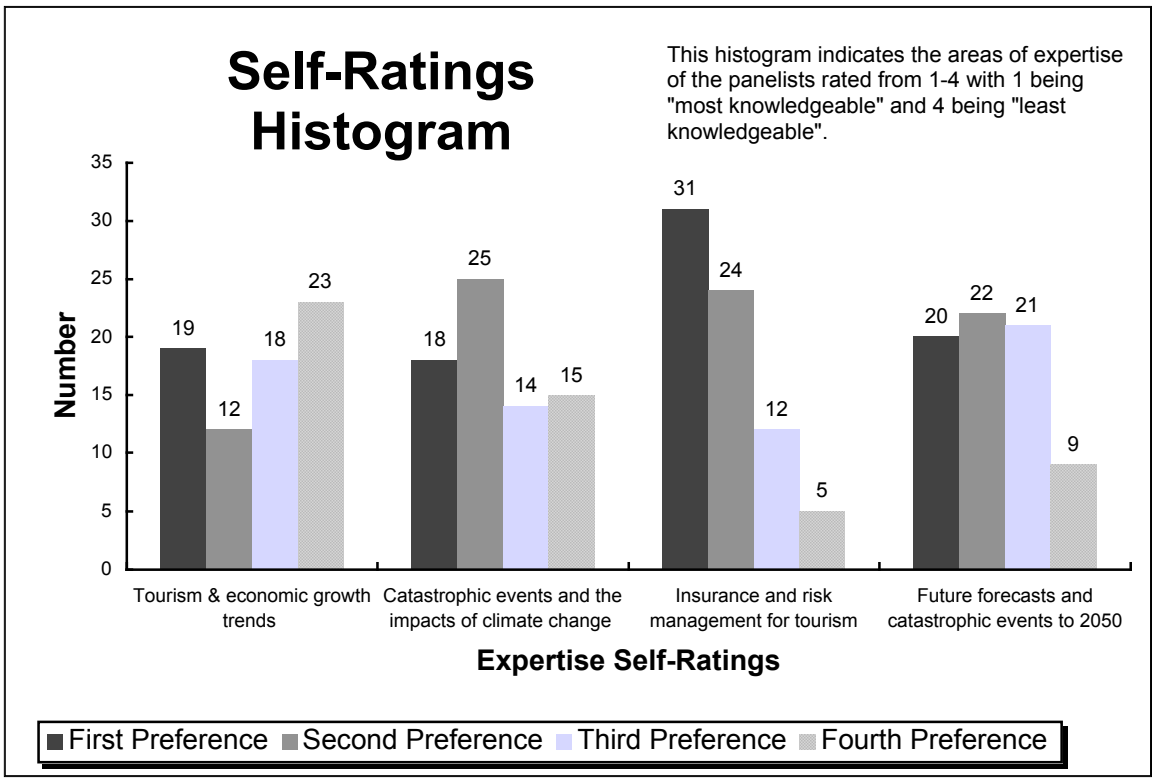


Figure 4-1 Self-Ratings Histogram.
('Preference' was used in the question to panelists to indicate their most knowledge – first preference- to their least knowledge- fourth preference. This is shown on the histogram).

It can be concluded that there was adequate expertise amongst panelists in all four subject areas to give confidence in the results and that no one area was lacking knowledgeable panelists. Although the panel included a number of senior tourism businesspersons and academics, the greatest number of 'least knowledgeable' fourth preferences was for the tourism and economic growth trends category. It is likely that the economic growth trends and not the tourism component of this category were responsible for this high fourth preference.

4.2.2 Topic One: Tourism and Economic Growth Trends

Question 1

Two-thirds of the panelists expected the growth trend for the tourism industry to continue to rise, with a third expecting it to flatten off, while there was no expectation that growth would decrease over the next twenty years.

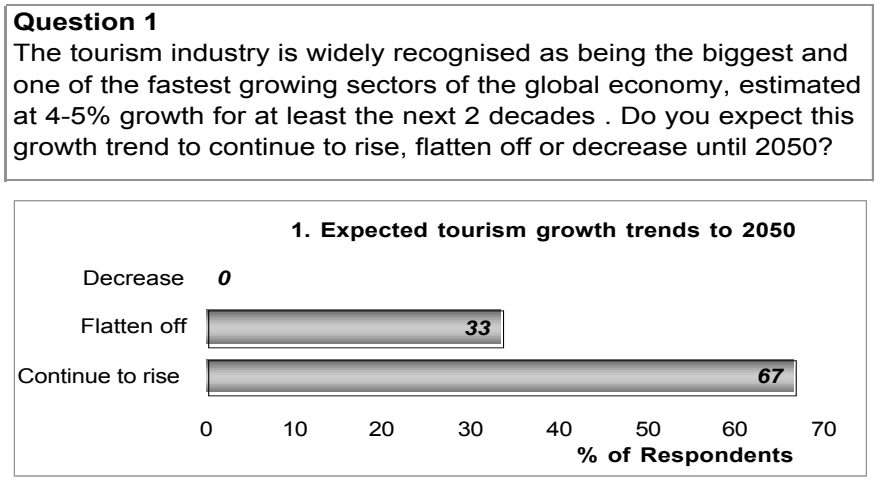


Figure 4-2 Round 1 Question 1.

Question 2 was a text response[14] only.

What other tourism industry growth patterns can you envisage to 2050?

- There will be a more intense competition for the tourism market share (multiple).
- The threat of terrorism decreasing overall tourism number (multiple).
- Asia will be especially strong; with growth will come capacity limits, increased negative environmental impacts.
- Special unspoiled destinations will become more and more difficult to find (multiple).
- Demographics of baby-boomers reaching retirement.

[14] Where there were more than two responses that were essentially the same, they have not been repeated here, but rather they are indicated by 'multiple' where this occurred.

- Increase in locations/activities catering to older and perhaps less healthy people.
- Greater regional variation in growth within countries and continents.
- Wider geographical spread of tourist-generating markets (e.g. China Brazil India Mexico Korea etc.), regionally differentiated growth.
- Health and wellness tourism will afford incremental economic opportunity (multiple).
- Growth in short-stay vacations in developed world, continued rise in importance of middle classes of developing world, further fragmentation into niche markets.
- Continued growth of tourism in the Asia Pacific region (forty to fifty percent of world tourism) (multiple).
- Increased emphasis on domestic tourism.
- Trends may be heavily influenced by media coverage and uninformed commentary.
- Reduced growth of outbound tourism from USA and Japan.
- The difference between niche and mass tourism will decline as mass tourism adds more niche features.

Global tourism industry growth patterns are affected by a variety of societal, cultural, economic and environmental influences. Panelists recognise this and the likely variation of growth patterns on a national basis. All points above will have an impact on growth patterns.

Question 3

The three most likely changes to travel habits and preferences for tropical coastal tourism to 2050 selected by almost sixty percent of panelists were: i) an increase in environmentally sensitive travellers, ii) increased travel to pristine remote locations, and iii) higher spending and shorter vacation time.

Question 3.
What are the three most likely changes to ***travel habits and preferences*** for tropical coastal tourism from 2001 to 2050? (choose three)

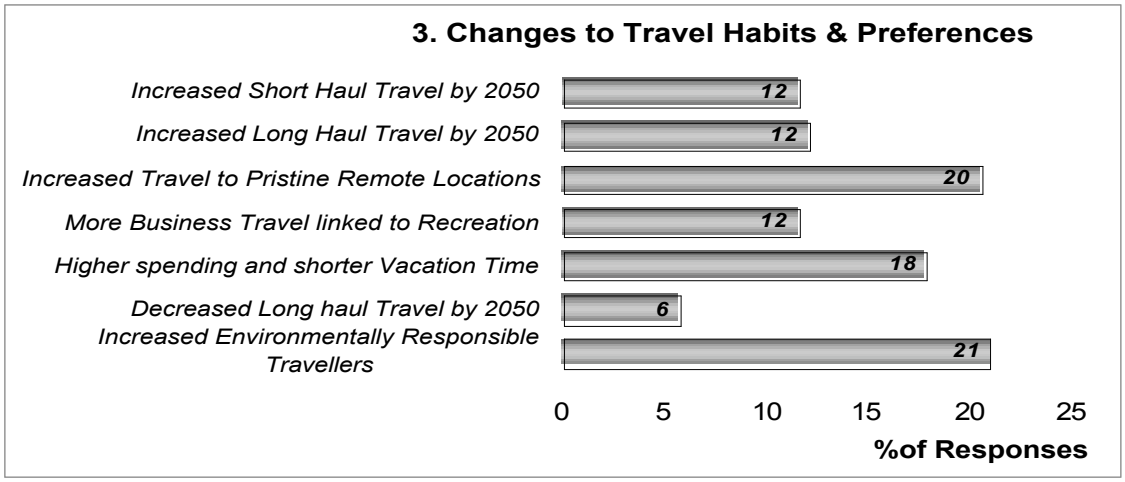


Figure 4-3 Round 1 Question 3.

Question 4 was a text response only.

Please describe any other new types of recreational activity or likely changes in travel habits/preferences for tropical coastal tourism to 2050?

- There will be an increasing reluctance to travel alone - for security reasons.
- Increase in learning activity tourism (multiple).
- Greater interest in being educated about tourism in coastal areas.
- Increase in cruise shipping with coastal visits/mooring.
- Lots more older travellers, more passive recreation, learning and experiential based recreation and travel (multiple).
- More shorter breaks, multiple holidays, less destination loyalty and repeat visits (multiple).
- Continuity will be more prominent than change, although there will be fragmentation of markets the activities will be largely unchanged.
- Proportionally less people using travel agents (multiple).
- Increased health linked travel (surgery and specialist medical assessments combined with travel for recreation).
- Increasing involvement of tourists in marine research and education.
- Increase in health/wellness oriented (spiritual and physical) tourism.

Health and wellness-related travel has maintained a strong and growing market share over the last ten years. Changing travel habits are reflected in changing global societal needs, demography and aspirations.

Question 5

Fifty-eight percent of panelists agreed that the two key factors affecting growth trends in the next twenty-five years would be: i) safety and security, and ii) disposable income.

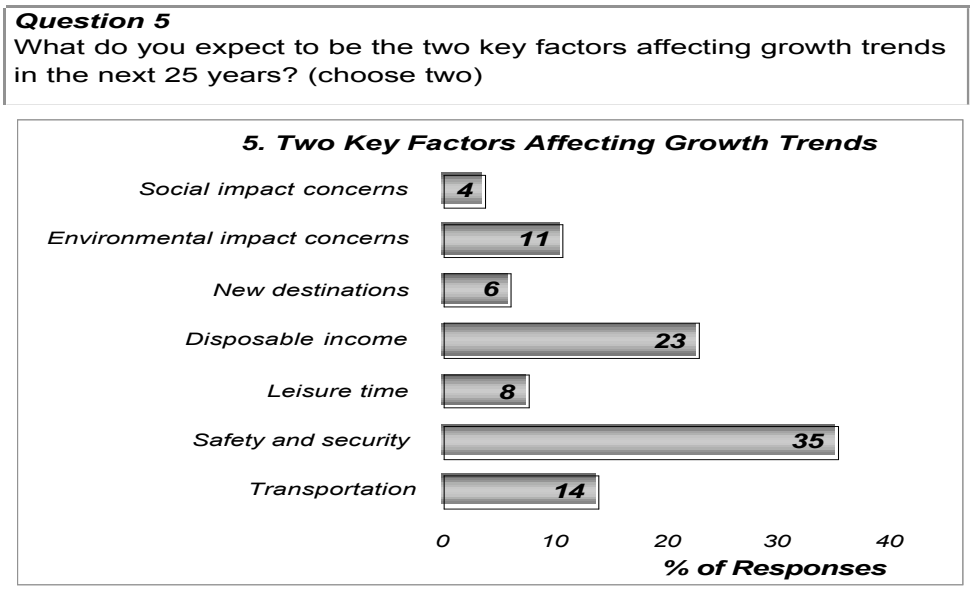


Figure 4-4 Round 1 Question 5.

Question 6 was a text response only.

What other technologies or factors (social, economic, political, environmental) might affect growth trends in the next fifty years to 2050?

- Tourists will be less inclined to take risks with their safety and money spent on holidays.
- Aftermath of war, terrorism; global warming/climate change impacts on localities; water shortages; currency controls; the price of oil (multiple).
- Clean coastal areas may become more expensive and become a privilege for an elite (multiple).
- The impact of GHG (Green House Gas emissions) mitigation strategies on long haul travel could be important.

- Social and political stability in the world increasing level of income of some countries like China, which will give extra stimulus to travelling and tourism.
- Crowding i.e. carrying capacity (multiple).
- Political instability, water supply, weather/climate change, cultural/religious conflict, fair employee treatment, transport costs and leisure time available (multiple).
- Computer networks making personal travel arrangements easier.
- The world will become much more environmentally friendly with shrinking of oil reserves move to natural (renewable) sources.
- The strengthening and pluralisation of ideological blocs: West versus the Rest, Christianity versus Islam.

The perception of the risk of major catastrophe is far greater than the probability of one encountering such an event. The aftermath of conflict in particular is remains a negative factor in destination choice often far beyond the end of hostilities. Environmental decline, loss of pristine environments will contribute to new areas being more aggressively sought-after.

Question 7

Sixty-eight percent of panelists agreed with the WTO projections for likely global arrival figures to be between 1.5 to 2.0 billion arrivals in 2025.

Question 7
WTO growth forecasts (arrivals) estimate that by 2020 annual the number of tourists (persons spending at least one night away from their normal abode) will be around 1.6 billion in that year, an almost threefold increase from 1995 (575 million arrivals). It should be noted that this figure of 1.6 billion is based on extrapolated historical data.
What would you estimate the likely global arrivals figures to be for 2025 ?

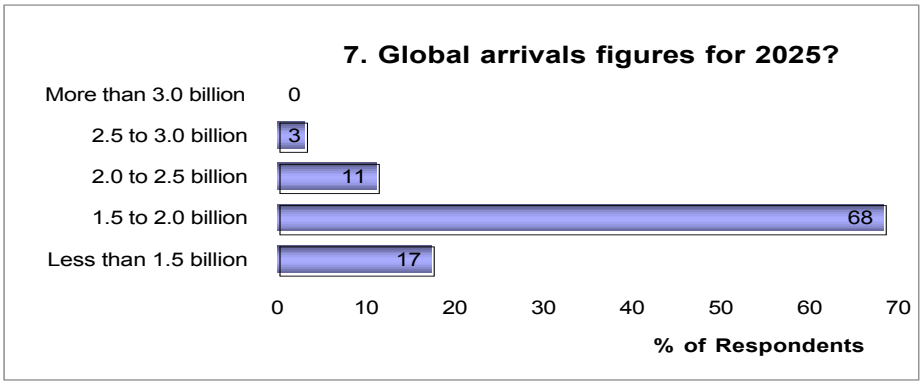


Figure 4-5 Round 1 Question 7.

Question 8

There was a lower level of consensus amongst panelists for this longer-term projection to 2050. Fifty percent of panelists however agreed that the arrival figures by 2050 would be between 2.5 and 3.5 billion.

Question 8
What would you estimate the likely global arrivals figures to be for 2050 ?

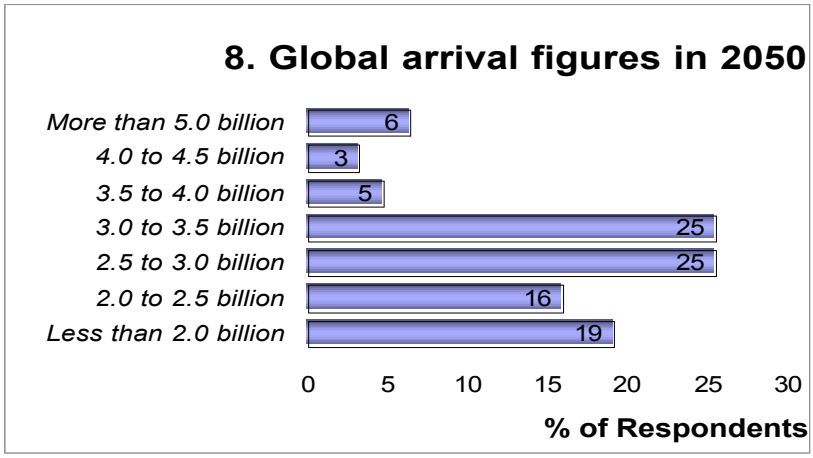


Figure 4-6 Round 1 Question 8.

Question 9

Panelists expect there to be a small increase in overall tourism expenditures over the next five decades (forty-one percent of responses) with very few expecting any decrease (eleven percent of responses).

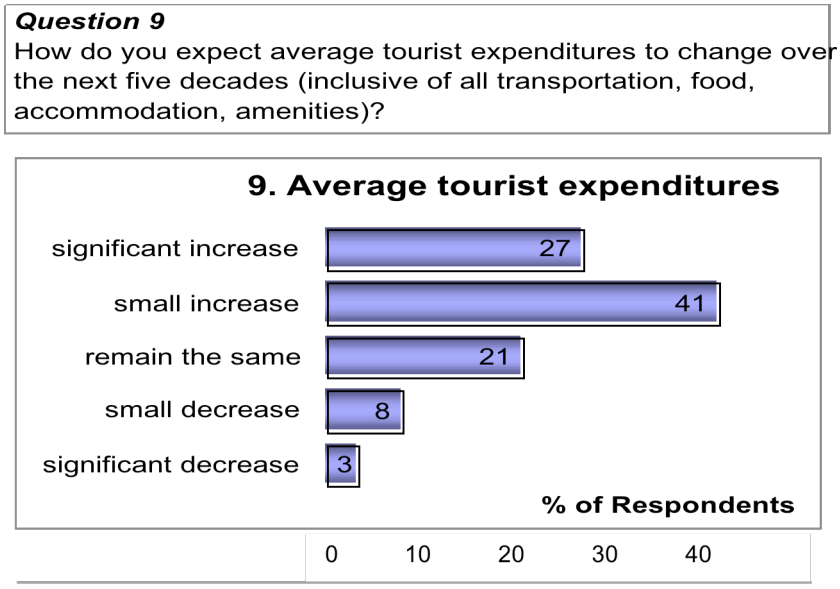


Figure 4-7 Round 1 Question 9.

Question 10

For the younger travellers in the eighteen to thirty-five year-old age group, panelists expect the three prime motivators for the selection of a tropical coastal destination in the future (to 2050) to be: i) the opportunity for adventure; ii) cost; and, iii) the desire to have sun/sea/sand (coastal) recreation. This question was returned to panelists in Round Two, together with Question 12, as they both query future motivations in different age groups, and it was hoped that there might be a clearer difference between the future needs of these two distinctly different segments of the market.

Question 10.
By 2050, what do you expect will be the three ***prime motivators*** for the selection of a tropical coastal destination for tourists between the ages of 18 and 35?
(choose three)

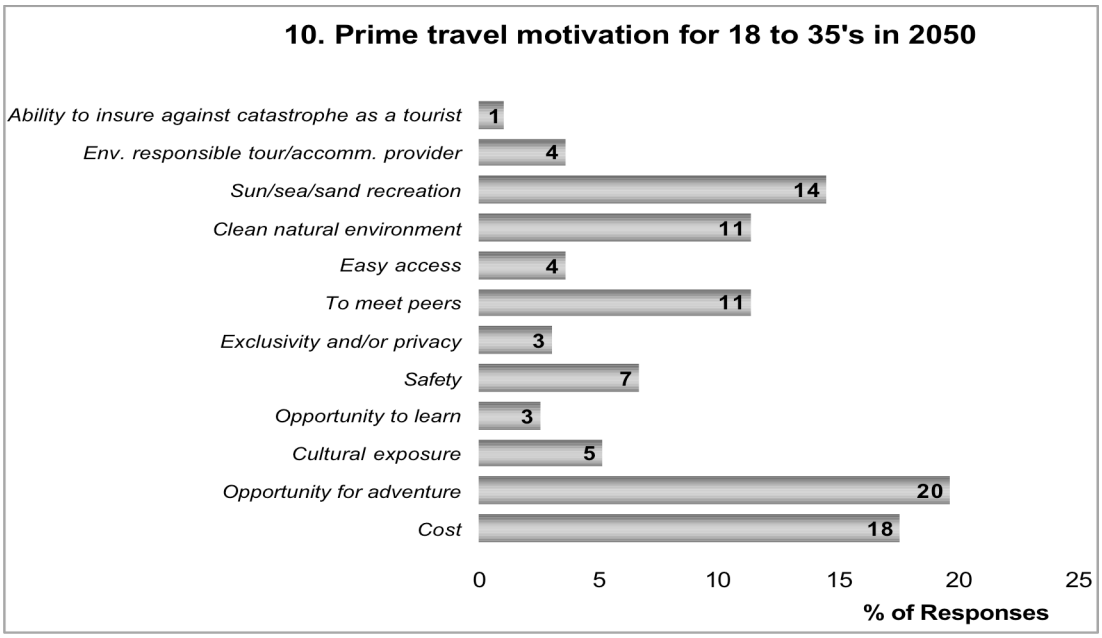


Figure 4-8 Round 1 Question 10.

Question 11 was a text response only.

What other factors will affect choice of a tropical coastal destination for the eighteen to thirty-five year-olds?

- Family size marriage rates and age at marriage.
- Ease of access from home airport.

- Changes in the structure of employment - availability of time and money.
- Cost and value for money (multiple).
- Quality of experience in all aspects safety and security reliability, opportunity to learn, entertainment opportunities.
- Political stability in destination area.
- Relative security of tropical coastal areas as opposed to greater security risks associated with large city destinations (multiple).

For the eighteen to thirty-five year-olds, the driving force behind destination choice is not likely to change although health and safety perceptions will alter opinion to some extent. Not mentioned in the responses was the potential influence of the rapidly decreasing numbers of eighteen to thirty-five year-olds that there will be, particularly in the European and Japanese tourism marketplace in the period 2030 to 2050.

Question 12

For the over thirty-five age group, the two prime motivations of i) safety and ii) a clean natural environment received thirty-five percent of responses with exclusivity and privacy the third choice with twelve percent.

Question 12.
What do you expect will be the prime motivations for destination selection for tourists over the age of 35? (choose three)

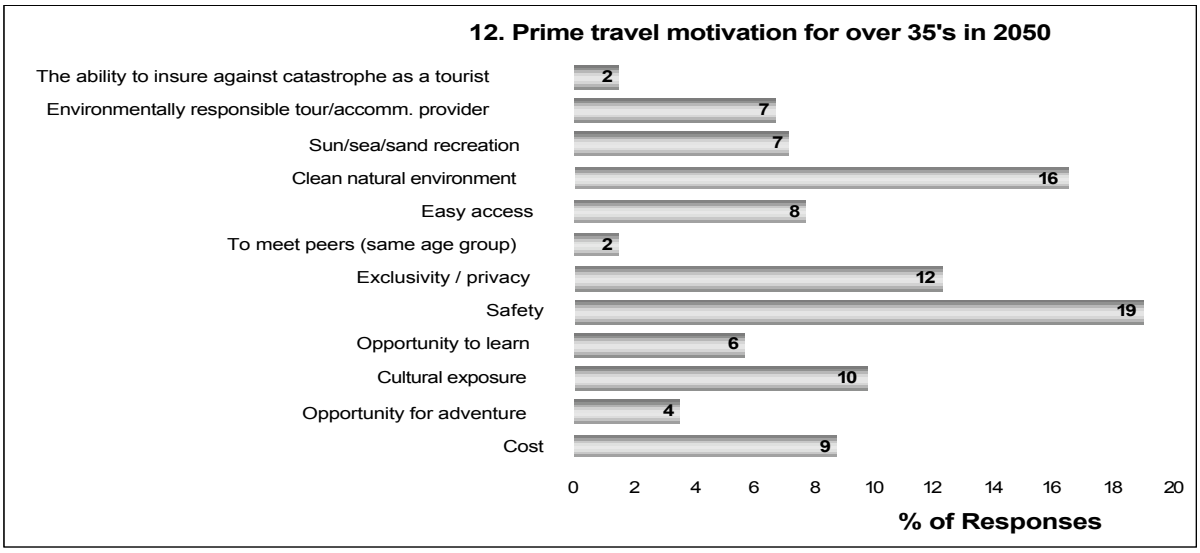


Figure 4-9 Round 1 Question 12.

Question 13 was a text response only.

What other factors will affect choice of a tropical coastal destination for the over35's?

- Family vacation opportunities, birth rates (numbers of children per family travelling).
- Safety and the opportunity to learn (multiple).
- Health considerations (multiple).
- Economic conditions in home country.
- Political stability in destination area.
- Ability to build up wealth and use it for discretionary travel rather than survival in generating market economies.

Safety and security feature as the most significant concerns for older travellers. This is not unlike the situation at present, however this position is likely to strengthen over the coming decades.

Question 14

The three most significant factors affecting hotel occupancy rates in twenty-five years' time, in tropical coastal areas will be: i) cost and value for money, ii) the political stability of the host nation, and iii) climate-related guarantees.

Question 14.
What do you expect will be three the most significant factors influencing ***hotel occupancy rates*** in tropical coastal areas in 25 years time?
(choose three)

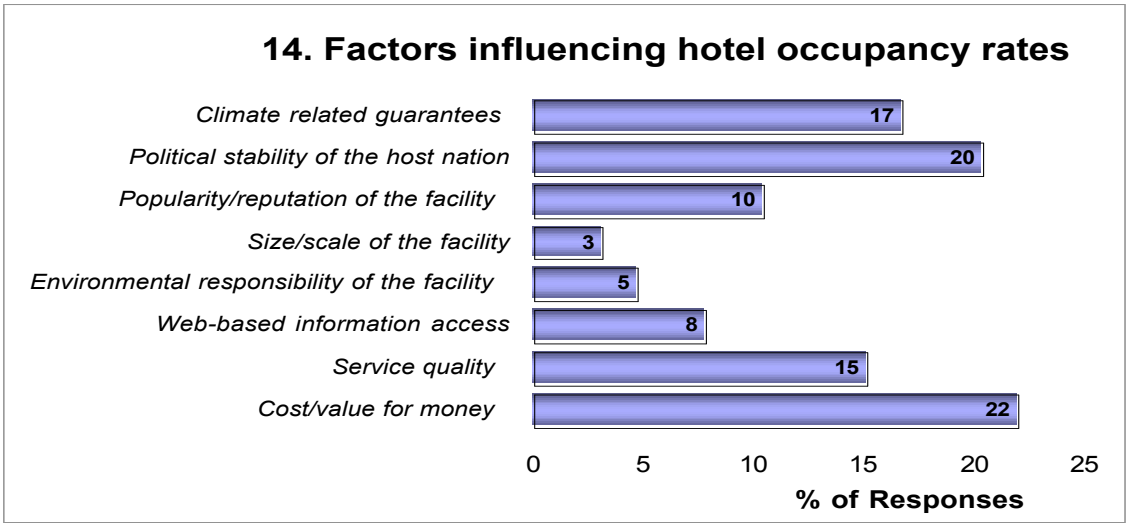


Figure 4-10 Round 1 Question 14.

Question 15 was a text response only.

What other factors will influence hotel occupancy rates in tropical coastal areas in twenty-five years time?

- Location, fashion, easy access from airports and roads.
- The capacity of the hotels to offer something unique, authentic, and different that gives them a real insight into the country's culture.
- Climate related guarantees.
- Web-based information access (multiple).

- Word-of-mouth recommendations from friends, relatives and visitors.
- Tolerance towards the people from many different racial/religious groups.
- Promotion levels of holidays in other areas.
- Development control policies of the resorts in the absence of particular local risk factors like terrorism climatic catastrophes or international factors like economic slump that will affect things sporadically & unpredictably (multiple).
- Disposable income and perceived cost/value for money (multiple).
- Better-designed and more distinctive accommodation (multiple).
- An ability to be responsive to changing tourist expectations particularly in regards to environmental concerns.

Hotel occupancy rates are influenced by similar issues that have an impact on overall destination choice, hotels being a significant component of the overall destination goods and services. Responses indicate the need for hotels particularly, to respond to specific needs of guests offering a more individualised service for example. This sentiment is in keeping with other growth and change predictions for the tourism marketplace.

Overall, the growth trends to 2050 appear more likely to be influenced by the demand for more specialised, individualised services provision, in an environment with a solid record of safety and security. Access to new pristine areas will increase alongside the likely environmental degradation of older established areas along coastlines. It is hoped that the sentiment expressed by many panelists that places a relatively low priority on environmental responsibility, will be changed by more visionary government policy and private sector initiatives in the future.

4.2.3 Topic Two: Catastrophic Events and Climate Change Impacts

Question 16

Sixty-two percent of panelists responded in concurrence with the commonly held view that natural catastrophes affecting tropical coastal areas do occur randomly. Seasonality of many natural hazards (many are highly seasonal) would infer that the panelists were somewhat incorrect. It could be argued for example that known earthquake zones are

more prone (than other locations) to catastrophic events, thus increasing probability and reducing randomness. It is precisely this random nature of catastrophic events (and seasonality) that is the focus of insurance modelling of natural catastrophes.

Question 16
Is it your understanding that many of the natural catastrophes affecting tourism destinations in tropical coastal areas occur randomly?

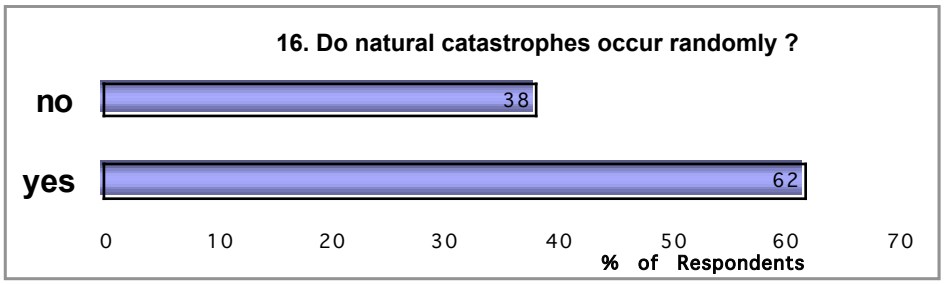


Figure 4-11 Round 1 Question 16.

Question 17

There was a strong perception among panelists (sixty percent of responses) that future tourism development will need to contend with risks of catastrophe exceeding that of September 11 within less than ten years.

Question 17
When do you expect that future tourism development will need to contend with risks of catastrophe (natural and/or man-made) of a scale exceeding that of the September 11th events in New York?

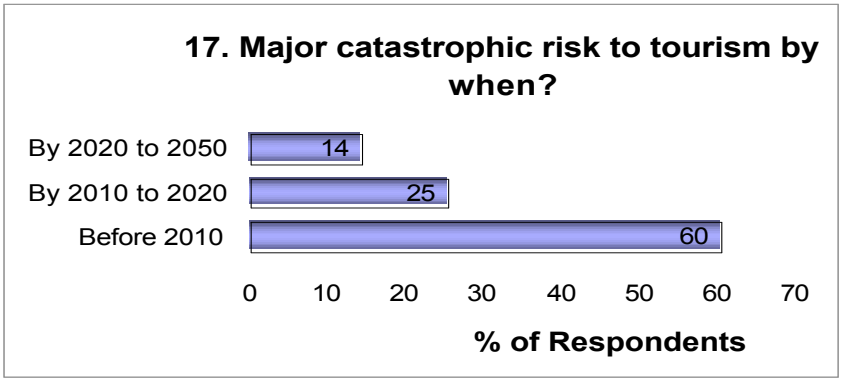


Figure 4-12 Round 1 Question 17.

Question 18

It is expected that climate change will become a dominant factor in the planning and management of tourism facilities (hotels, transport systems, recreation activities, etc.) in tropical coastal areas in the decade between 2010 and 2020 (forty-one percent of responses). The IPCC (United Nations Intergovernmental Panel on Climate Change) and the reinsurance companies certainly agree with this scenario with respect to coastal development generally.

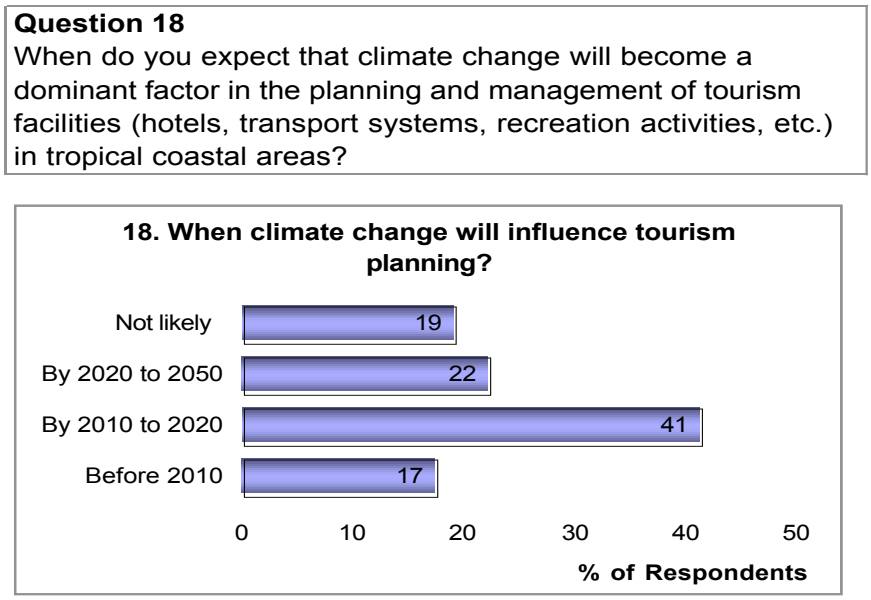


Figure 4-13 Round 1 Question 18.

Question 19

The three most likely natural hazards that will have a significant impact on tropical coastal areas in the next twenty-five years were perceived as being: i) cyclones, hurricanes and tropical storms, ii) climate change and global warming, and iii) flooding.

Question 19.
What major natural hazards are likely to have a significant impact on tropical coastal areas from 2001 to 2025? (choose the three Natural hazards that you think are most likely to occur in the next 25 years)

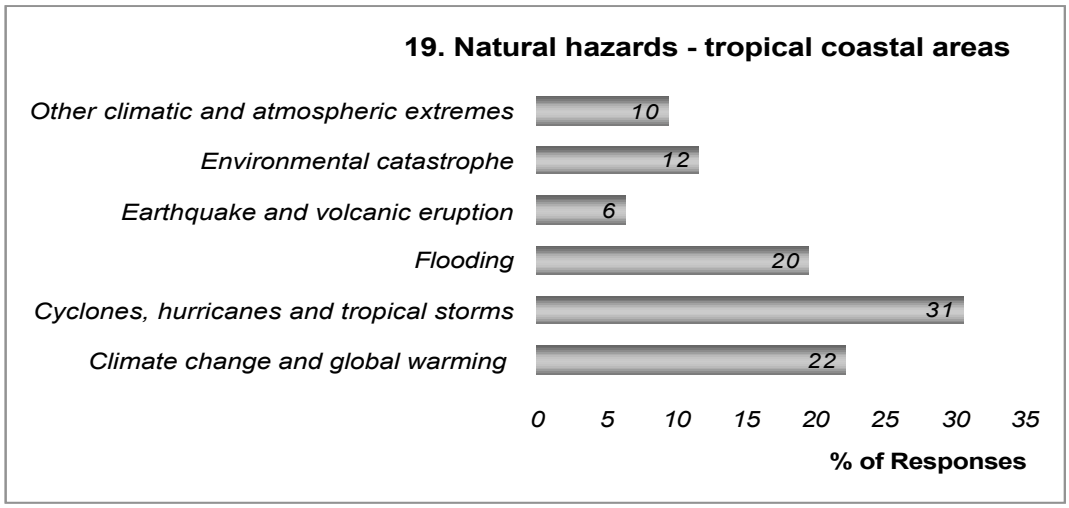


Figure 4-14 Round 1 Question 19.

Although a tsunami was not mentioned specifically in this question, it would be included under the earthquake and volcanic eruption category that received only twelve percent of responses. Had it been mentioned here specifically, it is unlikely the responses would have changed prior to 26 December 2004. The recent occurrence of such a catastrophic event would likely have influenced the outcome had the survey been done after this date. As mentioned elsewhere, the power of catastrophic events to influence public awareness and subsequent government policy development cannot be underestimated and can be viewed as a positive outcome of the massive death and destruction.

Question 20

Panelists were given the option to list up to six of the most likely anthropogenic hazards that will have a significant impact on tropical coastal areas in the next twenty-five years, out of a possible eighteen options including "all of the above". There was clearly a wide spread of responses here. War, terrorism and political instability together received twenty-four percent of responses. This question was therefore returned for Round Two where consensus did strengthen.

Question 20.
What major ***man-made (or human generated) hazards*** are likely to have a significant impact on tropical coastal areas from 2001 to 2025?

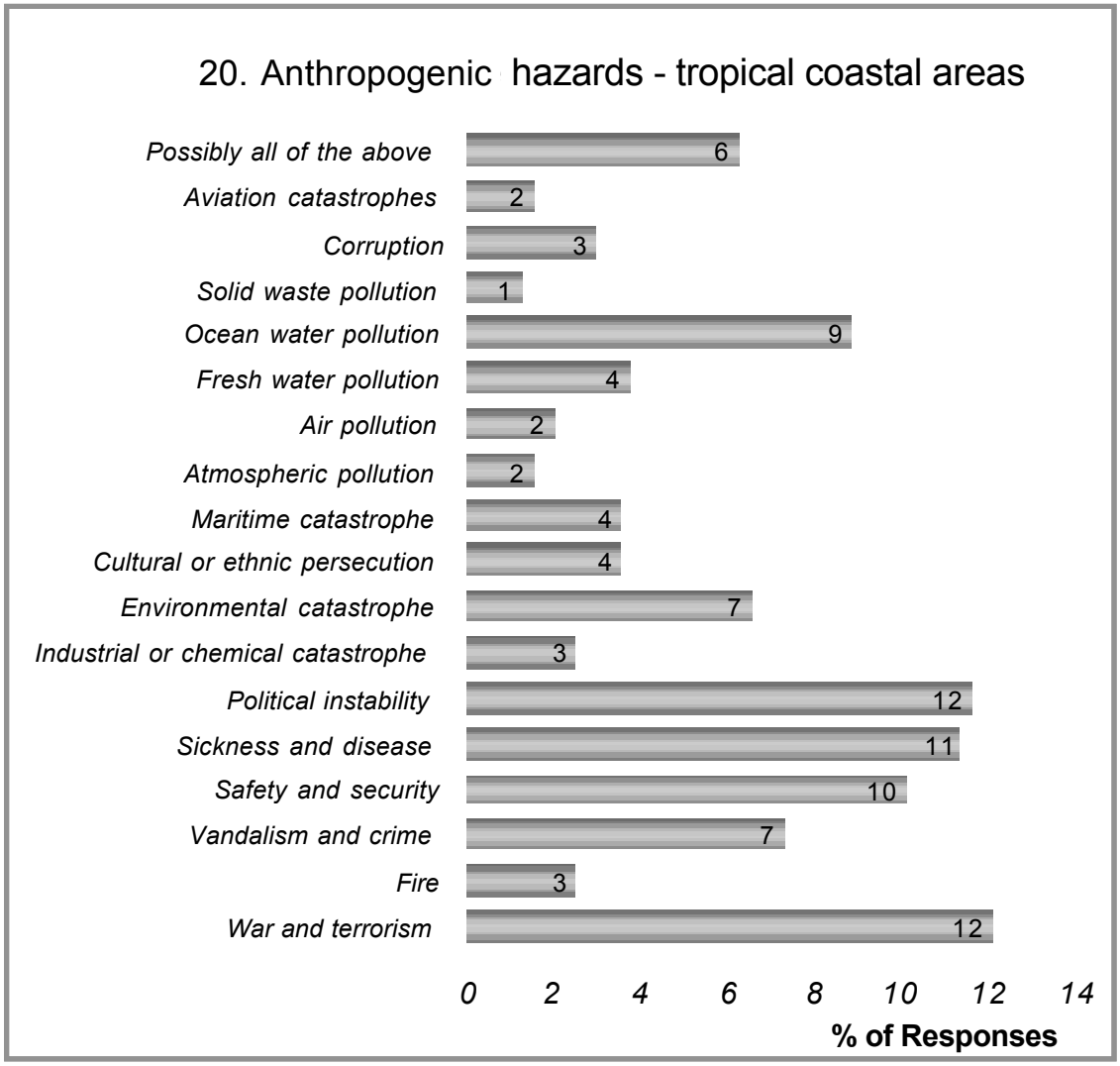


Figure 4-15 Round 1 Question 20.

Question 21 was a text response only.

Are there other natural or anthropogenic events not listed in the two questions above which you consider will have a significant affect on tourism in the future?

- World economic instability, aligned with political instability in the post-gulf war period, will have a significant impact on savings patterns in more affluent countries - people may be less inclined to spend in times of uncertainty.
- The potential for major global recession, economic meltdown (multiple).
- Overdevelopment and uncontrolled development, uncontrolled extraction of natural resources (fish reef forest mineral resources etc.).
- Overcrowding, exceeding carrying capacity causing locals to revolt.
- Shortage of adequate safe water for domestic purposes, drought, epidemics (multiple).

The question presented eighteen different natural or anthropogenic hazards from which to choose so there was not much further suggestion from panelists. There was no mention of natural hazards in this question, which was covered in Question 19.

Question 22

This question posed a rather theoretical query on modelling total risk using a simplified mathematical equation. Again consensus strengthened considerably in Round Two, following a fairly even spread between the two options in Round One. Comments on this question were extremely valuable for expanding the use of the model, and for gauging panelists' opinion as to whether or not this is a potentially useful planning and management tool.

Question 22
The equation and diagram below indicate a theoretical relationship that describes the total risk faced by a particular location or entity. This is derived primarily from natural hazard analysis.

Risk (Total) = Hazard x Elements at Risk [Exposure] x Vulnerability

Is this an adequate framework or model to apply specifically to the tourism industry in order to analyse future risks which the industry may face?

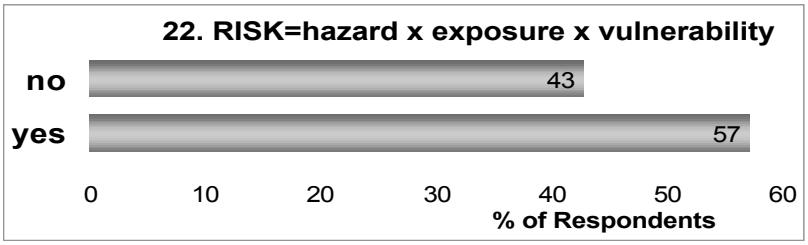


Figure 4-16 Round 1 Question 22.

Question 23 was a text response only.

How would you alter this (the equation described in Question 22) to accommodate the changing technologies, globalisation and unknown risks of the future? (describe)

- This is simplistic but generally accurate (multiple).
- Another factor that should be considered in this model could be time elements, time to repair and when in the season damage occurs.
- Need to add something for randomness, devise a model that incorporates complexity and randomness.
- The perception of safety (multiple).

- It is such a general model that it fits all (and tells you not so much) (multiple).
- You need to add frequency predictability insurability and awareness.
- There should be a fourth element that include costs through insurance or financing mechanisms, cost of insurance (multiple).
- Many tourism "risks" are perceptual in nature and therefore require a more social-science model, for example people will stay away on rumour uncertainty and reputation not just real disasters or real hazards.
- Include psychological feelings that influence people's behaviour even more than the concrete risk, socio-economic factors safety and security issues should be incorporated somehow.
- The coincidence of multiple hazards is not well represented in this model, also it ignores responses/preparation e.g. planning and management (multiple).
- Add in human behaviour particularly is it may effect hazard in either a positive or negative manner.
- Add uncertainty, political stability/terrorism.
- Does not cover media exposure.
- It would be useful to highlight the impact of public knowledge on vulnerability and the influence of formal and informal education at all levels.
- The equation might not be meaningful for certain threats e.g. political instability
- Too many unquantifiable variables to develop a reliable formula.
- All the locations should be analysed as unique culminations in global context, no positivistic and universalistic statistical apparatus can reveal the unique and contingent factors behind local events.
- Secondly crucial thing is a view that combines different scales: global regional and local, so the analysis should appreciate all these levels as unique and interconnected.

This question generated an enthusiastic and mostly positive response from panelists. While a model can indicate and represent a variety of phenomena, its complexity can

lessen the overall value and ability to communicate clearly the intentions of the model. Therefore, some aspects of panelists suggestions were later incorporated into the model developed in this thesis (the need to incorporate socio-economic factors, planning and management for example), however, other suggestions were too detailed or specific for the modelling process. Incorporating safety specifically, while a valid suggestion, is a component of other parts of the model, namely vulnerability and exposure. Multiple hazards can be incorporated into the final model described in Chapter 5. The media are important players in the risk management process and should be incorporated into any risk management strategy. The quantification of the variables in the final version of the model is a very important aspect of the future use and value of the model. This issue would probably be the most important follow-on research activity after completion of this thesis.

Other concepts mentioned that are of interest but difficult to incorporate into the model include: predictability of hazard impact, risk 'perception' versus risk knowledge, the scale of risk analysis, local, regional, national and global for example, costs of insurance (risk sharing) etc.

4.2.4 Topic Three: Insurance and Risk Management for Tourism

Question 24

The cost of the recently required increases in security measures at airports should clearly be shared between government, insurers, the transportation providers, and the travelling public, according to sixty-three percent of the panelists. It is of interest that twenty percent of panelists chose the travelling public to be the ones to assume the largest proportion of costs for new security measures.

Question 24
Since September 11th, airline consumers (tourists and/or passengers) travelling on some airlines have been asked to pay for additional new security measures (armed sky marshals, cockpit locks etc.) with an added charge (eg. Lufthansa US$16.00).

Who should assume the large proportion of the costs of new additional security measures?

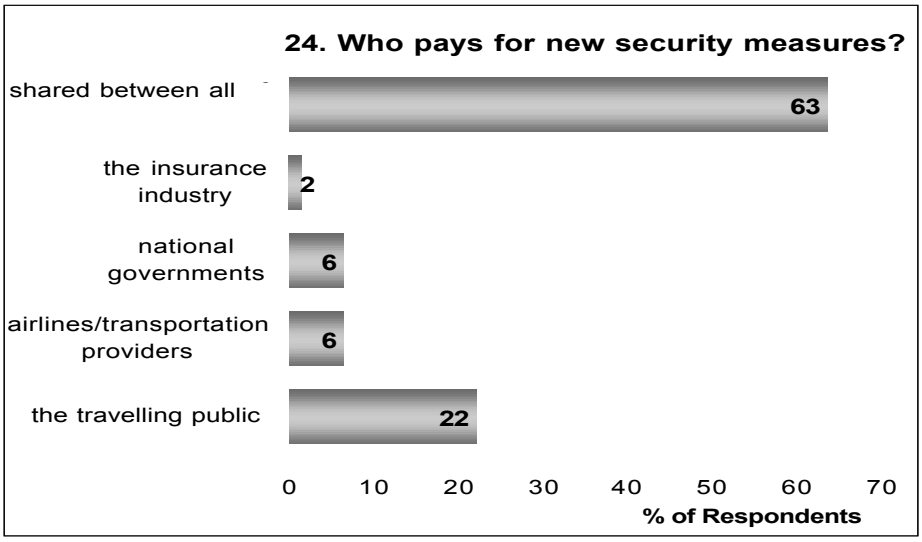


Figure 4-17 Round 1 Question 24.

Question 25 was a text response only.

Can you suggest other mechanisms to defray such costs arising from the response to catastrophic events?

- Recovery of assets of terrorists and the appliance of these to mitigate costs of dealing with such security measures, and more political will to settle international grievances e.g. Israel/Palestine.
- The level of participation from each traveller should be related to the level of protection desired by each just as it works in regular insurance policies.
- Better risk management and assessment of the individual risk (multiple).
- There needs to be some legislative changes in the legal systems of some nations to establish reasonable caps on liability (e.g. the US is one example where there are increasing numbers of unwarranted awards granted by juries).
- Insurance mechanisms pools with private and public participation.
- Solving the cause of catastrophes would be better than fighting the consequences, greater investment in long term risk reduction strategies (multiple).
- Build insurance into ticketing, ultimately consumers will pay in any event.

The discussion of cost sharing in the massive effort required following a major event has been heightened following the Indian Ocean tsunami in 2004. The recovery needs of this event will establish a new scale of cooperative international effort. Very little loss occurred in terms of insured loss. The absence of this risk sharing mechanism may spark a renewed interest in insurance, micro-insurance, and possibly pooled insurance in the near future. Tourists will also likely view the small print of their travel insurance policies to better understand which ‘acts of god’ are covered in their policy.

Question 26

Eighty-one percent of panelists agreed that insurance for travellers will be either more important in the future (fifty-six percent of responses) or extremely important in the future (twenty-five percent of responses). Insurance was described as a wide variety of products including health, personal, and credit insurance.

Question 26
How important will insurance be to travelers in the future (health & personal injury insurance, life insurance, destination satisfaction insurance, credit insurance for carriers, tour operators, hotels, etc. for example)? (Credit insurance means that if a traveler has paid some of the services in advance (e.g. airline ticket) you get a refund of your expenses if the service provider goes bankrupt).

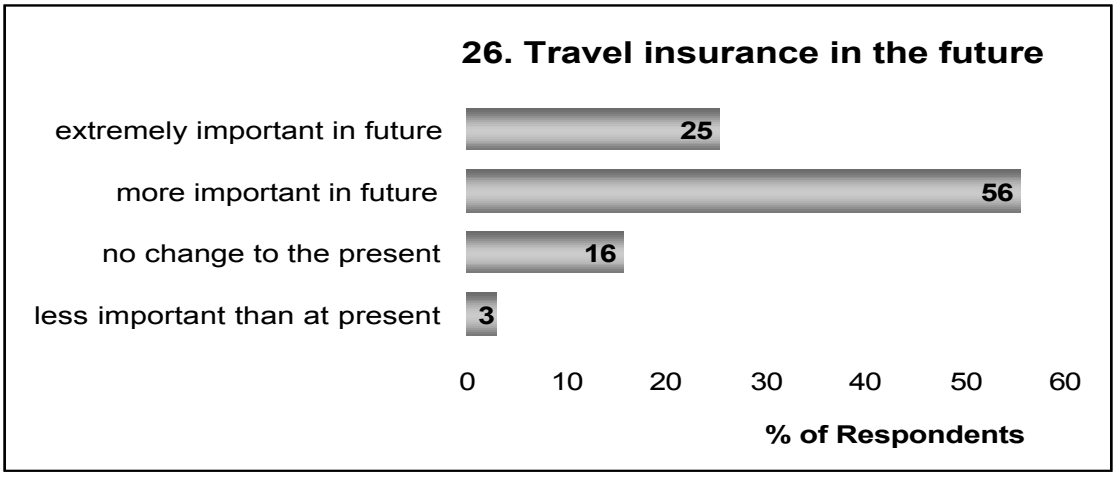


Figure 4-18 Round 1 Question 26.

Question 27

By 2025, seventy-six percent of panelists expect that less than ten percent of one's total travel budget will be spent on personal travel insurance. This is indicative of current levels of travel insurance expenditures estimated to be between five and seven percent of one's travel budget. Travel insurance in this insurance would not include, for example, what is termed indirect insurances such as third party liability of an airline where the consumer has no influence or choice of product.

Question 27
By 2025, approximately what percentage of one's overall travel budget for a typical family holiday would you expect to spend on direct insurances? (Direct insurances include health, baggage, and those listed above in Q.26, versus indirect insurances like third party liability of the airline where the consumer has no influence/choice).

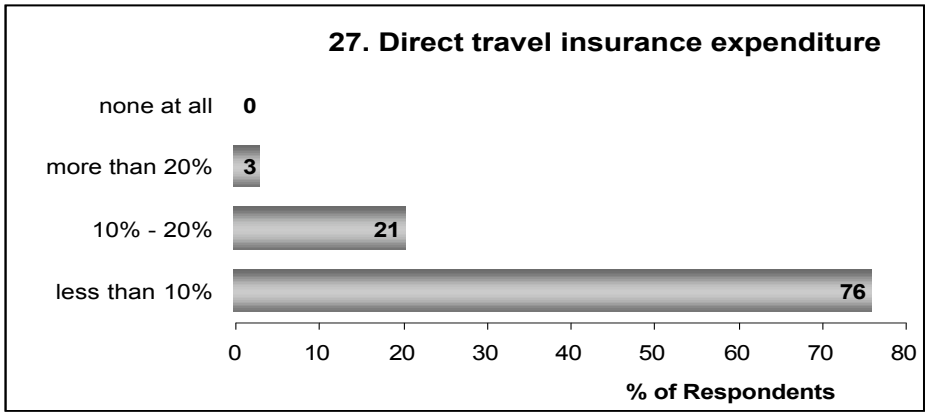


Figure 4-19 Round 1 Question 27.

Question 28

Public liability insurance will be the biggest insurance cost to tourism operators in 2025, according to thirty-two percent of panelists. Property and plant insurance (nineteen percent) and political risk insurance (eighteen percent) were the next two most common responses. Natural hazard insurance (seventeen percent) was not seen to be one of the two most important insurance products of the next two decades. Public liability insurance and political risk insurance are not mutually exclusive and could be counted as one product. The larger reinsurers around the world are actively developing their political risk capabilities at present. This question was included in Round Two to gauge panelists' possible change in opinion after having viewed the response of all panelists from the first round. The Self-Ratings indicated this topic (Insurance and Risk Management for Tourism) to be the most common first preference (most knowledge) of the four topic areas.

Question 28.
What do you expect to be the biggest ***insurance cost*** for tourism operators in 2025 (hoteliers, tour operators, transportation co's etc.)? (Select only one or two of the options below).

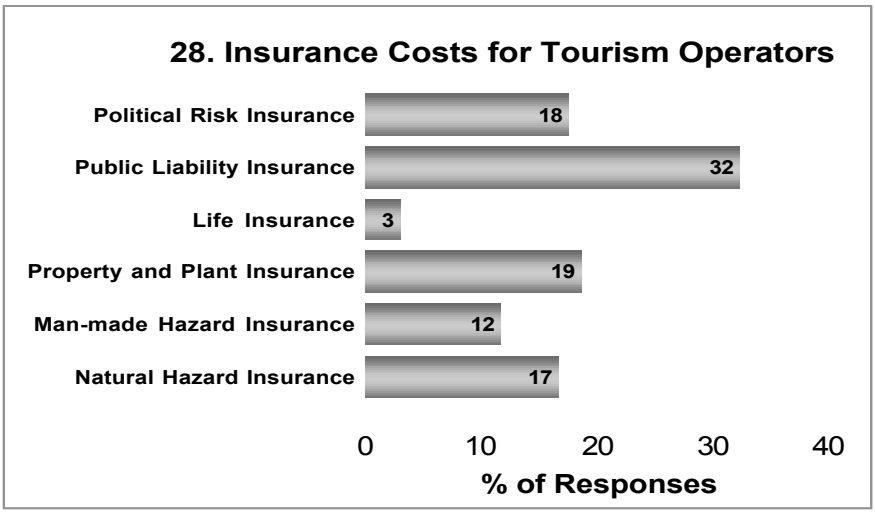


Figure 4-20 Round 1 Question 28.

Question 29

This was a difficult question for those not involved in the insurance industry. As with Question 28 above, there was no clear consensus amongst panelists here. This question was included in Round Two to see if a stronger consensus could be achieved, again, given the strong knowledge base in this topic area. Although twenty-one percent of panelists suggested general travel insurance products to be the most likely new travel products in 2025, fifteen percent suggested that there would be a need for new insurance products to cover loss of holiday time as a result of unforseen natural hazard events.

Question 29.
Which of the following possible ***new insurance products*** do you think will be the three most important insurance coverages for tourists in 2025? (choose three)

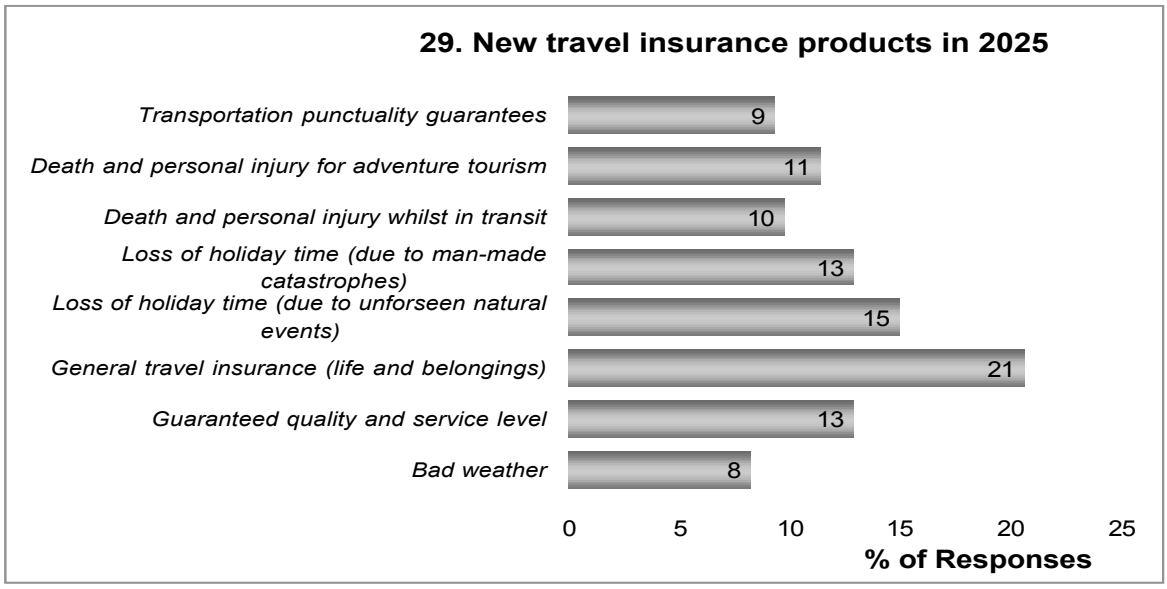


Figure 4-21 Round 1 Question 29.

Question 30 was a text response only.

What other possible new insurance products do you think will be common to insurance coverage for tourists in 2050?

- Legal costs to sue operators.

- None. There are too many theoretical problems such as adverse selection, moral hazards, and unpredictability (e.g. terrorism).
- Ransom insurance (multiple).
- Snow insurance for skiers.
- Insurance against war terrorism and acts of god which insurance companies refuse to cover.
- Some sort of loss of income or income opportunity. This is not fully covered in common law civil actions. Also breach of promise that is not fully covered in contract law.
- Compulsory personal liability (if someone causes a problem to other travellers they may expect to be sued for the effects either by the industry or by individuals affected).
- It is meaningless to assess the insurance needs over such a time span (multiple).

4.2.5 Topic Four: Future Forecasts and Catastrophic Events to 2050

Question 31

There was a strong consensus amongst panelists for an increase in overall global GDP to 2010, 2025, and to 2050, signifying a positive outlook for global economic development to 2050.

Question 31
Global GDP in 1998 increased at 2.8% (%change over 1997). The International Monetary Fund forecasters suggest a 3.9% increase in 2002 over 2001. Do you envisage that global GDP growth rates will .....?

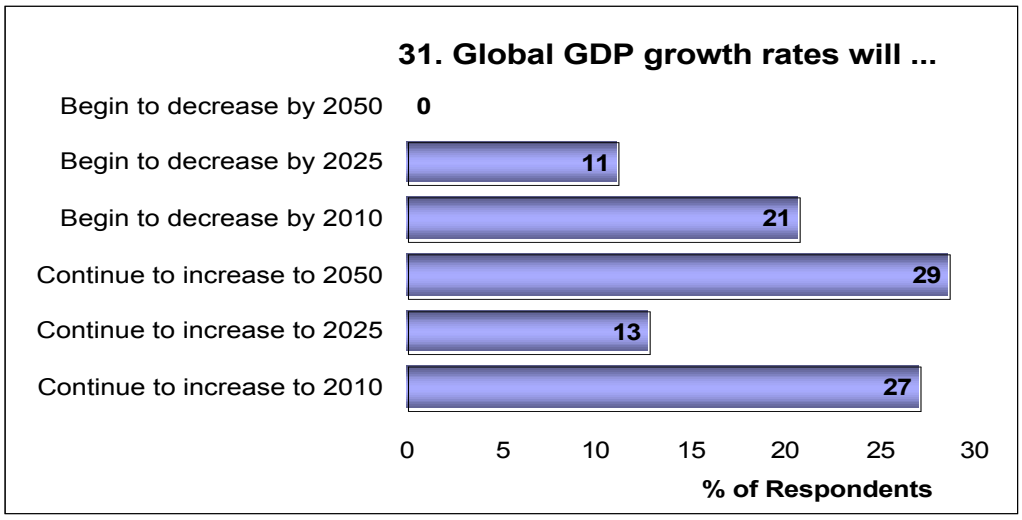


Figure 4-22 Round 1 Question 31.

Question 32

While the general trend for global GDP growth was positive (in Question 31 above), the panelists predicted conservative annual average growth rates to 2050 of 1.5 to 3.0 percent (seventy-five percent of responses), including 2.0 to 2.5 percent (twenty-nine percent of responses).

Question 32
The world economy was remarkably strong in 2000 with global GDP (world economic output) growing at a rate of around 5%. This has considerable impact on the tourism industry through increased disposable income and boosting discretionary spending on tourism. While this extraordinary growth is not expected to continue in the immediate future, what would you estimate this average annual growth rate to be from 2002 through 2050?

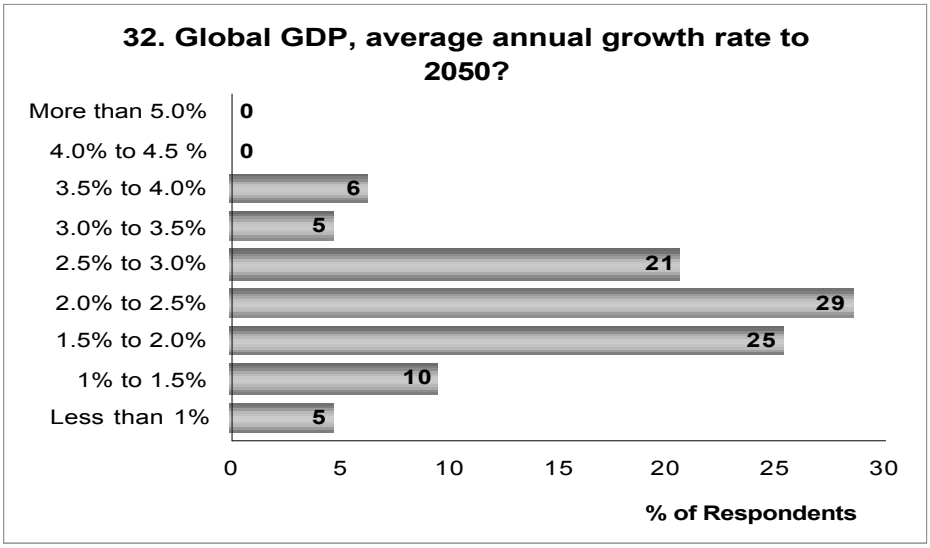


Figure 4-23 Round 1 Question 32.

Question 33

Consensus was not strong amongst panelists on the prospect of the East Asia Pacific region maintaining (to 2050) the phenomenal growth rate it has experienced since 1995. Fifty-four percent said "Yes" and forty-six percent said "No". This could be a result of panelists' understanding of typical economic cyclical growth patterns, or an indication of panelists' foreseeing a downturn in the rate of growth in this region. Although this question appears in Topic Four (Futures Forecasts and Catastrophic Events), it might

have been better placed in Topic One (Tourism and Economic Growth Trends). Topic One received the highest Self-Rating of least knowledge in the area of Tourism and Economic Growth Trends, which could explain the lack of consensus on this question. In Round Two, this opinion strengthened only slightly.

Question 33
Tourism in the East Asia/Pacific region (not including south Asia or the Middle East) is expected to maintain an average annual growth rate of 6.5% over the 25 year period 1995 to 2020 (WTO, Tourism 2020 Vision). This translates as an almost four-fold increase in international arrivals from 81.4 million in 1995 to 397.2 million in 2020. This is the highest forecasted growth rate of any region of the world (apart from the Middle East where the market share in 1995 was a mere 2.2%).

Can you envisage the East Asia/Pacific region maintaining a similar (sustainable) growth rate in tourism through to 2050?

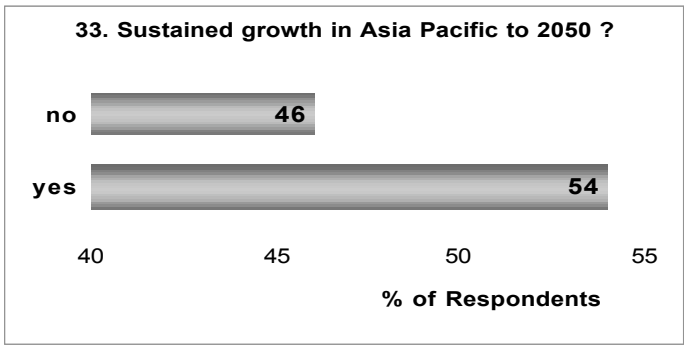


Figure 4-24 Round 1 Question 33.

Question 34

Again, political instability (twenty-eight percent of responses) featured high on the list of most likely adverse events that would affect the current strong growth rate in the Asia Pacific region. This response, coupled with major environmental crises (fourteen percent of responses) and economic crises (nineteen percent of responses), accounted for sixty-three percent of panelists' opinions.

Question 34.
Which of the following ***adverse events*** would be most likely to slow the current strong growth rate in the Asia/Pacific region until 2050? (choose three)

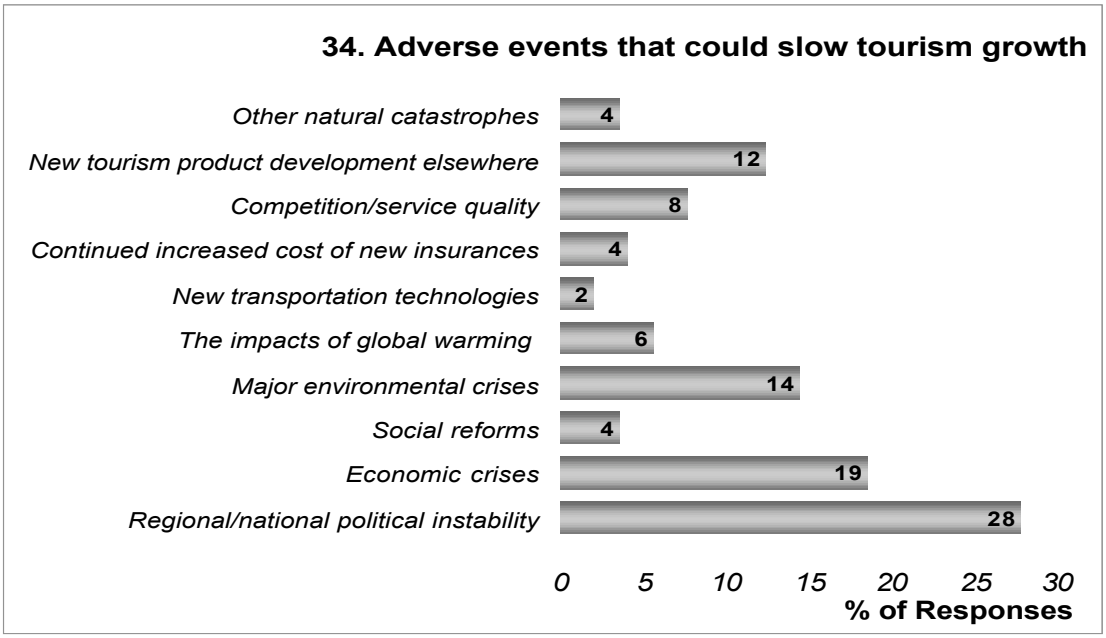


Figure 4-25 Round 1 Question 34.

Question 35

Panelists suggested that the three major climate-related potential catastrophes that would have a significant impact on tourism in tropical coastal areas included: i) the general effects of climate change (sixteen percent); ii) availability and shortage of fresh water (sixteen percent); and, iii) changes in sea level and coastal regions at risk (fifteen percent). While this indicated strong opinion for these three options, nine percent suggested all of the above, or all of the possible options.

The fourteen options available to panelists represent virtually the full range of potential climate-related impacts. Consensus was not expected on this question. Climate-related potential catastrophes and other uncertain impacts are expected to occur in the next two decades, therefore the question was returned to panelists for Round Two to see if the opinion of other panelists might change the spread of responses. This did occur.

Question 35.
What do you consider will be the major (climate related) ***potential catastrophes*** that may have a significant impact on the tourism industry in the next 25 years?
(choose one or more of the possibilities for which you have some knowledge)

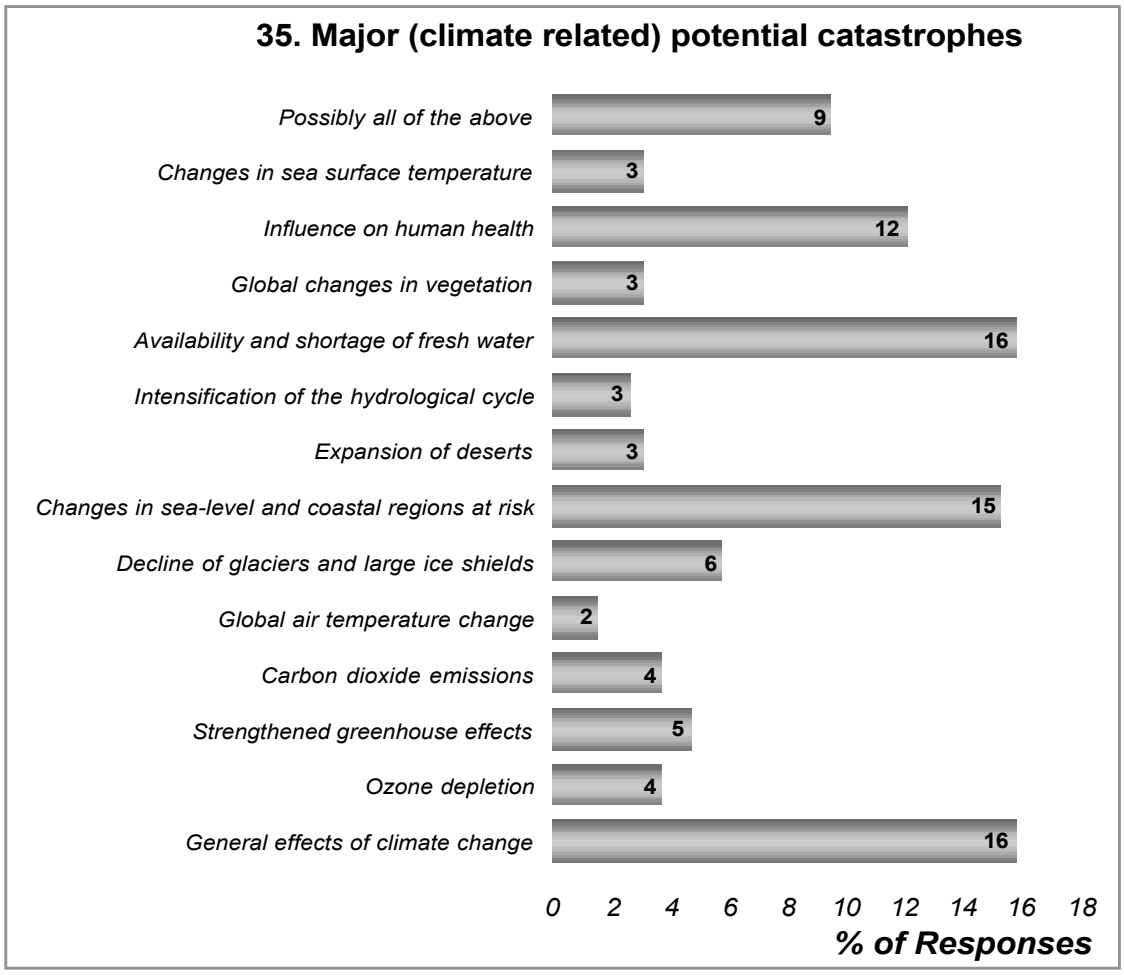


Figure 4-26 Round 1 Question 35.

Question 36 was a text response only.

What other major (climate related) potential catastrophes do you think might have a significant impact on the tourism industry in the next twenty-five years?

- Water shortages and flooding (multiple).

- Some specific impacts such as: 1) reduction of snow cover needed for winter tourism (Europe and North America in particular); 2) coral reef bleaching and die-off; and 3) specific species impacts (polar bears, vegetation in South Africa etc.) that are important to ecotourism.
- Increase in number and severity of hurricanes/cyclones/typhoons.
- Catastrophe is too strong a word.
- Note that a phenomenon such as climate change will influence demand (through economic effects) as well as supply.
- The effects of storms cyclones and tidal waves on coastal resorts especially in the Asia Pacific region.
- Spread of areas affected by chronic diseases, feral and other pest infestations induced by climate change.
- Ozone hole is increasing (multiple).
- Changes in the fire regime resulting in repeated major forest fires in temperate forest regions and associated loss of access to related tourism assets in these regions and associated diminished quality of the tourist experience as well as related business failures.

Although a tsunami was not one of the fourteen options in Question 35, this natural phenomenon (nor earthquakes) was not raised by panelists in their description of other potential climate-related catastrophes. While earthquakes may not be climate-related, there is a growing perception of the influence of climate change on a variety of processes in nature. It is important to note the perception of the relationship between climate and many naturally occurring events described above. One panelist did however recognise the potential danger of tidal waves (most likely meaning tsunamis, a common error) for coastal tourism in the Asian region.

Question 37

Reducing the impact of aviation emissions as a means of reducing overall environmental impact of tourists received a mixed opinion with twenty percent of panelists suggesting that no substantial reduction to 2050 would be likely, while a further forty-four percent

suggested that alternative fuels or more efficient power systems may serve to reduce such emissions.

Question 37.
It is estimated that over the course of an average holiday, around 70% of a ***tourist's overall environmental impact*** can be attributed to the aviation emissions from just flying there and back home (this is for a medium to short haul flight, the figure is larger for long haul flights). How might this impact be reduced (or not) by 2050? (choose one or more)

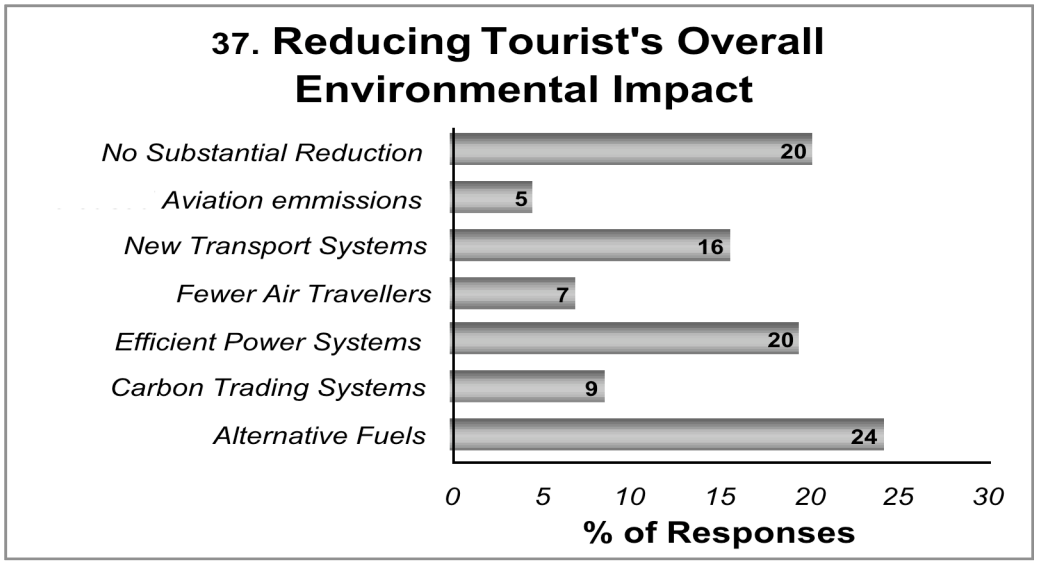


Figure 4-27 Round 1 Question 37.

Question 38 was a text response only.

In what other ways might aviation transportation systems for tourists change by 2050?

- Faster flying to more secondary destinations.
- Friendlier travel arrangements for older or disabled people (multiple).
- Petroleum will run out, air travel becoming very expensive with start of oil shortage.
- Enough terrorism etc or economic meltdowns and there will be fewer tourists and fewer flights.
- The skies and airports will become very crowded and the experience of many travellers will be harmed, new systems must be found to accommodate mass travel, e.g. zeppelin travelling, larger & faster planes flying at higher altitudes

(sub-space travel), teleportation and other transport modes that do not rely on traditional fuels, antigravity transportation.

- Removal of aviation tax breaks to expose unfair competition with other forms of transport.

Question 39

With the insured loss of the September 11 event likely to be around twice that of the previous biggest major loss (Hurricane Andrew 1992), panelists felt that risk sharing (thirty-eight percent of responses) would be necessary in order for the insurance industry to be able to cope with such major losses in the future.

Question 39
The attack on New York will cost the city about US$105 billion over the next two years . Insured loss is expected to be around one third, or US$37billion. This is almost twice the previous largest payout after Hurricane Andrew in 1992. How do you foresee the insurance industry coping with future massive loss claims pertaining to the tourism industry?

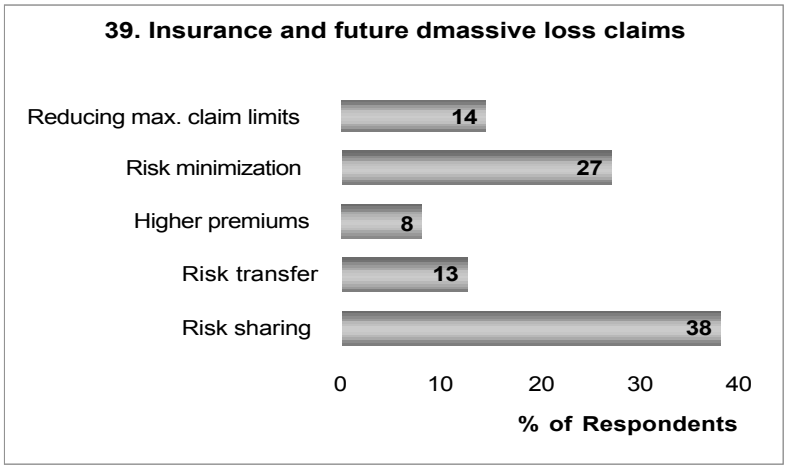


Figure 4-28 Round 1 Question 39.

Question 40 was a text response only.

How else might the insurance industry cope with future massive loss claims pertaining to the tourism industry?

- Securitisation of risks in the capital markets.

- Spending money to educate people in risk mitigation. Sadly claims departments are the lowest of the low in the pecking order and rarely have funds allocated to reduce costs.
- Raise awareness about the possible insurance cost increases for massive loss claims (multiple).
- Risk reduction through working with governments (multiple).
- Reducing maximum claim limit; reducing what is defined as an "insured peril" (i.e. excluding terrorism).
- Reduce public liability, risk transfer.
- Reinsurance will continue to be important as now. Insurance rates are currently influencing the construction of new facilities in hazard-prone areas e.g. coasts liable to typhoons and flooding.
- Providing catastrophic coverage only with very high deductibles (multiple).
- Greater use of litigation by insurers so as to minimize possible payouts.
- Risk sharing with governments is essential since the national governments have final responsibility for taking care of their destinations (multiple).
- Tourism industry should lobby politicians to reduce source of risk (e.g. terror).
- Where expected losses can be estimated (e.g. natural perils) insurance and finance industry is able to bear huge losses. Not so on the terrorism and war side where event frequency cannot be estimated.

Since September 11, 2001, the insurance industry has been active in the formation of risk-sharing partnerships with government in particular. This has been one of the single most important changes to global reinsurance in decades. For the first time there has been a recognition by insurers that they may not be able to bear the total cost of future insured catastrophic loss, and this must be shared with government. This was recognised by a number of panelists. Awareness raising was also a valuable recommendation to assist in minimising potential future massive loss claims.

Question 41

Panelists were equivocal on the future of virtual travel. Fifty-two percent suggested virtual travel would not replace conventional travel at all. It was expected that there would be greater support for the possibility of new media replacing certain aspects of travel habits. The question could have been more specific about the meaning of virtual travel to assist panelists in making their choice, given that virtual travel could mean a host of possible experiences.

Question 41
Can you envisage 'virtual travel' (computer/TV/video or other new means of experiencing different geographic locations) replacing conventional travel by 2050?

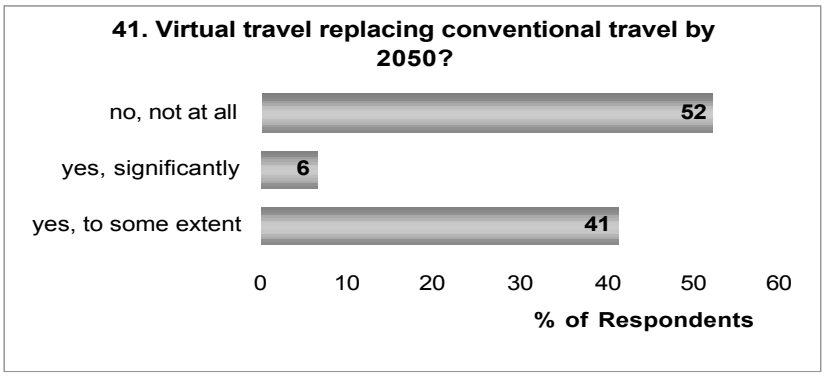


Figure 4-29 Round 1 Question 41.

Question 42

Sixty-five percent of panelists agreed that sea-level rise will have a significant impact on the tourism industry in tropical coastal areas by 2050. Again, this is in clear agreement with the current literature on the subject, IPCC discussions, and insurers' risk modelling.

Question 42
Sea-level rise appears to be a product of climate change. Atmosphere-ocean general circulation models (AOGCMs) for sea-level changes suggest that the rate of sea-level rise due to thermal expansion of sea water has increased during the twentieth century and the projected total is consequently larger than in the twentieth century; for 1990-2090 it amounts to 0.20-0.37 m (sea-level rise is expected to be geographically non-uniform). Do you believe sea-level rise will have a significant impact on the tourism industry in tropical coastal areas before 2050?

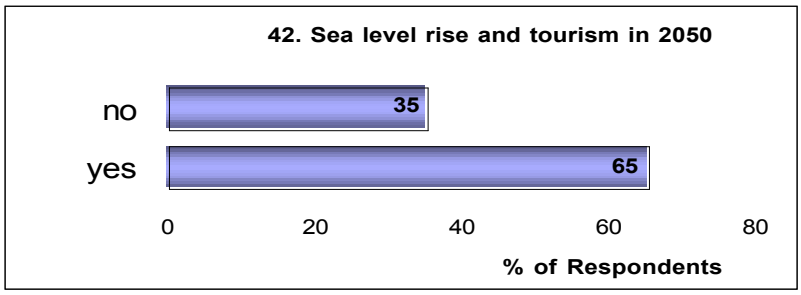


Figure 4-30 Round 1 Question 42.

Question 43

There was clearly no consensus on the question of the likely changes in aviation transport systems of the future to 2050. Round Two achieved a good level of consensus on this question.

Question 43
What do you envisage will be the most significant change in aviation transportation systems for tourists by 2050?

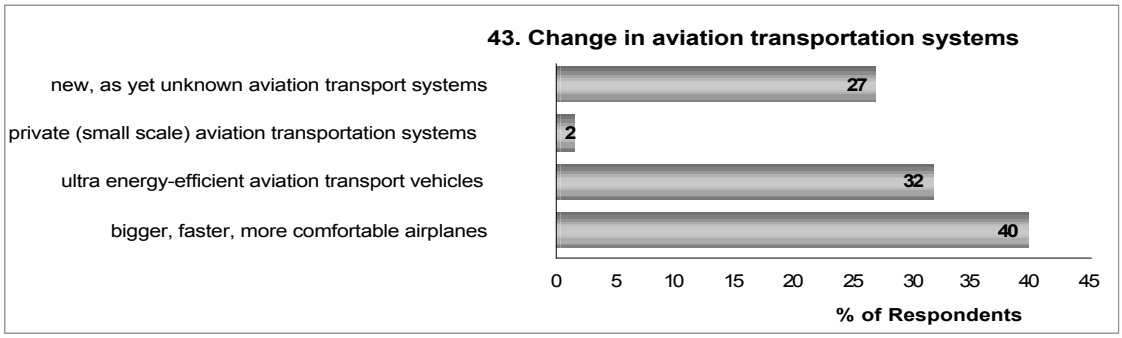


Figure 4-31 Round 1 Question 43.

Question 44

Fifty-one percent of panelists considered that slower marine transportation systems, such as cruise ships, would make a modest resurgence into the tourism marketplace to 2050, with a total of seventy-three percent of responses agreeing that, yes indeed, marine transportation will make future market gains.

Question 44
Will slower marine transportation systems such as cruise ships, make a resurgence as a more significant tourism product in the future marketplace in 2050?

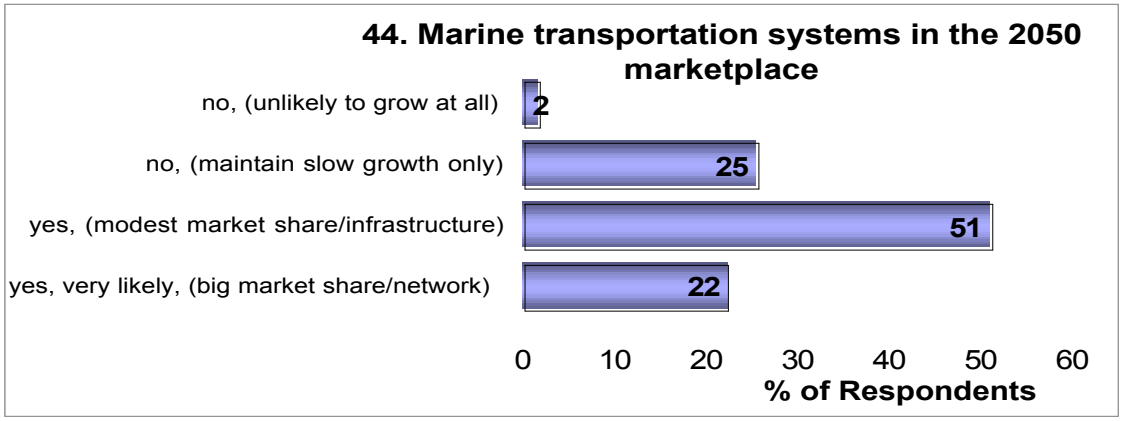


Figure 4-32 Round 1 Question 44.

Question 45

Travel habits in the future are likely to change in many ways. Panelists considered the two most likely changes to these travel habits after 2025 to be: i) increased visitation to age/lifestyle/culture-oriented destinations, and ii) an increase in demand for service quality. Reference to Premature Holiday Burnout (PHB) in this question relates to studies of the pressure experienced by holidaymakers to maximise their leisure time and how service providers can respond to this modern need. The reasons behind a tourist's destination choice and travel habits are constantly changing. Service and specialist amenities (for specific age groups, specific interests etc.) were most influential in the opinion of nearly half of the panelists.

Question 45.
Premature Holiday Burnout (PHB) has been described in the USA as a very real affliction of tourists at present. What do you consider will be the most likely changes to travel habits of tourists after 2025? (choose three)

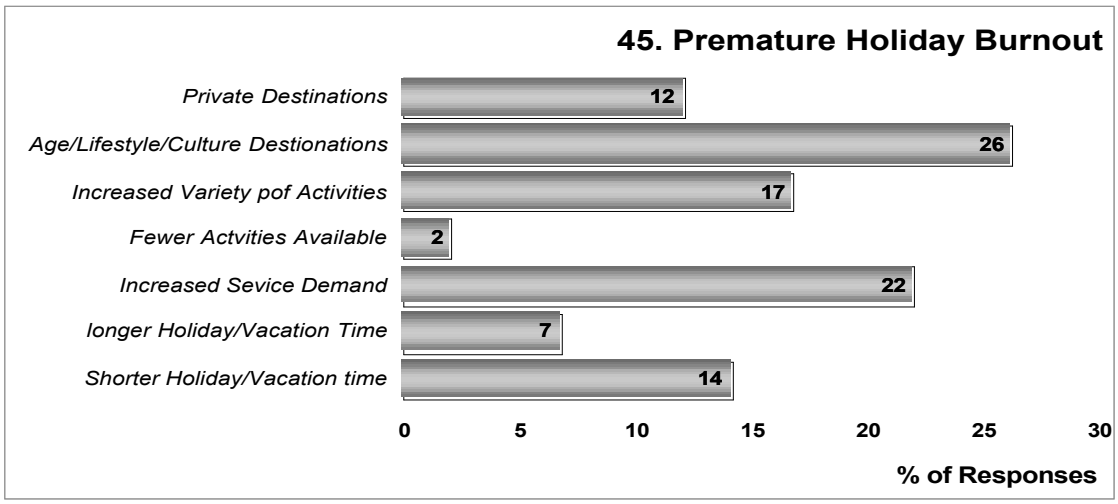


Figure 4-33 Round 1 Question 45.

Question 46 was a text response only.

What other specific changes to travel habits of tourists can you envisage between now 2050? (describe)

- Destinations with more contact facilities e.g. email, news media, mobile phone range, etc. will be demanded more often.
- Space travel.
- Increased last minute booking increased and multiple short holidays.
- Older and disabled people to travel more.

- I don't agree with holiday burnout at all, it is a gimmicky UK/Californian idea to me, as nutty as general space tourism!
- There will certainly be a further division between the mass tourist (resort and urban in nature) and the more exclusive traveller seeking peace, luxury, privacy, and unique experiences.
- Greater emphasis upon the acquisition of knowledge whilst in the role of tourist.
- More tourist enclaves & fully self-contained resorts with all facilities & activities on site.
- Safety and security issues will play a larger role in the future, customers will demand secure accommodation quality service and a safe environment.
- Talking of global average trends doesn't make much sense.
- People moving home to holiday destinations.
- Increasing fragmentation of immature markets, greater homogenisation of mature markets that are currently very fragmented.

4.2.6 Final Question

Question 47 was a text response only.

Please make use of the space below to make any additional comments you might wish to add on any aspect of the survey, an individual question, a question or topic you would like to see included, or any other suggestions or advice you might have.

- Too few choices in some areas but overall useful. For example one reason I see a slowing in tourism growth is a slowing in income growth in developed countries due to demographic changes.
- There were several questions where I wanted to say none of the above rather than make a choice. Should have more questions on the world economy and how it will affect tourism growth to 2050 (multiple).
- As an operator I have had a 400 percent increase in insurance costs in the current year based on perceived fire risks following catastrophic fires at other

hotels now five percent of revenue. Have a look at the impact of cyclones on hotels in Mexico. Loss of foreshore land means loss of equity.

- I do not like being told I have to choose three when I do not think there are three relevant answers. I am not sure if I want to complete this questionnaire.
- If you want three, add another space or none of the above or don't know. I therefore ticked every box.
- I have noted above some concern over the word catastrophe. Many of the events and occurrences are trends and not really catastrophes. Also, long-term forecasts are guesswork for everyone, even one or two year forecasts are of dubious value. If nothing exogenous changes then you know there will be very slight increases at least. If a real catastrophe does occur, the forecasts are useless.
- Some backward looking information on what people forecast ten years ago would be helpful to see how far out they were (multiple).
- World travel growth has been remarkably steady and major conflicts or energy crises have resulted in short-term changes only. Questions 32 and 45 I did not want to answer but was forced to do so!
- Tourist motivation will become more diversified with greater attention paid by researchers to emergent interest groups such as older tourists sole travellers than ecological tourism and cultural tourism.
- A nice balance of questions. Would be interested to see the overall contribution of environmental issues and a bit more drilling down on insurance, which I suspect will be a critical issue for the future.
- Some choices seemed to include others (was this deliberate in order to cross-check opinions? i.e. Greenhouse effects and changing sea levels were both potential selections to the same question). Anyway this is all good stuff (multiple).
- It was hard to decide whether the survey is oriented towards domestic travel or international travel. It may also be worth recognizing that with global warming the area providing the conditions currently only available in the tropics may spread so that people can experience those conditions in more locations!

- Cultural conflict that results from mutual exposure both physically and via media of very different cultures will be a huge issue.
- Difficult time to do survey with one war just over and the effect of SARS. Hopefully atypical time but possibly it is a window to the future.
- Oil shortage will trigger the major changes in worldwide tourism industry as long as no alternative fuel is available.
- I found what seemed some overlap in some of the multiple-choice answers that was confusing (multiple).
- 1. I assume income/expenditure and GDP are all assumed to be in real terms 2. Also where looking at impacts these might be very large at the local level but on a global basis small so some questions not clear.
- It is really very hard to predict future outcomes for twenty-five to fifty years in other parts of the world (multiple).

4.2.7 Overall Comments – Round One

The following brief general observations, drawn from panelists' responses in Round One, were included in the Report to Panelists (see Section 4.3: Report to Panelists below; the full version of the Report is included in Appendix 4 DFTS 2003: DTFS Report to Panelists.pdf):

- This was not a particularly 'green' group with environmental responsibility ranging in response rates quite significantly.
- As expected, many panelists indicated that the primary concern would be for safety and security issues, particularly given the increasingly ageing population of travellers (multiple).
- It was suggested that tourists of the future would have shorter, more focused recreational holidays (careful choice of climatic conditions, level of perceived safety, types of amenity, level of service requirements, etc.) in a more intense tourism marketplace (multiple).
- Many agreed that tourism would continue to rebound well from adversity and catastrophe (multiple).

- It is expected that arrival and expenditure figures would continue to rise but at lower rates of increase than before September 11 2001 (multiple).
- Panelists agreed that climate and natural hazards would have an increasingly significant impact on coastal tourism, affecting cost, location, and quality of facility development (multiple).
- Many indicated that insurance companies and governments would be likely to share responsibility for major risk categories, possibly including the unpredictable perils of war and terrorism (multiple).
- Many expected that exposure to risks (natural and anthropogenic) and insurance costs for travel would increase (multiple).
- Panelists expected that the environmental responsibility of travellers would not alter much in the next fifty years (multiple).

In this final opportunity for the participants to voice their opinion on any of the issues raised in the survey, the significance of safety and security as a determining factor in destination choice was again reinforced, as was the need for insurers to spread the load of catastrophic risk with governments. These two issues in particular will be amongst the most important issues that will affect coastal tropical tourism development in the future, particularly in the post- Indian Ocean tsunami era.

4.3 ROUND TWO RESULTS

Round Two consisted of nine categorical questions only (no open-ended questions), all taken from the first round. It was hoped that in this iteration, additional information might be generated by either a strengthened consensus or change of opinion. Panelists were given the opportunity to reconsider their individual responses in the light of the responses of all panelists. Consensus did strengthen in seven of the nine questions (the exceptions being Questions 10 and 12) by an increased selection of the most popular response and the consequential decrease in the least popular responses. Questions ten and twelve resulted in a greater spread of opinion on the prime motivations for travel for both age groups.

The frequency histograms show both results from Round One and Round Two, and a brief discussion of the two rounds of responses is above the histogram. The questions are shown in italics. Options available to panelists for each question are shown on the left-hand side of the histogram (see complete DTFS Questionnaire in Appendix 4: DTFS 2003). Each individual question in Round Two is discussed below.

Question 10

By 2050, what do you expect will be the three prime motivators for the selection of a tropical coastal destination for tourists between the ages of eighteen and thirty-five?

Panelists clearly indicated that younger people (eighteen to thirty-fives) are particularly concerned with maximum value for their tourist dollar and the opportunity for adventure, showing less regard for safety and risk than their older counterparts (see Question 12 below). The travel experience and motivations in fifty years are not likely to be very different from those of today. Panelists suggest that younger people will however have demands and needs to learn more, both before travelling and during travel experiences (see open-ended responses to the follow-on Questions 11 and 13 in Section 4.2.2: Topic One: Tourism and Economic Growth Trends). Health and safety features less in the younger generations' choice of destination. The second round response to this question (unlike those of most other Round Two questions) showed a greater spread of

possible motivations for travel to coastal destinations and no clear strengthening of opinion.

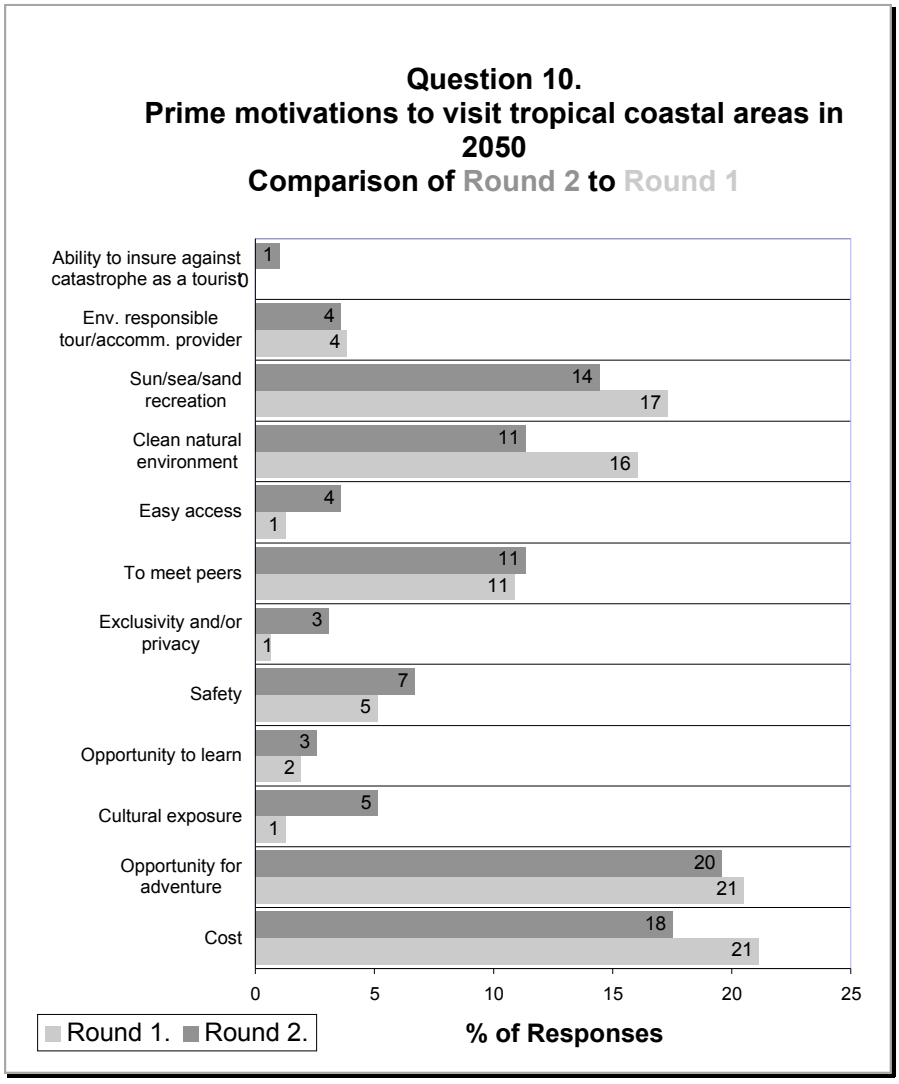


Figure 4-34 Round 1 and Round 2 Question 10.

Question 12

What do you expect will be the prime motivations for destination selection for tourists over the age of thirty-five?

It was clear the over thirty-fives have distinctly different preferences from those of the younger group above (illustrated more obviously in the comparison of Questions 10 and 12 below). How might this change in fifty years? Panelists suggested that our children and grandchildren will live in a vastly more connected society with access to new communications and transportation technologies, and with the likelihood of rather different recreational habits and preferences (see open-ended responses to the follow-on Questions 11 and 13 in Section 4.2.2: Topic One: Tourism and Economic Growth Trends). Panelists suggested that the opportunity and demand for a learning experience (cultural exposure), health and safety, and a clean natural environment will be the prime considerations in the choice of destination of this age group in the future. Unlike the responses to other questions, the second round responses showed a decrease in the most popular responses of the first round and a consequent increase in the spread of choice for other motivations.

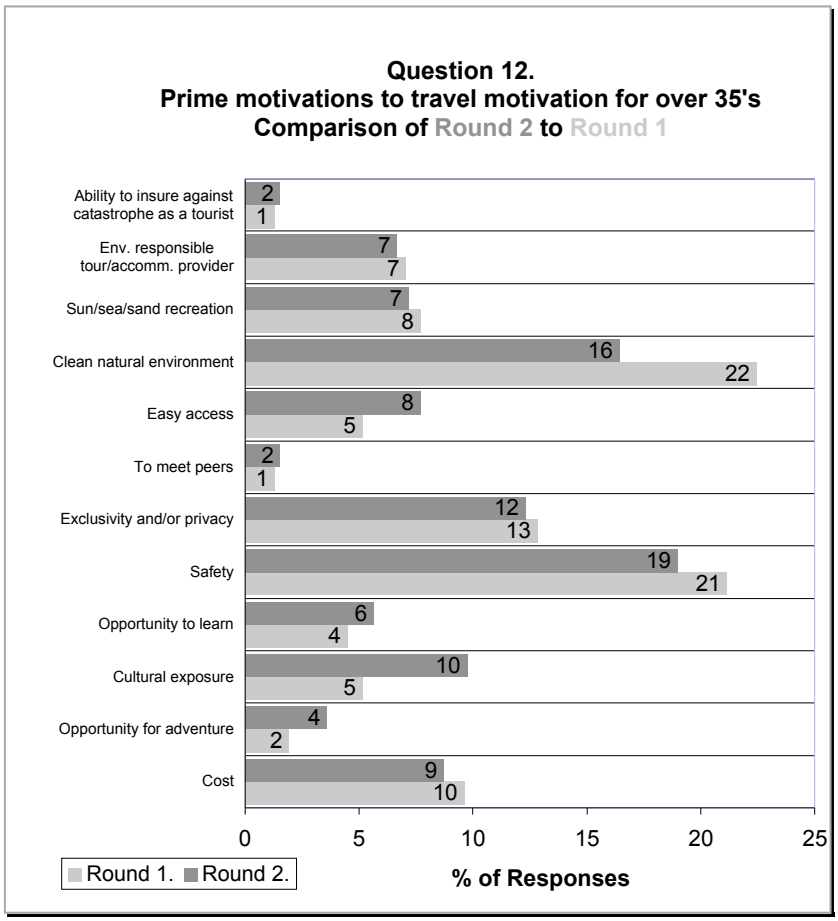


Figure 4-35 Round 1 and Round 2 Question 12.

Compare Questions 10 and 12

Both questions asked panelists to identify the prime motivations for destination selection for tourists in the two age groups: i) between the ages of eighteen and thirty-five; and ii) over thirty-five.

While the response options were the same for the two groups, there was a distinct difference between the options selected. The comparative Figure 4-36 below indicates that safety and the desire for adventurous and potentially risky behaviour were the two most divergent responses. The predicted behaviours of younger travellers (looking for adventure) and older travellers (concerned with security and safety) were consistently different in virtually all categories. This opinion suggests that, in future, attention to demographic market segmentation might be more significant than it is today. The spread of responses is in agreement with Question 3 responses concerning future travel habits of all tourists. Panelists considered the older generation to be more motivated by environmental concerns regarding their choice of destination.

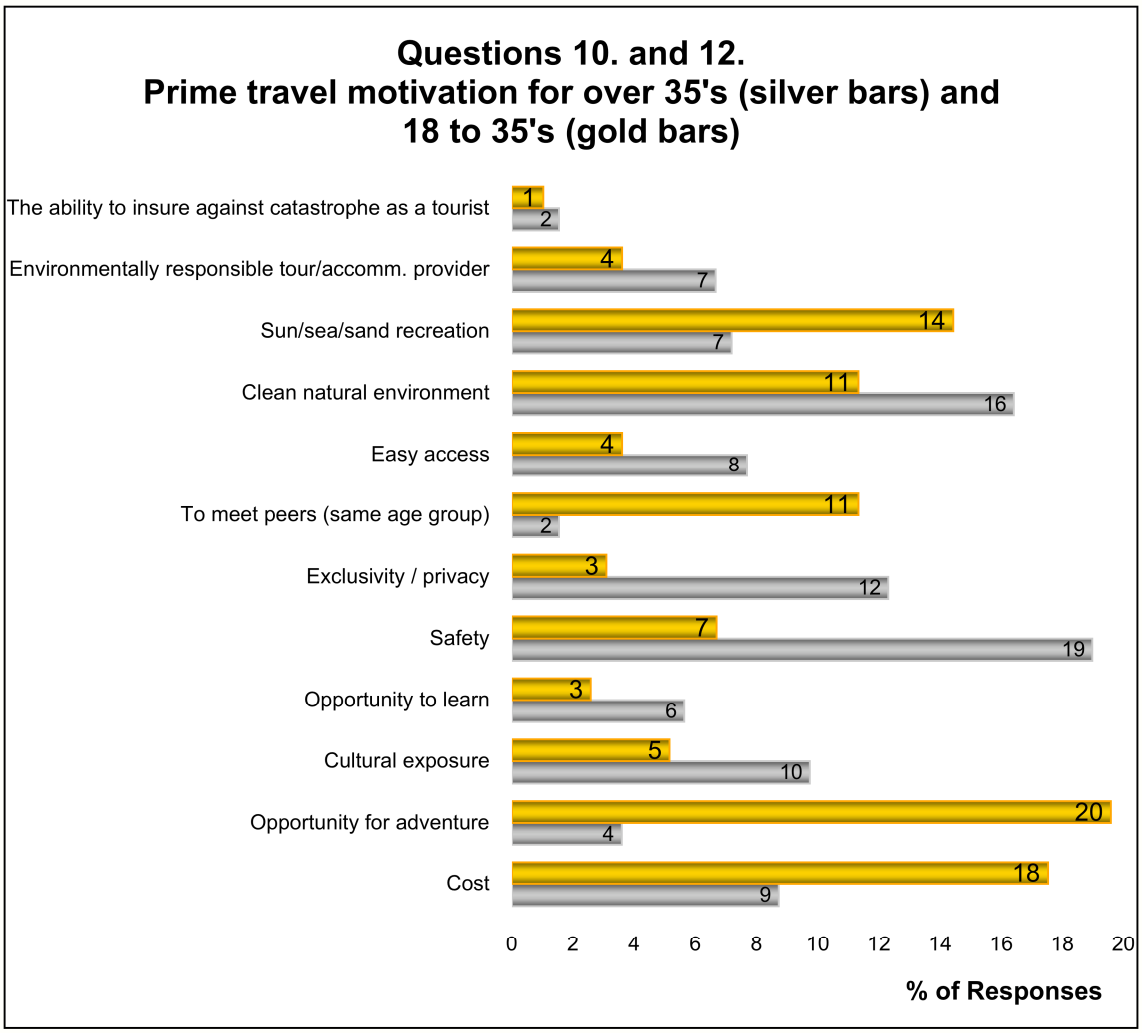


Figure 4-36 Round 2 Questions 10 and 12 Combined.

Question 20

What major man-made (or human generated) hazards are likely to have a significant impact on tropical coastal areas from 2001 to 2025?

While there was a rather wide spread of responses (including seven percent suggesting, rather pessimistically, all of the above), the general consensus strengthened in Round Two. War and terrorism concerns are strongly in the minds of all at present, as are the issues and consequences of political instability. Pollution and other environmental concerns received over a third of responses. It will be useful to revisit this question a decade from now. This did not achieve a clear consensus in either Round One or Round Two.

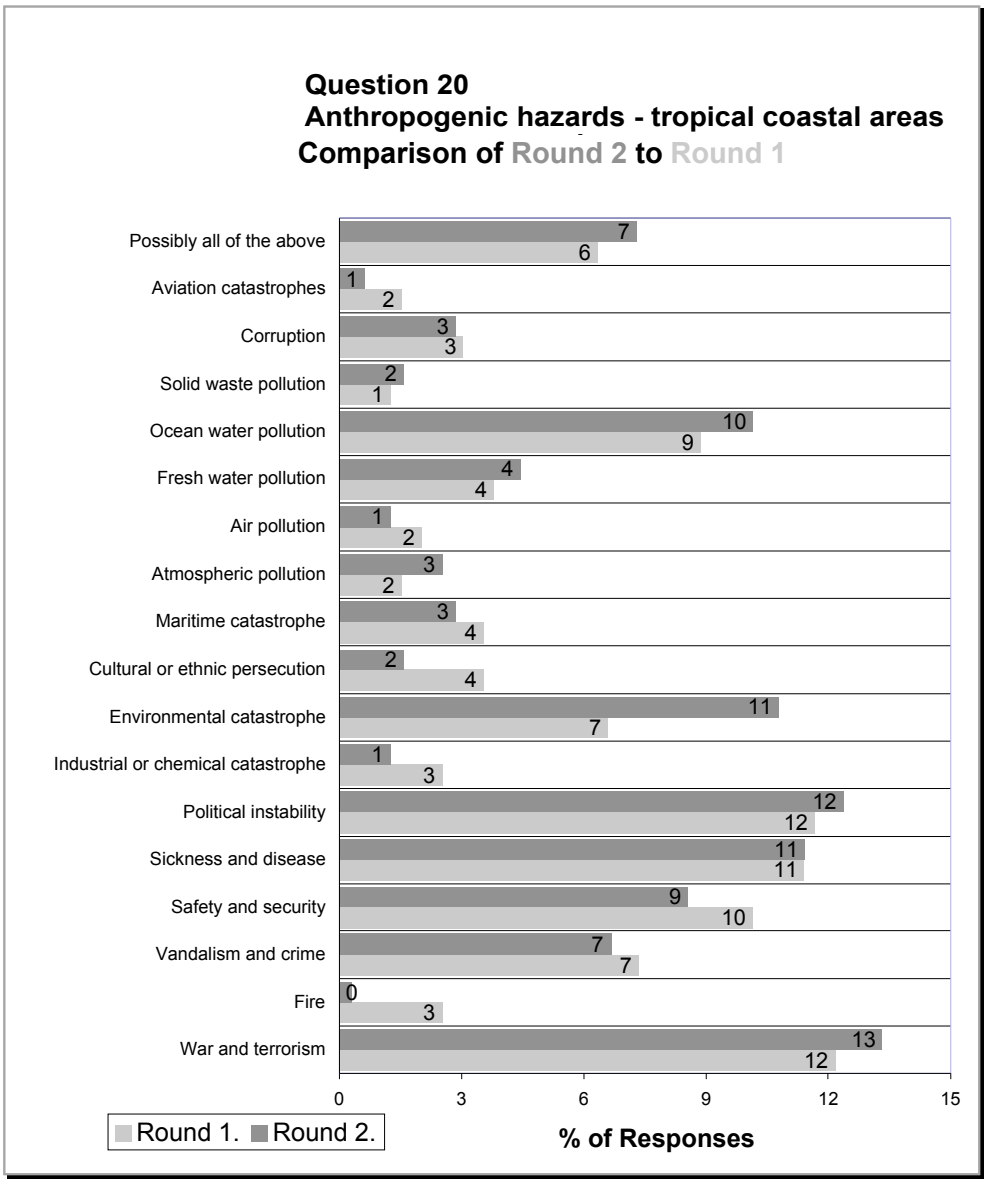


Figure 4-37 Round 1 and Round 2 Question 20.

Question 22

The equation below indicates a theoretical relationship that describes the total risk faced by a particular location or entity. This is derived primarily from natural hazard analysis.

Risk (Total) = Hazard x Elements at Risk [Exposure] x Vulnerability.

Is this an adequate framework or model to apply specifically to the tourism industry in order to analyse future risks that the industry may face?

Strengthening of opinion was apparent in this somewhat theoretical question. The intention here was to gauge opinion and comment on the value and usefulness of such a framework (a quasi-mathematical equation) to develop a model specific to the tourism industry. This is an underlying objective of the thesis. A number of excellent suggestions and insightful comments were made by panelists (included above in Section 4.2.3: Topic Two: Catastrophic Events and Climate Change Impacts). This equation has been applied as a model in the emergency management discipline over the last ten years. One panelist suggested that there might be too many unquantifiable variables to use this as a model formula. It does provide a useful 'big picture' means of understanding the elements contributing to total risk. Panelists have suggested a number of additions, generally indicating concurrence that there may be a place for such an equation, albeit expanded in scope and comprehensiveness. This is discussed in detail in Chapter 5.

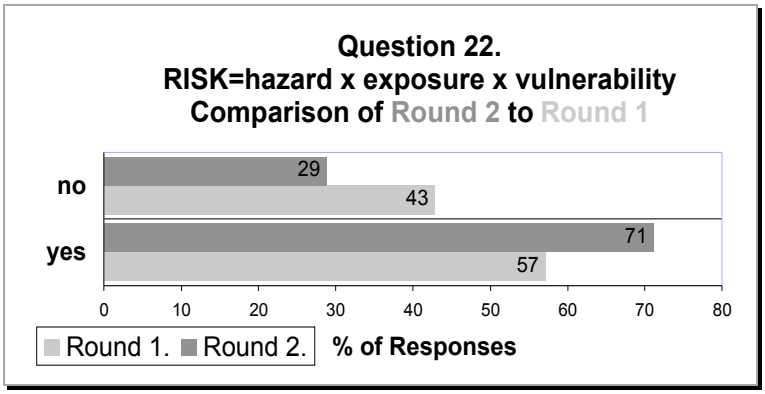


Figure 4-38 Round 1 and Round 2 Question 22.

Question 28

What do you expect to be the biggest insurance cost for tourism operators in 2025 (hoteliers, tour operators, transportation companies etc.)?

This was a difficult question, given the level of uncertainty one can encounter when looking twenty years into the future. Tourism businesses often insure for a variety of eventualities for legal, economic, and moral reasons, not usually taken into account in less developed countries where insurance is less common. Panelists consider that public liabilities will consume a far greater percentage of revenue than they do today. Businesses are likely to face new challenges in the future and panelists suggest that insurance might increasingly share these risks. There appears to be a strong case for insurers and tourism businesses working more closely on mitigation measures and increasing awareness of the role of insurance in industry viability in the future, given the second round strengthening of opinion on the likely future costs of public liability insurance. Public liability and political risk were the only two options to increase in Round Two, which together account for sixty percent of responses.

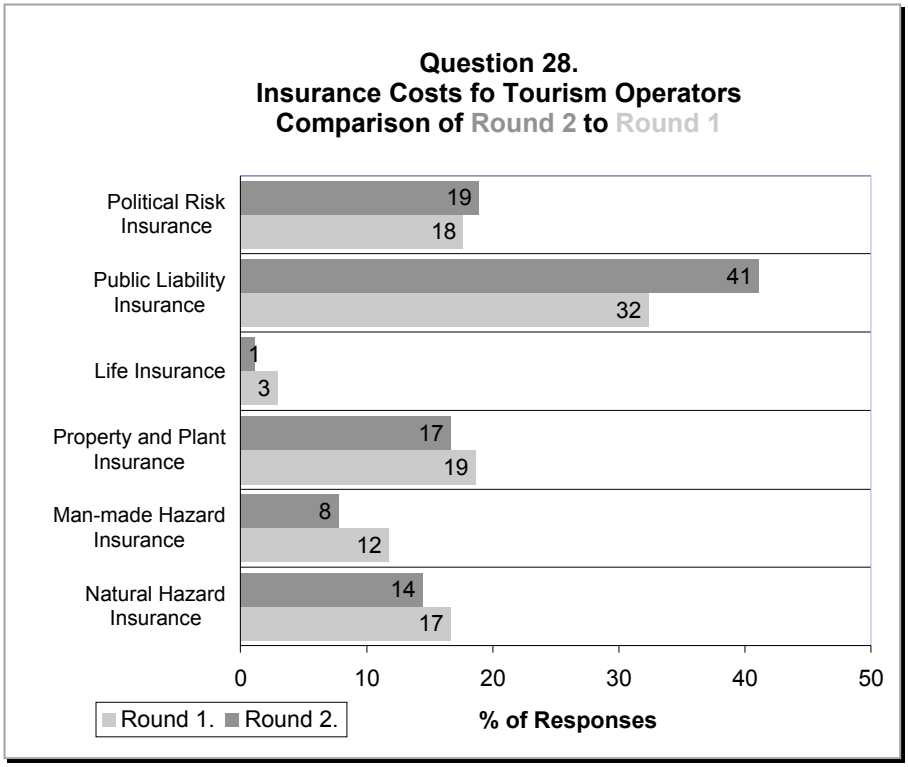


Figure 4-39 Round 1 and Round 2 Question 28.

Question 29

Which of the following possible new insurance products do you think will be the three most important insurance coverage categories for tourists in 2025?

This was also a difficult question given the scope of uncertainty and theoretical issues associated with envisioning future insurance products. Legal systems often do not cover broken promises (contract law) or guarantees. While it may appear somewhat meaningless to assess insurance needs over such a time span, this question has much to do with future destination product delivery, shedding light on likely tourist needs and expectations. Panelist responses indicate that, in the future, general travel insurance might become more important to travellers. Eighty percent of UK travellers take out travel insurance for example. There was little change in responses in the two rounds apart from a strengthening of opinion on the importance of general travel insurance.

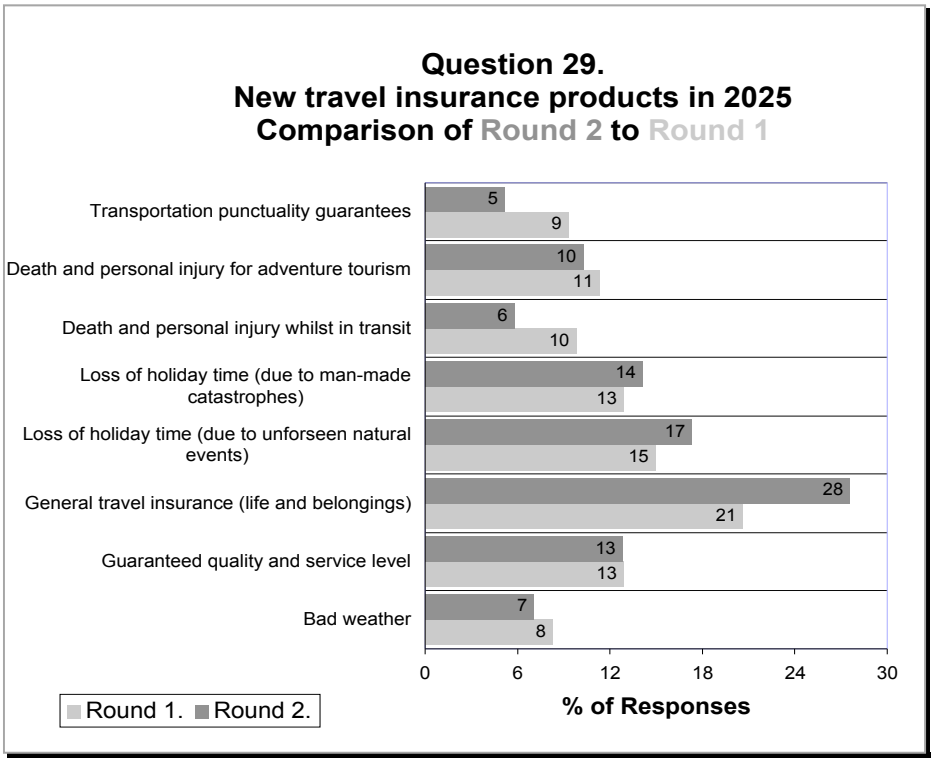


Figure 4-40 Round 1 and Round 2 Question 29.

Question 33

Can you envisage the East Asia/Pacific region maintaining a similar (sustained) growth rate in tourism through to 2050?

The extraordinary WTO projected growth rate of 6.5 percent for the Asia Pacific region to 2020[15] may be in question given recent (2001-2003) major catastrophic events. Almost half the panelists suggested that there may be a significant slowdown in this earlier positive growth forecast. Political instability, for example, featured as a likely adverse event in the Asian region between now and 2050 (see Round One Question 34).

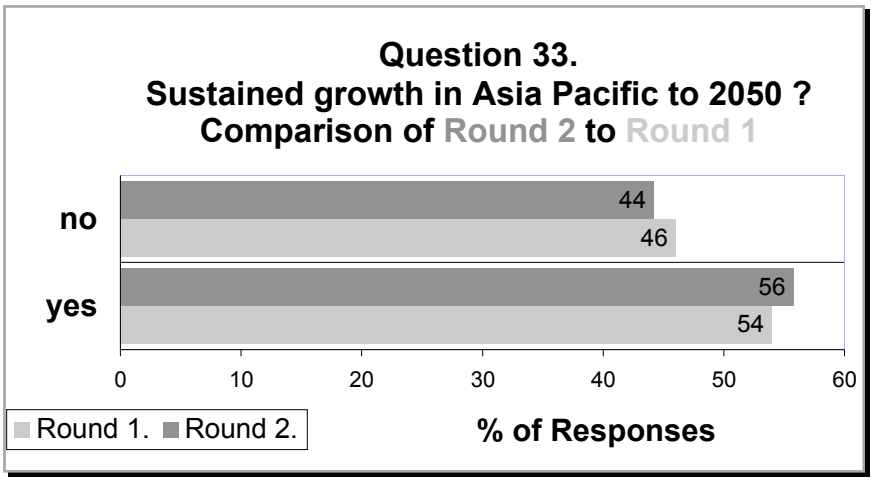


Figure 4-41 Round 1 and Round 2 Question 33.

[15] This information provided as part of the question was drawn from the World Tourism Organization (2001) Tourism 2020 Vision - Global Forecast and Profiles of Market Segments, which generated forecasts to 2020.

Question 35

What do you consider will be the major (climate related) potential catastrophes that may have a significant impact on the tourism industry in the next 25 years?

Many panelists have an understanding of the growing knowledge base and modelling capacity for likely climate change scenarios, and the potential for catastrophic events due to changes in our climate patterns. This was illustrated by the strengthening of opinion regarding access to fresh water supplies, sea-level rise and health implications as the most likely climate related potential catastrophes. With the World Water Conference and regular featuring of climate change issues in the media over the time the survey was conducted, it was not an unexpected result as both knowledge and awareness of these issues continue to grow. The strengthened opinion in Round Two highlights the two significant global issues that will have an impact on future coastal tourism development.

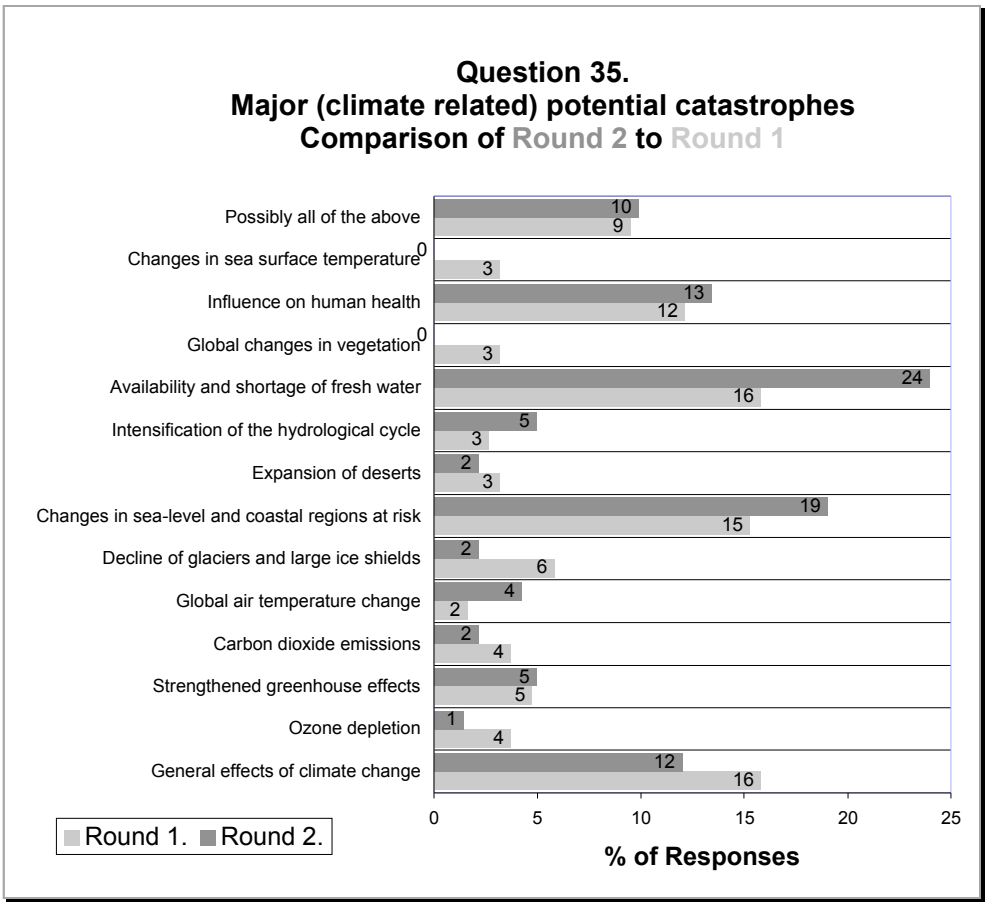


Figure 4-42 Round 1 and Round 2 Question 35.

Question 43

What do you envisage will be the most significant change in aviation transportation systems for tourists by 2050?

A strong consensus emerged in the development of existing technologies (bigger, faster, less polluting airplanes) as opposed to the possible development of new forms of transportation systems. Opinion suggested that our reliance on air travel as the *modus operandi* for future access to tourism destinations is highly likely. Fifteen percent of panelists changed their view regarding possible new types of transportation systems. This may be due to panelists having had access to other panelists' responses to the open-ended responses in Question 38. Question 38 asked in what other ways might aviation transportation systems for tourists change by 2050?

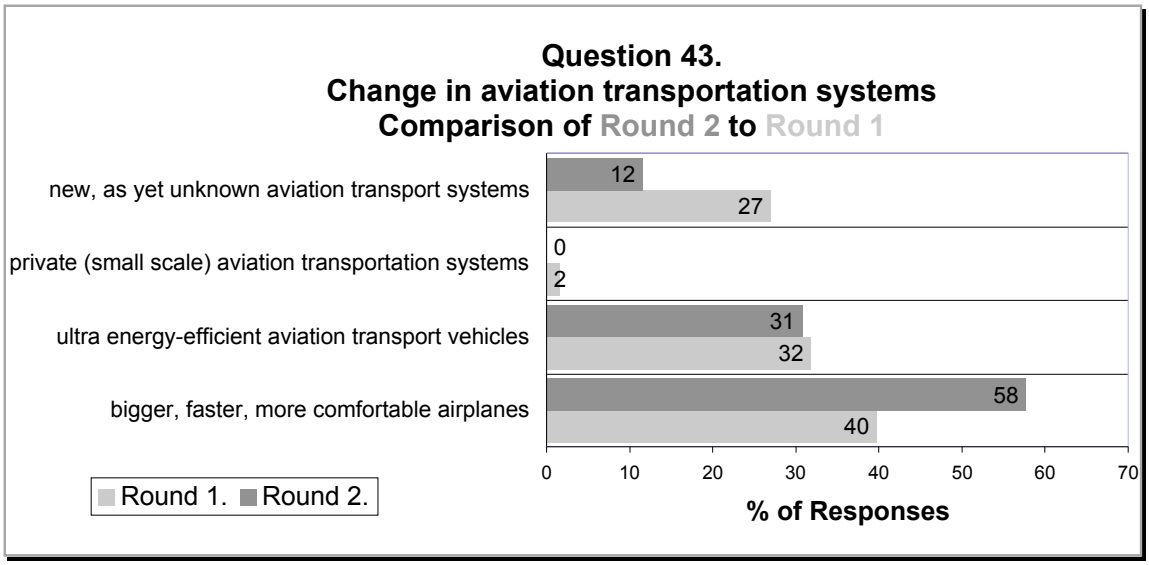


Figure 4-43 Round 1 and Round 2 Question 43.

Report to Panelists

The report circulated to all panelists following the completion of the survey provided a summary of both Round One and Round Two, and included some additional background information that was posted on the website over the course of the study. The complete title of the report was "Delphi Tourism Futures Study 2003 – Report to Panelists, Summary Methodology and Results" (this document is included in Appendix 4 DFTS 2003: DTFS Report to Panelists.pdf). The background material provided in the Report to

Panelists was drawn from information now contained in Chapters 2 and 3 of the thesis. The Report to Panelists was posted on the web site upon completion of the analysis of data from both rounds of the survey. No password was required to view or download this report. Hard copies of the report were sent to those panelists who requested the paper version.

The Report to Panelists used somewhat colloquial English for clarity of communications, as around thirty percent of panelists' first language was not English, and the use of jargon was also minimised. Included in the report was a brief summary of all responses, grouped into three categories of Tourism Trends, Tourism Forecasts, and Insurance and Risk Management. These titles were derived from the original four topic areas of questions in the survey, with the exception of Catastrophic Events (Topic Two), which was incorporated under the three summary titles. This was done to better relate catastrophe to forecasts, trends and risk management. Feedback from a small number of panelists indicated that they found the Report to Panelists to be informative, but questions arose regarding how the data would be used, out of interest in further stages of the research.

4.4 RESULTS AND METHODS

This section provides additional analysis of the survey findings apart from the descriptive analysis in Sections 4.2 and 4.3 above. Descriptive statistics were used to describe the basic features of the data in the Delphi Tourism Futures Study. They provide simple summaries about the sample and the measures. Together with frequency histogram graphic analysis, they form the basis of the quantitative analysis of the data contained in the two sections above. While statistics can measure the relationships and differences between groups of numbers, the survey did not measure numbers as such, but rather generated responses, which represented ideas that encompassed a considerable degree of complexity. The appropriate analyses were therefore restricted to a number of descriptive statistical tests, and a correlation test to investigate the extent to which there was a similarity between responses to questions in both rounds.

While consensus can be an important objective of the Delphi technique, in this adaptation of the technique it was not critical to achieve consensus in every question. On the contrary, it was expected that there would be a number of questions with a wide range of responses. The level of consensus achieved was therefore unexpected, particularly in Round One. It was also surprising that in Round Two there was a strengthening of consensus in seven of the nine question responses. The frequency histograms comparing responses illustrates this graphically.

This may have occurred as a result of the structure of the survey itself, which did not allow for the flexibility that a number of panelists suggested was lacking. Specifically, no provision was made for a "none of the above" response, or to not choose any of the possible responses offered. In future, this would be an important addition to the methodology. Approximately ten percent of panelists expressed concern over this lack of flexibility in the response options and were at times uncomfortable with having to make a selection from what was presented. This may have accounted for the high level of consensus in the majority of questions in Round Two.

4.4.1 Results and Hypotheses

The three fundamental hypotheses investigated in the research were that:

i) the tourism industry is experiencing a significant increase in risk exposure;

ii) risks (from natural and anthropogenic hazards) will have a significant impact on the development of the tourism industry in tropical coastal areas in the coming decades; and,

iii) a model can be developed as a planning and management tool to illustrate the relationship between variables that constitute a description of total risk for tourism businesses and their host communities. While the development of a model might be considered more of a research aim than a hypothesis (an idea or explanation for something that is based on known facts but has not yet been proved), it is the relationship between the individual variables when brought together in the model that is the basis of the hypothesis. That is, the concepts of the individual variables

are known independently, but it is the suitability of their combination into the model that is to be verified.

Risk Exposure

It can be concluded that panelists consider that the tourism industry will in future experience a significant increase in risk exposure from natural and anthropogenic hazards. Evidence for this conclusion is drawn from a number of responses:

a) Responses to Question 5 indicated that safety and security would be the most important factors affecting growth trends in the next twenty-five years.
b) Responses to Question 12 indicated the single most important factor in destination choice for the over thirty-five age group in the future will be safety.
c) Responses to Question 17 indicated that before 2010, there would be a catastrophe greater in scale than that of September eleventh. This event has now occurred on 26 December 2004.
d) Panelists expect that the impacts of climate change will become a dominant factor in the planning and management of tourism facilities before 2020 (Question 18).
e) The two most significant anthropogenic hazards that will affect tropical coastal areas will be war and terrorism and political instability (Question 20). This apparently escalating risk exposure continues to be a threat to the world today with tourism being particularly vulnerable.
f) Recognising the need for additional safety and security measures for travellers (Question 24), panelists considered these new costs should be shared by the general public, government, the private sector, and the insurance industry. Increased risk exposure means travel insurance will be more important to travellers in the future according to fifty-six percent of panelists (Question 26).
g) Increased risk exposure will result in increasing the importance of general travel insurance (life and property), singled out as the most important new insurance products for tourists in 2025 (Question 29).

h) Panelists expect that climate change will pose significant risk of catastrophe to coastal tropical tourism through a multitude of increasingly hazardous events associated with sea-level changes, availability of fresh water, other general effects of climate change, and the impacts these changes will have on human health (Question 35).

Risks to Tourism

It can be concluded that panelists consider that risks (from natural and anthropogenic hazards) will have a significant impact on the development of the tourism industry in tropical coastal areas in the coming decades. Evidence for this conclusion is drawn from the following responses:

a) As above for Questions 5 and 12, the rising concern for safety and security is indicative of the long-term impacts of increasing risk exposure for which the tourism industry will need to respond in the short-term.

b) Question 14 indicated that apart from cost and value for money, the second most important factor influencing hotel occupancy rates in future would be the political stability of the host nation. Political risk will therefore have an increasingly significant impact on the business environment of accommodation providers in future. Political instability (together with war and terrorism) was the major anthropogenic hazard nominated by panelists (Question 20).

c) Possibly the most alarming response from panelists came in Question 17 where sixty percent of panelists expected that before 2010, tourism development will contend with a catastrophe (from natural or anthropogenic hazards) of a scale exceeding that of September eleventh. This is no longer alarming given the occurrence of the Indian Ocean tsunami in 2004.

d) Climate change (Question 18) is expected to become a significant planning and management issue for hotels, transport systems, and recreation activities in tropical coastal areas between 2010 and 2020. Existing and future tourism development in coastal areas will need to adapt to a variety of impacts arising

from a changing climate, particularly cyclones, hurricanes and tropical storms (Question 19).

e) Almost two thirds of panelists consider that sea-level rise will have a significant impact on tourism in coastal tropical areas before 2050 (Question 42). This will alter the patterns of development and investment in coastal areas and small island states in the immediate future.

f) Travel insurance will be more important to future travellers (Question 26), likely at additional cost to future travellers although it was felt by panelists that such costs would remain less than ten percent of one's total travel expenditure (Question 27). Public liability costs to tourism businesses are expected to be their biggest insurance costs before 2025 (Question 28). Together, these costs will be passed down to travellers thereby affecting future tourism development in terms of affordability for lower income (lower expenditure) market segments. Similarly, the strong support from panelists for risk sharing in order to cope with future massive loss claims from natural or anthropogenic hazards, will again be passed down to travellers to share these costs with government and the private sector (Question 39). For example, insurance rates continue to influence construction costs of new facilities in hazard-prone coastal areas (Question 40), thus increasing operating costs and subsequent cost to tourists.

g) While panelists were positive about a continued increase in global growth rates of GDP (Question 31), they were cautious to suggest these rates would slow to 2050 from the current five percent to between 2.0 percent and 2.5 percent (Question 32), with the Asia Pacific region maintaining strong growth to 2050 (Question 33). The biggest risk to growth in this region, and therefore to tourism growth and development, will be regional and national political instability (Question 34).

h) The impacts of climate change could pose the most significant long-term risk to tourism development (for both supply and demand) in coastal tropical areas as a result of water shortages, increased severity of weather events, coral bleaching, fauna species impacts, increased forest fires, flooding, sea-level rise, and other climate-related uncertainties (Questions 35 and 36).

Risk Model

Seven out of ten panelists considered the model proposed in Question 22 (which indicated total risk as a function of hazards, vulnerability and exposure) to be an adequate analytical framework to apply to the tourism industry. The survey data provided the impetus to make two important changes to this model: i) a consolidation of two of the dependent variables; and, ii) an additional dependent variable, described below.

The differentiation between vulnerability and exposure was confusing for some panelists, as they were not provided with adequate definitions of these terms either in the survey or on the web site. Even without specific definitions, the confusion between exposure and vulnerability needed to be addressed. Consequently, and as a result of endeavouring to more clearly define these terms, it became clear that these two terms were not mutually exclusive and therefore could be combined. Exposure, or the exposure of those elements at risk, is then understood as a component of vulnerability, thus eliminating one element of the original model as described in the equation given to panelists.

There was strong support from panelists for the extension of the concept of vulnerability to be more inclusive of social dimensions for risk analysis. It was noted also that the Exposure variable should account for the potential financial costs of the exposure of specific elements of the business or community. The first of these suggestions would require changes to the existing model to apply to tourism-related risk in a variety of geographic locations and cultural circumstances so that socio-economic, and planning and management factors could be included in the model. This resulted in the second change to the model; the addition of the dependent variable termed the Risk Environment. A revised conceptual equation to model total risk is described below.

$$\textbf{Risk}_{\textbf{(Total)}} = \textbf{[Hazard + Exposure}_{\textbf{(Elements at Risk)}} \textbf{+ Vulnerability]x Risk Environment}$$

The term Risk Environment used in this equation is a broad interpretation of an environment being inclusive of a range of contextual attributes including circumstance, setting, and situation. Chapter Six includes a discussion of the further development of the model, the new definitions for each element of the model, and its potential value as a planning and management tool. With these changes, the specific use of the equation as a modelling tool for tourism risk management has been improved by the addition of social and managerial dimensions. With reference to the more detailed discussion of the model in Chapter Six, it can be concluded that a model can be developed as a planning and management tool to illustrate the relationship between variables that constitute a description of total risk for tourism businesses and their host communities.

Overall, the results of the survey have provided a comprehensive examination of the hypotheses. The level of consensus achieved in twenty-three of the thirty-two categorical questions in the first round provided solid support for these hypotheses. The strengthening of the opinion of the panelists in seven of the nine of the Round Two questions solidified consensus in that round. This added further support to the existence of a variety of industry and location-specific risks that tourists, tourism businesses, and their support communities will face in the coming four to five decades. Tourism development in tropical coastal areas in the future will need to plan and prepare for a future risk environment in which global events can have devastating local impacts.

Panelist Opinion

A fourth hypothesis that was tested statistically, was that there would be a convergence of opinion amongst the risk takers, and a convergence of opinion amongst the risk advisors, and a divergence of opinion between these two groups.

As described in Chapter 3: Delphi Tourism Futures Study Method, Section 3.4.3: Panelist Selection, all panelists were divided into one of eight general categories of expertise described in Figure 3.5: Categories of Panelists' Professional Expertise. Each of these eight categories of expertise was then assigned to one of two groups, either a risk taker or a risk analyst/risk advisor, defined as:

1. risk takers are those individuals who are directly and indirectly affected by risk now and in the future; and,
2. risk analysts/risk advisors are those individuals who have and share knowledge or experience of risk analysis and risk management, but are not directly involved in the impacts of such advice or analyses.

This is further explained in Appendix 5: DFTS Instructions to Panelists (Panelist Categories.doc).

The purpose of this hypothesis (see also hypotheses described on page 22) was to test the viability of the null hypothesis (an hypothesis about a population parameter) in the light of the two parameters: i) the results data; and, ii) the source of that data (being either a risk taker or a risk analyst/risk advisor). Therefore, depending on the data, the null hypothesis would either be rejected or accepted. In this case, the null hypothesis must be accepted (that there would not be a convergence amongst the two groups, nor would there be a divergence between the two groups), however the hypothesis itself remains valid.

Statistical tests were carried out on one third of the questions from Round Two to compare the number and percentage of risk takers' responses to the number and percentage of risk advisers' responses to those questions. Round Two questions were expected to return a more considered response from panelists and were therefore chosen to compare the two sets of responses. There was very little difference found between risk analyst responses and risk advisor responses, they were virtually the same. The small differences between the responses of these two groups could be said to be statistically insignificant in that a change in only one panelist's response could have swung the difference in the other direction. These small numbers and the percentage of panelists who chose a particular option enable a view of the balance of responses to illustrate how essentially similar the responses were. Adding to the small population limitation, the number of options available to panelists (up to eighteen options for example in Question 20) only further diluted the differences to be compared. For these reasons of a small population and limited number of qualitative responses, it was deemed inappropriate to use other than descriptive statistics in all answers and analysis.

For all of the questions in the survey, the small population (forty-six risk advisors/risk analysts and twenty-three risk takers) was a limiting factor with respect to possible quantitative analysis. This is a common problem when testing statistical significance with such a small population. The tests carried out confirmed a distinct similarity in responses from the two groups. There was no clear convergence of opinion amongst the two groups, nor was there a clear divergence of opinion between the groups. Although it was expected that the null hypothesis could be rejected, consensus amongst panelists appears not to have been influenced by the two groups of categories of expertise, therefore accepting the null hypothesis.

It should be recognised that panelists (whether grouped as a risk taker or a risk analyst) possessed not only different expertise, but were drawn from a multitude of cultures and locations. The internal diversity within each of the two groups was greater than the difference between the groups. This finding lends further support to accepting the null hypothesis, and to the recognition of the diversity amongst panelists as a strength of the Delphi technique. Although panelists were artificially placed in one of the two groups based on their expertise, these were not homogenous groups, as they were comprised of persons from a variety of backgrounds and expertise. While conventional assumptions might have suggested stereotypical responses that would justify some opinions and create false solidarity amongst the two groups (essentially the assumption that would reject the null hypothesis), and despite the occupational and cultural diversity of panelists in both groups, the research points towards a significant consensus on the relatively narrow range of ideas and opinions expressed in the survey results.

In addition to the above analyses, a correlation test was carried out to determine whether or not there was a significant difference between the responses to the nine questions common to both Round One and Round Two.

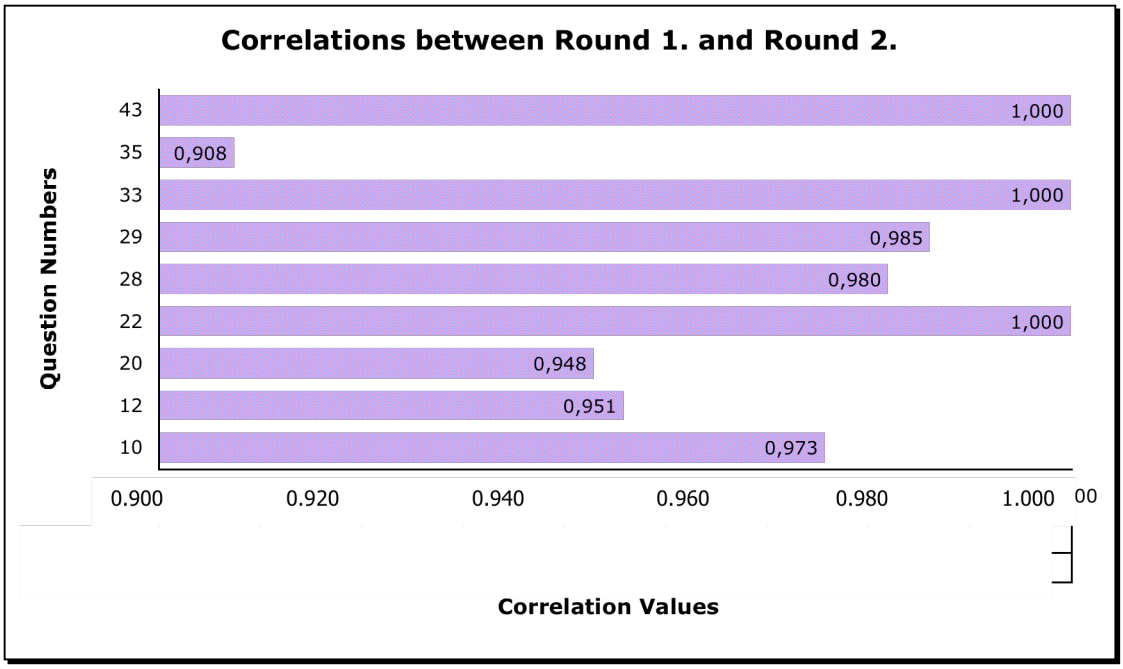


Figure 4-44 Correlations Between Round 1 and Round 2.

All Round Two questions returned a strong positive correlation to the responses from Round One. The lowest value for the correlation was 0.908 for Question 35, which is still a very high value (see Figure 4-44 above). Three questions returned a 1.000 value indicating a perfect correlation (as one variable increased the other increased in a perfect straight line). It can be concluded that there is a very strong correlation between both rounds' responses, confirming consensus amongst panelists.

4.4.2 Evaluation of the Method

As a final measure of the success of the use of the Delphi technique, the method is briefly evaluated below: to determine its value as a research tool for tourism futures research; and to determine whether or not the objectives of the project (Delphi Tourism Futures Study) were achieved.

A simple working method for evaluating projects of all scales (post-implementation) is to assess three attributes of the project against the project objectives and overall intentions. These attributes are adequacy, effectiveness and impact. This assessment can provide an overview of the way in which the project achieved its objectives or not, the quality or level of achievement of those objectives, and the result or potency of the project. This evaluation method is not intended to be a thorough detailed evaluation, but rather is aimed at providing insight into the strengths and weaknesses of the method, and to determine its potential for future use.

Adequacy

- All major tasks were achieved with an acceptable level of efficiency, timing and quality.
- The imposition of the views of the researcher were avoided by not over-specifying the structure of the survey, in particular by allowing the panelists the opportunity to contribute other perspectives related to the issues contained in categorical questions.
- Forcing panelists to respond to every question was not necessary and should in future include a "none of the above" option. The database was designed so that panelists could not submit their completed questionnaire until all thirty-two categorical questions had been answered. Ten percent of panelists objected to being required to complete all categorical questions. It was not a requirement to answer or add any additional information to the open-ended questions.
- The chosen technique for summarizing and presenting the group response was appropriate and worked well.
- Confusion between the use of "catastrophe" and "hazard" should have been clearly defined at the outset. Other definitions should also have been included in the background information provided on the website.
- Providing some basic background information with a categorical question seemed to have a significant influence on the responses. Such background information should in future be confined to sources outside the questionnaire itself (on the website for example).

- The varied backgrounds and professional disciplines of panelists were seen to be a potential risk to generating an acceptable level of consensus. This was not the case.
- It was clearly demonstrated that the tourism industry is experiencing a significant increase in risk exposure. The survey provided ample opportunity to agree or disagree with this hypothesis.

Effectiveness

- As a qualitative forecasting tool, the long-term forecasting capacity of the technique was both adequate and effective. Panelists were given the opportunity to provide long-term forecasts. The additional comments provided background to and justification for their forecasts.
- There was considerable resistance to or hesitancy in forecasting the long-term insurance implications of certain risks facing the tourism industry. This related to uncertainties that have not been modelled by the insurers themselves, or to events that occur with a perception of total randomness (war and terrorism for example).
- The arduous pre-planning and set-up of the database and website were critical to the success (and effectiveness) of the survey.
- The anonymity and confidentiality assured to each panelist were crucial to the openness and ability of panelists to express themselves freely. This aspect of the method was one of the most significant factors contributing to the data quality.
- The method is appropriate for types of problems or issues that are complex, and have qualitative relationships and elements of uncertainty.
- Although no specific risk treatment strategies were discussed in detail, a common tendency amongst panelists was to offer solutions to issues, clearly recognizing the vast potential of the successful management of business risk to improve the social, environmental and financial accountability of a business.

Impact

- The panelists were provided with the opportunity to include a multitude of comments in addition to answering the required categorical questions. This necessitated a significant amount of additional and non-compulsory input by

panelists. The information-rich data from these responses has added considerable external validity to the results.

- Only eight percent of panelists complained about the length of the questionnaire.
- Positive responses in the final open-ended question came from over fifty percent of panelists.
- Comments received from panelists following the posting of the Report to Panelists on the web site were very positive about both the content and presentation of the survey.
- The conceptual setting of the survey (tourism, risk, and catastrophe) proved to be an innovative approach to multidisciplinary tourism research. That the complexity of issues raised in the questionnaire was not overwhelming for most panelists, was illustrated by the depth of insight achieved with the open-ended questions.
- Other possible forecasting models (quantitative), such as trend extrapolation, structural models, and simulation models, might not have achieved the positive outcome of this qualitative technique.
- The method is appropriate to a long-term forecast horizon.
- The depth of knowledge and experience of the researcher was also critical to the success of the survey.
- The geographic focus on tropical coastal areas was not a significant factor for panelists with or without professional experience in this geographic area.

In conclusion, the Delphi Technique is an appropriate method for facilitating anonymous group decision-making about the likelihood that certain events will occur, and their magnitude. It allows for adaptation to the needs of the issues at hand (topics, subject matter etc., in this case tourism, risk and catastrophe), and provides an appropriate structure for eliciting and refining the opinions of a panel of experts. In short, it is a most valuable qualitative, structured and indirect interactive futures research method.

Replication of the Method

Several panelists considered the forced nature of responses to the categorical questions to be a limiting factor of the technique. One individual in particular objected strongly to

being forced to make a choice from the available options. This was a decision made during the designing of the database, where a programming attribute was added to ensure that panelists completed all questions. There was an automatic reminder 'pop-up' that showed the number of any question that was not completed if a panelist tried to submit an incomplete survey. While this did come to my attention in the pre-testing process prior to commencing the survey proper, the resolution was to allow panelists to tick any of the boxes available, and at least one, thus removing the restriction to follow the suggested number of options to be selected. That is, if panelists were asked to select three options from the list of options, one or more would be acceptable to the database. This was an unforeseen shortcoming of the survey and did not satisfy all panelists' expectations. The vast majority of panelists were, however, very pleased with the process and content. The choice to not answer a particular question should be available in any future use of the method developed for this survey.

With the database and website established, it would be a simple task to reuse these tools to replicate the process. The experience gained in the questionnaire design indicates that it might be more efficient in future to tighten of the scope of any future application of the method, and to similarly restrict the panelists to those with more specific expertise.

The most time-consuming component of the original Delphi Tourism Futures Study survey (the pre-planning and establishment of the database and website) can now be reused readily. Adaptation to a variety of uses and applications, especially for long-term tourism futures forecasting, would be quite straightforward, requiring only minimal input from a specialist database programmer. There is tremendous scope for the use of this method to determine both qualitative and quantitative forecasts and expert opinion for tourism futures research.

Future Research Priorities

One example of the potential future use of the method would be to apply the technique to a national-level survey of tourism industry risk perceptions and future management needs in Australia, whereby the global generalizations could be minimized to focus on national priorities and specific geographic locations. The use of the method for smaller

scale investigative research may be appropriate; however the technique's reliance on expert opinion could be compromised where a smaller scale investigation might not be able to draw on a large enough pool of expert knowledge, thereby compromising the critical methodological requirement of anonymity.

A valuable attribute of the method is the ability to access a broad spectrum of stakeholders and to provide them with an opportunity to make anonymous contributions to the issues in the survey, without fear of retribution. Data handling of a much larger sample (for instance, say two to five hundred panelists), would not significantly alter the method, the database requirements or the analytical processes. It would simply mean more data, a wider base of opinion, and increased credibility of the survey as a result. The systematic structure of the method could easily be packaged into a commercial product or be added to an existing product as a supplement for the purposes of long-term forecasting or ascertaining expert opinion on issues of uncertainty. There is an opportunity to apply additional quantitative analyses to results with only minor changes to the questionnaire structure. The method has good potential for future use and further development.

4.5 CONCLUSIONS

Overall results were satisfactory and the method proved to be an appropriate adaptation of the Delphi technique. The quantity and quality of rich and varied data derived from panelists' responses to the open-ended questions was unexpected. A high percentage of panelists gave much more time than was expected to add additional information in the space provided in the open-ended format. These less formal responses provided some of the most valuable information of the survey data, allowing for additional insight to be added where categorical options were unequivocal.

The use of descriptive statistical analysis for the immediate feedback to panelists with frequency histograms proved to be wholly appropriate to the task. Overall results might, however, have benefited from a more thorough pre-planning for correlation testing, and the use of Chi Squared test to analyse relationships between groups which had been established by the hypotheses (risk takers versus risk analysts or advisers), given this

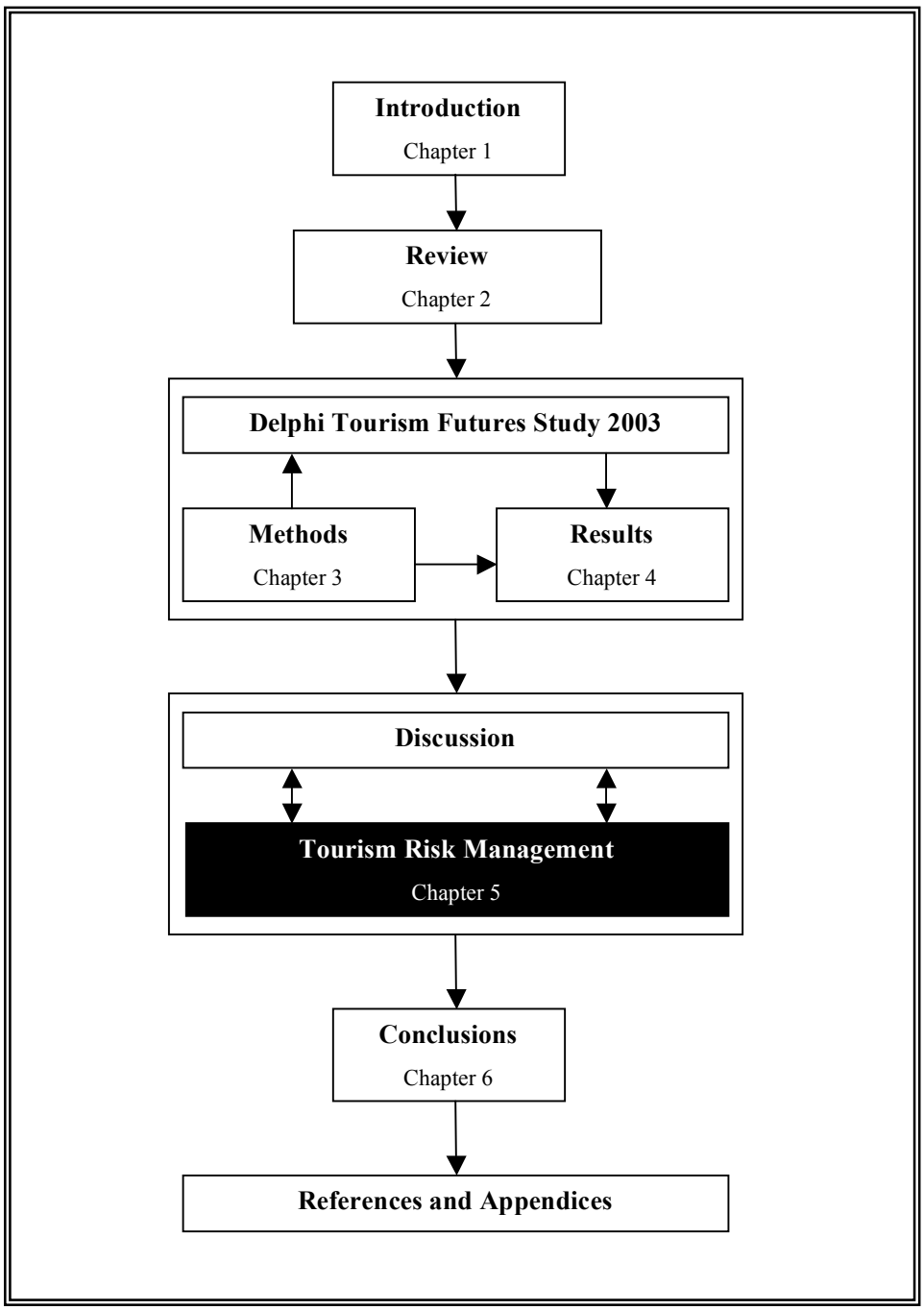
categorization found no clear correlation between the responses of these two designated groups (see Section 4.3.5: Statistical Analysis below).

The use of the Delphi technique and the adaptation required for the Delphi Tourism Futures Study, proved both appropriate to the task and relatively simple as a working tool, albeit time consuming. The design of the survey, with fourteen open-ended questions following categorical questions where there was an opportunity for additional insights and opinions from panelists, was a most valuable and successful format. This was an unexpected result. The establishment of the database and website however was labour-intensive as I could not afford to have it developed commercially. Panelists expressed their satisfaction that the survey (database) and website were professional in their appearance and presentation. This was essential to the success of the survey.

The overall success of the Study can be attributed to three key components, namely: i) the panelists, their varied backgrounds, their generosity in giving their time freely, and their openness to provide opinions and insights from their wealth of experiences; ii) clear communications and graphic presentation of the questionnaire and background to the method, and iii) the design of the survey, especially the ease with which the panelists could complete the survey in full. In addition to these three main items, the regular communications with all panelists added a personal component to an otherwise anonymous process.

The investigations have achieved their objectives, and the results of the survey provided a thorough examination of the hypotheses.

Chapter 5
Tourism Risk Management



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5 TOURISM RISK MANAGEMENT

5.1 RISKS TO TOURISM

A more sustainable development of the tourism industry in tropical coastal areas will require new tools, and a long-term vision to reduce exposure and minimise vulnerabilities to increasing risks facing the industry in these and other areas. One such tool is tourism risk management. The present research has built on existing research on the phenomena of catastrophe impacts and mitigation, risk analysis and risk management, and the current conventional wisdoms of tourism forecasting, planning, and management. Tourism risk management might in the future become a critical and necessary component of development and management decision making for the world's biggest growth industry.

This chapter continues the earlier description and discussion of risk management for tourism given in Section 2.5 of Chapter 2, by introducing specific risks that affect various components of the tourism industry, and building a model based on both the available precedent and the research findings. There are five sections describing risks to tourism, concepts of risk from emergency management and insurance, a description of the risks to tourism businesses, some practical tourism risk management fundamental ideas and guidelines, and the description of the tourism risk model.

The research has attempted to operationalise risk in the context of tourism. That is, the research has attempted to build on existing risk theory, by deriving specific practical applications of risk management strategies to the tourism industry.

In 2001, in the wake of the September 11 disaster (World Tourism Organization 2001c), worldwide income from tourism dropped by 2.2 percent to US$462 billion and, from September to December 2001, tourist arrivals fell by 9.2 percent, with the hardest hit areas being South Asia (down by twenty-four percent) and the Middle East (down by eleven percent). The city of New York, in 2001, received US$1 billion less in tourism income than the year before. All types of disasters and

catastrophic events will have an immediate and significant impact on the tourism industry as illustrated by these recent examples. The risks exist for travellers, their agents, the transportation carriers, the service providers, the communities and businesses providing destination goods and services, and the local and national economies supporting those destinations.

In today's complex business environment, companies are continually in need of increased knowledge and expertise to aid in evaluation of their diverse operating risks. Identification of all risks to tourism businesses, large or small, is a complex strategic issue that goes beyond the traditional risks accepted by insurance companies. Risks facing tourism businesses today include both the tangible and intangible realms of geopolitical risk, the risk to business reputation, market and credit risk, business interruption, third party liability, environmental liability, pollution, product liability, and others.

The diversity of these risks makes them difficult to analyse and address in a consistent manner, particularly for the smaller enterprises. Larger corporations and businesses can afford to utilise experts with varied technical and management backgrounds to express these risks on a common financial basis. Small and medium-sized businesses commonly do not have access to the necessary expertise, personnel, or resources to undertake thorough risk assessments. It is precisely these small and medium-sized enterprises, however, that bear the brunt of liabilities in terms of potential loss, and in the eyes of the travelling public.

The following example from the *International Herald Tribune* (26 February 2004 p.24) illustrates the typical media coverage of the impacts of disasters on the tourism industry, in this case that of the most visited tourism destination in the world, France.

Strong Euro and disasters dent visits to France

> The number of foreign tourists visiting France fell by 2.6 percent in 2003 to seventy-five million visitors, according to a study issued by the tourism secretary, Léon Bertrand. The strength of the euro against the dollar and other major currencies depressed French tourism last year. The country also suffered a negative impact from the oil spill from the Prestige tanker disaster, a series of forest fires and the heat wave that struck in August.

This blend of natural and anthropogenic disasters is but one example of the fickleness of an industry reliant upon safety (personal safety, health, and natural environment) and stability (economic, political and environmental). Risks to tourists and tourism businesses are as diverse as the sources of those risks. The remainder of this chapter draws together much of the research content to offer further insight into the practicalities of risk identification, analysis and treatment, and provides a framework or model which can be applied to managing such risks in future.

5.2 CONCEPTS OF RISK

Definitions of risk were briefly introduced in Chapters 1 and 2. This discussion is continued here to provide further background to the relevance of risk and risk management to tourism development.

The concept of risk management was first presented in the *Harvard Business Review* in 1956 suggesting a revolutionary idea: that a person within the organisation should be responsible for managing the organisation's pure risks (Gallagher 1956). It is now commonly recognized that risk management is an integral part of good management practice (Standards Association of Australia 1999).

Risk is a concept used to describe the probability of detrimental consequences arising from the interaction of hazards, communities and the environment. It is the perceived likelihood of a given level of harm (Emergency Management Australia 2000). The Risk Management Standard AS/NZS4360:1999 defines risk very generally as the chance of something happening that will have an impact upon

objectives (Standards Association of Australia 1999). It is measured in terms of consequences and likelihood. In relation to natural hazards, the potential for any event or events to give rise to a disaster can be considered in terms of 'total risk' (Granger 1998). The United Nations Department of Humanitarian Affairs (1992) has defined total risk as the expected number of lives lost, persons injured, damage to property and disruption of economic activity due to a particular natural phenomenon (UNDHA 1992). This is frequently represented by the equation:

$$\text{Risk} = \text{Hazard} \times \text{Vulnerability} \quad (\text{or } R = H \times V)$$

Granger (1998) has further developed this definition and, following the conceptual basis and definitions developed under the Office of the United Nations Disaster Relief Coordinator (UNDRO 1979) and cited in Fournier d'Albe (1986), has conceptualised total risk as:

$$\text{Risk}_{(\text{Total})} = \text{Hazard} \times \text{Exposure}_{(\text{Elements at Risk})} \times \text{Vulnerability}$$

In this equation, Hazard (natural) means the probability of occurrence, within a specified period of time in a given area, of a potentially damaging natural phenomenon; Vulnerability means the degree of loss to a given element at risk or set of such elements resulting from the occurrence of a natural phenomenon of a given magnitude; and, Exposure (of those elements at risk) means the population, buildings and civil engineering works, economic activities, public services, utilities and infrastructure, etc., at risk in a given area.

Total risk is therefore a product of the hazard (type and intensity), the elements at risk that are exposed to the hazard impact, and the vulnerability of the exposed elements. Risk occurs when factors and processes are sufficiently measurable for believable probability distributions to be assigned to a range of possible outcomes (Dovers and Handmer 1995). It is therefore a concept that is both definable and in some ways quantifiable. For example, levels of risk are often described as being low, moderate or high.

Crichton (1999) devised the 'Risk Triangle', a simple schematic to explain the concept of risk in an insurance industry context. The principles are relevant to risk in any context. Total risk is represented as the area of the triangle. This is determined by the degree of hazard potential, exposure and vulnerability of the elements at risk, each represented as one side of the triangle. Crichton's original Risk Triangle Diagram is shown in Figure 5-1.

The diagram illustrates that the amount of total risk might be diminished or increased by reducing or increasing the size of any one, or more, of the three sides of the triangle (the three contributing variables). In Figure 5-1 the larger (darker) triangle portrays each of the variables as being equal, whilst in the smaller (lighter) triangle the total risk has been mitigated by reducing both exposure and vulnerability. The reduction of any one of the three factors to zero would consequently eliminate the risk - although in the real world this is unlikely to occur.

Figure 5-1 The Risk – Hazard – Exposure – Vulnerability Relationship
Source: Crichton (1999 p.102)

While 'hazard' is a physical reality, 'risk' (like disaster) is a social and cultural construct. There is a range of both tangible and intangible attributes that contribute to the way in which human societies understand, define and respond to risk. Socio-

economic characteristics are obvious contributors. Less obvious, but equally significant, is the hazard knowledge base within the community; that is, people's knowledge of the environment and the hazards embedded in that environment. This includes the traditional ecological knowledge that generally provides a much deeper understanding of local environments (Young 1998).

Douglas and Wildavski (1982) argue that it is through social and cultural influences that risks are selectively ignored or emphasised. They claim that each society has its own distinctive portfolio of risks that do not necessarily focus on safety, but on cultural values and moral behaviour. It must therefore be presumed that risk values evolve together with culture. Social and societal practices create and exacerbate 'at risk' populations. In northern Australia, Aborigines have lived with the threat of cyclones for in excess of forty thousand years, but their recent adoption of many European life style practices has certainly made them more vulnerable (Brine 1980). Risk will vary by type and degree but no community is ever 'risk free'; people individually and collectively make decisions based on their conscious or subconscious evaluation of risk.

The process of developing an understanding of risk in the societal context indicates a significant paradigm shift and this is reflected in related philosophies and processes. These include development, which has steadily moved towards becoming more people- centred and sustainable (rather than solely economic); impact assessment, which increasingly values the social and socio-political as well as the economic and the technical; and planning which is moving towards becoming a more sustainable people-oriented adaptive process in which the experience gained in taking part has become the goal rather than the more prescriptive process in which the plan itself is the goal (Young 1998).

It should be noted here that risk, defined as the product of hazards, elements at risk and vulnerability, was the working definition of risk at the commencement of the thesis. This definition varies subtly, but significantly, from that used by Mitchell (1989) and accepted by Mileti (1999), where risk is defined as the probability of an event or condition occurring where exposure is the measure of people, property or

other interests that would be subject to a given risk, and vulnerability is the measure of the capacity to weather, resist or recover from the impacts of a hazard in the long term as well as the short term. In this context hazard (as opposed to risk) is considered to be the product of risk (as opposed to hazard), vulnerability, exposure and the capacity of humans to respond to extreme events. This is not in agreement with either the emergency management or the insurance literature on the subject where risk is the product of the other variables. The new model described in Section 5.5 below uses those of Crichton and Granger (insurance and emergency management respectively) as the starting points with which to develop the tourism risk management model.

5.2.1 Risk and Insurance

It is important to reiterate the meaning of risk from the insurance perspective, given the role of insurance in sharing risks faced by the tourism industry the world over. Risk for insurers and their clients can be classified as:

a) dynamic or static;
b) pure or speculative; and
c) fundamental or particular.

Dynamic risks are those resulting from changes in the economy, are less predictable than static risks and do not occur with regularity. Static risks are not a source of gain to society like dynamic risks, and might be risk resulting from natural hazards, dishonesty of individuals, or a host of other more static or predictable possible sources. Being more predictable, static risk is more insurable.

Speculative risk describes a situation that might result in loss or gain (e.g. gambling). Pure risk is used to designate those situations that involve only the chance of loss or no loss (e.g. property ownership where possible or potential damage will result in a loss, or no loss, but no gain). Normally only pure risks are insurable because the insurance industry is essentially not concerned with the protection of individuals against those losses arising from speculative risk This is seen as a voluntary and individual responsibility.

Fundamental risks are losses that are impersonal in origin and consequence affecting groups or large portions of the population (unemployment, war, inflation, earthquakes and floods). Particular risks involve losses that arise out of individual events and are felt by individuals rather than by the entire group (e.g. the burning of a house or robbery of a bank).

Although the tourism industry is subject to all of the risk categories above, the most significant risks are those termed dynamic, static and fundamental risks. The tourism industry in a free market capitalist society assumes the economic risks associated with industry development and operations on behalf of the private investors who finance the vast majority of tourism industry service providers. Tourism and the tourism marketplace therefore create the opportunities for gains from successful investment, and those investors are engaging in, and therefore accept the consequences of voluntary (speculative) risk.

When some positive action is not taken to avoid, reduce, or transfer risk, the possibility of loss involved in that risk is retained (see Figure 5-2 below). Generally, risks that should be retained are those that lead to relatively small or certain losses. Risk, pure or speculative, might be transferred to another individual to deal with (e.g. hedging). Insurance is an example of transferring risk, similar to risk sharing. Tourism industry mangers have been successful in risk avoidance, a rather negative technique for dealing with risk generally, depriving the industry of opportunities for profit and opportunities to achieve development objectives. Risk avoidance, as the term suggests, means to simply not undertake a particular activity or in some cases to ignore the potential consequences. More specifically, risk avoidance is the elimination of a loss exposure by ceasing or never undertaking an activity that produces the exposure. In making this decision, the person or organisation is forced to weigh the potential value of the activity against the potential loss (CCH Insurance Services 2003).

Figure 5-2 Risk Matrix – Frequency and Severity.
Source: (CCH Insurance Services 2003)

5.2.2 Risk and Vulnerability

Since the early 1980s, and most particularly throughout the 1990s, there has been a growing recognition of the significance of people and their relationship to hazards in terms of the risk of natural and anthropogenic hazards and their potential cumulative impacts (Comfort 1993; Blaikie, Cannon *et al.* 1994). This has been reflected in the growth of literature that attempts to define, measure and explain peoples (individual and collective) vulnerability to hazards (Blaikie, Cannon *et al* 1994; Mitchell (ed) 1989). Disasters are broadly understood to be the interface of a natural hazard (the hazard event), a vulnerable human community, and the vulnerability of the exposed elements at risk (buildings, infrastructure, reputation, natural, economic and social environment, etc.). De-constructing and understanding vulnerability is therefore central to understanding and ultimately managing risks from natural and anthropogenic hazards.

Anderson-Berry offers a summary of the way in which the concept of vulnerability has altered in the recent past: "A review of the evolving natural disaster and hazard vulnerability literature indicates that vulnerability is increasingly conceptualised as being a process that is dynamic, multi-layered, multi-dimensional and both spatially

and temporally specific. This approach is now widely accepted by disaster researchers whose attempts to produce 'vulnerability models' are becoming increasing inclusive, and are embracing vulnerability and risk management within the sustainable development framework" (Anderson-Berry 2002 p.260).

Vulnerability is broadly defined throughout the disaster literature as the susceptibility to harm. At its simplest it has been conceptualised as a pre-existing condition or state defined by a set of negative attributes that makes people or communities more, or less, susceptible to loss. The following list includes a selection of often-cited definitions (these are edited versions of those derived from the sources indicated). All broadly describe vulnerability as the potential for loss and most, either directly or by deduction, suggest the possibility of avoiding some of that loss. An appreciation of vulnerability is therefore central to risk management and to the development of hazard mitigation strategies.

- Vulnerability is the degree of loss to a given element or set of elements at risk resulting from the occurrence of a natural phenomenon of a given magnitude (UNDRO 1982)
- Vulnerability is the capacity to suffer harm and react adversely (Kates 1985).
- Vulnerability is operationally defined as the inability to take effective measures to insure against losses. When applied to individuals, vulnerability is a consequence of the impossibility or improbability of effective mitigation and is a function of our ability to detect the hazards (Bogard 1989).
- Vulnerability is the potential for loss (Mitchell 1989).
- Vulnerability is the differential capacity of groups and individuals to deal with hazards, based on their positions within physical and social worlds (Dow 1992).
- Vulnerability is the likelihood that an individual or group will be exposed to and adversely affected by a hazard. It is the interaction of the hazards of place (risk and mitigation) with the social profile of communities (Cutter 1993; 1996).

- Vulnerability is defined in terms of exposure, capacity and potentiality. Accordingly the prescriptive and normative response to vulnerability is to reduce exposure, enhance coping capacity, strengthen recovery potential and bolster damage control (i.e. minimise destructive consequences) via private and public means. (Watts and Bohle 1993).
- Vulnerability is best defined as an aggregate measure of human welfare that integrates environmental, social, economic and political exposure to a range of potentially harmful perturbations. Vulnerability is a multi-layered and multi-dimensional social space defined by the determinate, political, economic and institutional capabilities of people in specific places at specific times (Bohle, Downing *et al* 1994).
- By vulnerability we mean the characteristics of a person or group in terms of their capacity to anticipate, cope with, resist and recover from the impact of a natural hazard. It involves a combination of factors that determine the degree to which someone's life and livelihood are put at risk by a discrete and identifiable event in nature or in society (Blaikie, Cannon *et al* 1994).

Blaikie's 1994 definition (introduced briefly in Chapter 2) is useful in that it describes vulnerability in terms of people's capacity to avoid, cope with and recover from hazard impact. This clearly illustrates two trends in explaining vulnerability that are increasingly reflected in the disaster studies literature. Firstly, the shift in focus away from the hazard event's being the primary cause of loss (with people characterised as victims, passive onlookers who are subordinate to the hazard), towards a focus on the human community and people's living conditions, social and economic resources, livelihood patterns and social power. Secondly, it includes a consideration of resilience, which is a more positive (empowering) concept.

In the Australian emergency management context vulnerability is defined as the degree of susceptibility and resilience of the community and environment to hazards. The degree of loss to a given element at risk or set of such elements resulting from the occurrence of a phenomenon of a given magnitude and expressed on a scale of zero (no damage) to one (total loss) (Emergency Management Australia 2000).

There is broad consensus that losses arising from natural hazard events are increasing and that human communities are becoming increasingly vulnerable to suffering loss arising from natural hazard events (Cottrell and Cunliffe 2000; Intergovernmental Panel on Climate Change 2001a; Cunliffe, King *et al.* 2003; Glaesser 2003). This is largely a consequence of increased third world population, continued infrastructure development in hazard prone locations and increased affluence in the developed nations. Additionally, there are indications to suggest that world climate is changing (see Section 2.6.1: Climate Change), which might result in an increase in the frequency and/or intensity and/or magnitude of severe weather conditions.

The recognition that 'disaster' losses are both socially unacceptable and increasingly economically unaffordable has prompted research to analyse vulnerability more deeply and to develop conceptual models to assess vulnerability and explain vulnerability processes.

There have, more recently, been attempts to discover vulnerability indicators, that is, generalised and representative characteristics that will allow identification of a 'vulnerable' population or make it possible to predict when a population is becoming more or less vulnerable as a result of a change in circumstances. Indicators are tools that can be confidently used to define, or point to, a more significant issue (Neuman 2000). Variables might be selected as useful indicators of a particular construct. Constructs are concepts or ideas that describe or categorise an issue or situation. They are very often (but not always) abstract. Put another way, tangible indicators might provide a useful tool for describing an intangible or abstract construct.

Andrews and Withey (1976) argue that, to be useful, indicators must be able to be monitored over time, and they should be able to be disaggregated to the level of the relevant social unit. Vulnerability models and indicators could potentially provide useful diagnostic or predictive tools for policy makers and emergency managers, if the set of indicators is selected so that a substantial portion of the most salient or critical aspects of community is included. Movement in or changes to indicators

should, in theory, identify changes in vulnerability, and sensitivity to these changes could guide policy and emergency management practices and ultimately promote safer, sustainable communities.

5.3 RISKS TO TOURISM

This section describes the risks to four main components of the tourism industry: i) tourists; ii) the services and hospitality industry; iii) travel agents; and iv) transportation providers. A number of practical guidelines are offered in addition to the analyses of the likely hazards and their impact potential.

5.3.1 Risks to Tourists

It is a wise precaution, although not a legal requirement, for travellers to take out some form of travel insurance. Package deals (fully arranged travel itineraries) often include travel insurance. A good level of cover should include insurance for the following:

i. Holiday cancellation (or having to cut short travel after commencement);
ii. Illness or bodily injury whilst travelling;
iii. Loss or theft of personal effects;
iv. Delayed or missed transportation connection;
v. Liability for accidents to others.

Tourists planning on participating in activities that could be considered hazardous, such as scuba diving, should look beyond standard travel insurance policies to obtain coverage for 'risky' behaviour. Similarly, for those persons visiting countries or areas that might be hazardous, insurance exclusions should be thoroughly reviewed as, in many cases, insurance for certain locations is simply not available (war zones for example).

Figure 5-3 lists categories of types of risks that tourist and tourism businesses might encounter. The next Figure 5-4 below lists specific risks that might have impacts on travellers.

Figure 5-3 Categories or Types of Risk.
Source: Adapted from AS/NZS 4360:1999.

For the traveller, the list of potential hazards below is indicative of the range of hazards that could be encountered by tourists for which liability would be shared between: i) the individual; ii) the travel agent; iii) the transportation, accommodation or service provider; and iv) local and national authorities responsible for tourism, emergency management, and other industry standards performance.

The following table lists a range of likely hazards that might have an impact on coastal tropical environments and tourists visiting these areas.

Figure 5-4 Hazards to Tourism in Tropical Coastal Areas.
Source: After Granger (2000 p.25)

Safety is one of the most important components of a risk management process and, in certain circumstances, will be its focus. "Risk must be managed at a tolerable level as distinct from a totally risk free level. Taking controlled, informed risks is a sensible everyday essential of life. As a society we take risks to achieve benefits and gains because risk taking is seen as positive, not implicitly negative. This does not mean that safety is discarded but rather absorbed into the overall risk management process" (Knight 2000 p.4). For tourism service providers shouldering the significant liabilities described in the remainder of this section, safety and security will gain prominence in future risk management strategies. This view was substantiated throughout the Delphi Tourism Futures Study.

The Figure 5-5 below indicates several health and safety risks and hazards in terms of their frequency and severity. Generally, the low frequency, low severity risks and hazards are accepted or retained by tourists and businesses by a type of 'self-insurance' which would include taking measures to minimise those risks. When frequency and severity are both high (chance of severe injury or death, major weather-related property loss, or cyclone; the potential for a liability lawsuit), tourism businesses commonly rely on insurance to transfer their risk to a third party,

or avoid the risk altogether by withdrawing the goods or services in such instances. It is becoming increasingly difficult and costly to obtain insurance coverage for high frequency, high severity events. See also Figure 5-2 illustrating risk treatment according to frequency and severity.

Figure 5-5 Tourist Health and Safety in Terms of Frequency and Severity of Incidents
Source: Walker and Page 2003 p.222, in Wilks and Moore (2003).

Given the inherent goal of reducing risk or of minimising the consequences of a perceived or real risk, the primary objectives are to reduce at least one (or more) of the following components of risk:

i. The chance of loss;
ii. The magnitude of loss;
iii. The exposure to loss.

The degree of risk (or the size and potential consequences of risk) is directly proportional to the chances and size of loss and to the degree of exposure of the decision-maker (or organisation) to the chance of loss. Such loss is not necessarily monetary, but might be in the form of reputation, prestige, management authority, or

other less quantifiable outcomes. These three components summarise the primary goals of tourism risk management.

5.3.2 Hospitality Industry Liability

Crises are inevitable in the hospitality industry. The most profound crisis to strike the hospitality industry in the United States, prior to September 11 2001, was the murder of ten foreign and twelve American tourists in Florida during a one year period in 1999, jeopardizing a US$31 billion tourism industry and leading *Newsweek* magazine to suggest that Florida was in a 'state of terror' (Sellnow and Sarabakhsh 1999). In 1997 a recall of twenty-five million pounds of potentially tainted ground beef caused the fast-food giant Burger King Corporation to sever long-standing ties with one of its biggest beef suppliers in an effort to reassure consumers about the safety of its hamburger. Burger King, based in Miami, was one of the nation's largest restaurant operators at the time.

The press and other public media have a field day with these types of crises, and the hospitality industry businesses historically do not have adequate communication systems in place to manage such crises. No hospitality business is immune to food-borne illness outbreaks. As long as aspects of food preparation and delivery are in the hands of humans, there will be occasional mistakes and ineptitude. Whatever the response to a crisis, organisations are expected to communicate honestly. Honesty is essential because any effort to mislead or cover up responsibility for a crisis is likely to be discovered by the media eventually. When the inaccuracy of such claims by a restaurant is eventually revealed, "the press [will] eat you alive" (Seeger 1997 p.21). Effective communication in a crisis is as critical to the hospitality industry as it is to most other tourism-related businesses that rely on their reputations for delivering a consistent quality of goods and services.

Responses must be timely. When faced with crises, the overall goal for hospitality organisations is to move beyond the crisis as quickly and thoroughly as possible, while maintaining economic viability. While the demands of each crisis are unique, public relations research leads to several consistent guidelines for post-crisis

communication. Although no guidelines can assure success, post-crisis communication is typically more successful in hospitality organisations if the organisations dedicate themselves to making open, timely, informed, and consistent responses.

The most effective means for an organisation to meet the needs of a speedy response is to have a risk management plan in place. Risk management plans enable organisations to avoid miscommunications and inefficiency by assigning roles in advance. Although larger corporations might have staff in place to establish, test, and update risk management plans, there is nothing to preclude smaller organisations from developing these plans. A relatively simple plan that designates who will speak to whom, how and when to shut down the operation, and any other specific actions that might be needed, will serve smaller businesses quite effectively.

Monitoring reactions from the media is particularly crucial for hospitality organisations. The press tends to emphasize the most dramatic aspects of crises. Hearit (1996 p.236) suggests that television and newspaper reporters often make attributions of guilt and innocence in their crisis coverage which "is the antithesis of an objective story", to the considerable detriment of the business in question. Hospitality businesses that are in the midst of a crisis must provide consistent messages to the public with a single, unified voice. Similarly, national tourism organisations are expected to respond to such events in an informed and up-to-date manner. An E-coli outbreak at an individual business can have an impact at national or even regional level, as was seen with the outbreak of SARS in Asia.

Clearly, the hospitality industry has the potential to face many types of challenges due to crises ranging from fire to epidemics, to food-borne illnesses and a host of other hazards (Munich Re 1998b). Owners and managers of hotel and restaurant establishments must prepare themselves well in advance to deal with crises in an effective and efficient manner. The absence of a strategy or risk management plan to provide an organized approach to handle any type of potential crisis can lead a hotel or a restaurant business to its demise. In the United States, the prevalence and potential losses and damage to business profits due to organisational crises are

evident in the fact that four of five major U.S. corporations have formal crisis communications plans in place for disasters and emergencies (Sellnow and Sarabakhsh 1997).

5.3.3 Risks to Travel Agencies and Tour Operators

In their traditional role as intermediaries between preparing for a vacation, leaving home, and returning satisfied from a vacation, travel agents today face increasing demands for quality guarantees, and increased liability for satisfactory product delivery. Competition from internet-based services that offer price-competitive convenience is also changing the traditional face-to-face role of travel agents. The continued pressure on profit margins is of obvious concern to all travel agencies, as is the issue of travel agent liability (Black, Middleton *et al.* 1992). Managing risks to business viability is becoming common practice for travel agents.

A prerequisite to understanding travel agent liability is having some familiarity with the legal relationships that can exist between a travel professional and the passenger client. Courts of law in different parts of the world differ enormously on the exact legal nature of the relationship between a travel agent and a client. A number of basic principles are shared, making possible some general observations on the risks to which they are subjected.

Some courts hold that travel agents are ‘agents’ of hotels, air carriers and other suppliers and, as such, owe few duties to the passenger. This has often been used as a defence strategy in court by stressing that travel agents are simply representing the supplier, selling the supplier’s product, and acting as intermediaries, ‘taking orders’ on behalf of the supplier. For the travel agent, the income generated from this transaction is paid by the supplier in the form of a commission, so the travel agent could argue that there should be very little obligation to a passenger, other than that of ‘taking the order’ correctly.

The opposite view, where the travel professional acts as the ‘agent’ of the passenger has also been put forward in courts. Here, it is implied that travel agents owe significant fiduciary duties of good care, professionalism, etc. toward the passenger.

This is used to hold travel agents to a higher standard of care and to increase their responsibility for ensuring a safe and secure journey, and thus they assume more liability should anything go wrong. This is the common 'duty of care' demanded of travel agents by most travellers. A dichotomy or conundrum then exists for the traveller: use a travel agent and expect a high level of duty of care (expecting the travel agent to be liable for quality assurance); or possibly forgo such assurance and the face-to-face contact, and use an internet site to arrange travel plans. Internet competition is therefore placing greater pressure on travel agents to deliver greater quality assurances and thereby accepting greater liability for customer satisfaction (Department of Tourism Studies 1995).

It is probable that the majority view of travel agents' clients is that travel agents have certain specific duties, or minimum standards of obligation to passengers regardless of whether they are agents of the supplier or agents of the passenger as described above[16]. Travel agents are expected to provide a service for the fee or commission they receive. While these minimum standards vary, some very basic examples of what could be expected of a travel agent might include:

- Being knowledgeable about the suppliers, products and services being sold;
- Knowing a supplier's reputation within the travel industry; and
- Communicating to the client, knowledge of any bad news about a particular supplier, particularly where the general public might not have access to this type of information.

For example, if newspapers publish articles about the financial troubles of a particular supplier, there might be less need for the travel agent to repeat to a client what is already in the public domain media (newspapers, television, etc.). If, however, the travel agent knows that a particular hotel is undergoing extensive renovations or has access to similar information that the public might not be aware of, it is a good risk management practice to disclose that to a client.

[16] Similarly, travel agents share the opinion of the American Society of Travel Agents' slogan, which states that "Without a travel agent, you're on your own," a quote from the current President of the American Society of Travel Agents, Kathryn A. Sudeikis, at their Annual Congress in Hong Kong in September 2004.

Obviously, whenever professional travel advice is given, either in the leisure or business context, that advice must be provided in a competent manner to avoid litigation (World Travel & Tourism Council 2002). Travel agents are held to a standard of exercising sound professional judgment after having first ascertained the wishes of the client. When a service fee is paid, the duties and obligations expected of a travel agent could be heightened enough to lead to an increase in the actual liability imposed on them. While the future holds significant changes to the traditional roles of travel agents, the relatively recent electronic challengers will only replace their services incrementally as agents find new ways to offer new styles of 'value-added' services.

The Berkley Group, a subsidiary of Aon Corporation (a major insurer), is a leading provider of professional and general liability insurance products to members and clients of the travel industry, including travel agencies and wholesale tour operators cruise lines, and other organisations involved in making travel arrangements. They have dedicated considerable resources to developing specific insurance products for the travel and hospitality industries in order to address the special risk management and insurance needs of this fast-growing sector. Their consultants, marketers, loss control and claims specialists service a variety of tourism clients including:

- Hotel owners;
- National and international hotel management companies;
- Franchise companies;
- Resort properties;
- Restaurants;
- Clubs;
- Entertainment venues; and
- Gaming establishments.

In identifying and treating the loss exposures of a travel company, the main purpose of risk management is to diagnose those areas in the operations of a business that, if ignored, will leave the entity exposed to serious financial loss. The Berkley Group identifies four basic steps to risk management:

1. Identifying the problem;
2. Selecting appropriate treatment;
3. Evaluating the treatment; and
4. Monitoring the selected program.

These responsibilities generally fall on the shoulders of the owner and/or manager of a tourism business, as most companies do not have the resources to employ their own risk manager. This is true of most travel agencies and tour companies. The person undertaking the role of risk manager without specific training in insurance or risk management can follow these four processes to prepare for consultations with insurers.

Identifying the risks is commonly the most difficult task for the owner/manager. A lack of objectivity concerning risk might cause an exposure to go unrecognised, and it might be unconsciously retained. This is particularly important in the area of professional liability, which might involve bodily injury and even wrongful death litigation. Negligence on the part of the agent might be interpreted as failing to properly advise clients regarding certain inherent dangers of travel. Identifying all loss exposures must be an ongoing process, since conditions affecting the business environment are ever changing. In identifying current and potential new exposures, a travel agency manager should rely on the advice of as many professionals as possible, such as attorneys, accountants, insurance brokers and trade associations.

Selecting an appropriate treatment (or risk management tool) will generally involve a combination of four options: i) loss control; ii) insurance protection; iii) risk transfers; and iv) planned retention. Loss control measures available to travel agents and tour operators, that can be taken to reduce the frequency and severity of losses, include: screening and selection of suppliers, wording of brochures, disclosure of principles, offering of travel insurance, client refunds, written contracts, care and treatment of minors, care of baggage and belongings, and handling of potential liability claims (American Institute for Property and Liability Underwriters 1981).

Insurance protection (liability-related) available to travel agents and tour operators includes:

- Professional Liability Insurance;
- Property Damage;
- Errors and Omissions;
- Personal Injury;
- Workers Compensation and Employer's Liability;
- Commercial Auto Liability Coverage;
- Directors and Officers Liability Insurance; and
- Umbrella Liability Coverage (The Berkley Insurance Group 2004).

When a company transfers an exposure, or the financial responsibility associated with that exposure, the consequences of the exposure are passed to another, or the activity related to or causing the exposure is transferred to another. Insurance and disclaimers are two examples of risk transfer. With insurance, the financial consequences of the loss are transferred from the insured to the insurer. Another type of risk transfer occurs when the activity itself is transferred to another party. This might involve a tour company electing to contract with a bus company for transport of its clients, for example, and then a portion of the risk is transferred to the bus company. The main objective of any transfer is to place the financial responsibility with the party who has the most control over the activity, or with an insurer who is familiar with the risk.

The last exposure treatment is planned retention (as opposed to unconscious retention when the risk management process has failed to identify a loss exposure). Because not all losses can be avoided by using loss control measures, insurance, or risk transfers, retention is generally necessary for any sized company. How much of the financial (or other) consequences of a risk can be absorbed by the business will be governed by the availability of resources to fund the retentions and the limit to which losses can be predicted with an acceptable level of accuracy. An insurance deductible is a form of retention (the deductible is the amount the insured business is required to contribute toward a paid claim).

Liability exposures are more difficult to predict than those associated with property. It is virtually impossible to set a limit on the potential liability associated with vehicular accidents (whether owned or non-owned vehicles are involved), premises operations, or the broad array of professional operations and their related exposures. This contrasts with more predictable 'probable maximum loss' (PML) associated with property exposures.

In evaluating which treatments should be used, a travel company must consider not only the effectiveness of those treatments (some are required by law), but also their true cost. The insurer will suggest that a value should be added for the 'peace of mind' which comes from knowing that an exposure will be handled by an insurer in the event of a loss (American Institute for Property and Liability Underwriters 1981). Conditions are always changing in any travel business, e.g. fees, tour products, airfares, client refund procedures, employees, new contracts and leasing agreements, etc. Understanding risks and learning how to minimize their impact on the financial well-being of small and medium-sized tourism businesses is the fundamental risk management objective. The risks can be enormous. Appendix 9: Travel Agent Liabilities, contains two pages giving five brief case histories that illustrate the potential for catastrophic exposure faced by travel agents.

5.3.4 Risks to Aviation and Transport Providers

Liabilities for transportation carriers are not dissimilar to those described above for travel agents and tour operators, as are the risk treatment options. Wilks (1999) suggests that motor vehicle crashes are the leading cause of injury-related death among tourists world-wide, due mainly to the unfamiliar driving environments of foreign destinations. As is common in the recent literature, Wilks (2001) points to an all-hazards approach to minimizing transportation and water-related risks to tourists' health and safety, suggesting that risk management should be a whole destination effort. Similarly, there are many and varied organisations and companies which have a role to play in managing tourist risk, including for instance health authorities, local government, law enforcement officials, transport agencies and insurers (Wilks 2001).

In the marine environment, risks for tourists and tour operators are especially prevalent. While most travellers carry a form of health insurance, there is a variety of exclusions for dangerous activities such as scuba diving. For the operator, the costs of comprehensive marine insurance (hull insurance, liability insurance, loss of earnings insurance and disbursements cover) are prohibitive, forcing many operators to remain under-insured and thereby running the risk of business failure in the event of disaster and subsequent liability claims (Nolan 2001).

Transport providers assume a host of liabilities by accepting payment for transport services including:

i. Collision;
ii. Personal injury and death;
iii. Third party property damage;
iv. Removal of wreck;
v. Crew liability;
vi. Cargo liability;
vii. Pollution liability, and
viii. Contractual liability.

Airline transportation is directly affected by catastrophic events of all kinds in any location around the world. Since September 11, two national flag carriers in the airline industry have gone bankrupt: Swissair and Belgium's Sabena airlines. In the United States, US Airways has filed for Chapter XI bankruptcy and United Airlines has serious financial trouble. Delta Airlines in the United States estimated that it lost around US$600 million in 2002 as a result of what it termed "the hassle factor", i.e. delays due to increased security around airports.

The world's airlines made a total loss of US$12 billion on international flights in 2001, exacerbated by soaring insurance premiums costing the industry over US$3 billion world-wide. Passenger numbers fell by four percent in 2001 and a further three percent in 2002, forcing airlines to cut around 200,000 jobs, 100,000 of which were in the UK alone. Transatlantic passenger numbers fell by thirty percent in 2001 and were still down twenty percent in 2002. The fact that major catastrophes cause

travellers to cut spending and to stay at home, is primarily due to the perception of safety and security, and not economics.

Risks to aviation and other transportation providers are one of the most significant sectors of the industry in terms of likely immediate impacts and the scale of potential losses. The International Air Transport Association (IATA) in Montreal, Canada, is active in its efforts to rationalise security measures at airports and to standardise safety and security measures on aircraft. Much has yet to be achieved however to co-ordinate these efforts with other transportation providers to minimise the impacts of major catastrophic events on their business and tourist markets.

5.3.5 Risks from Climate Change

Possibly the most worrying potentially adverse impacts of climate change on tourist destinations are the probable reductions to the contribution from the tourism sector to the local and national economy and the consequent reductions in standard of living for resident populations, reduced employment in the industry, and the potential degradation of natural resource attractions. Climate is expected to affect tourism and recreation in three main ways (generalising across a variety of destination locations, and drawing on a variety of sources including IPCC 2001a, Agnew and Viner 2001, Kishore 2003, and Smith 1990):

i) An altered length of seasons (warming is expected to lengthen the summer season and shorten the winter season) which will occur differently in northern and southern hemispheres, and according to other factors such as altitude, proximity to water bodies etc.;

ii) An alteration to local ecology (there are likely to be changes in the quality of the tourism experience due to more wet days, for instance, hotter days, more cloud cover, etc. which have both positive and negative impacts on tourists. Hunting and fishing quality can be enhanced by cloudy days, (game fishing can benefit from certain climate changes, for instance); and

iii) An alteration to the way in which weather affects human recreation activities (comfort, convenience and enjoyment of outdoor activities are

obviously affected by, for instance rain dampening the pleasure of being outdoors).

While climate is expected to affect tourism and recreation in at least the above ways, this might be oversimplifying the enormously complex and multi-layered climate change debate. While warming is an obvious problem for a ski resort in Switzerland, it might be an overall gain for a resort area in Norway that benefits from a less severe winter for example. Along the far north eastern coast of Australia, climate change is likely to result in higher winter maxima and less rainfall in the late dry season, not necessarily any increase in maxima or number of hot days or any reduction in overall ten-year rainfall. While snow cover may be susceptible to minor temperature fluctuations, the intensity of the dry season along the north eastern coast of Australia is not. That is, while destinations are affected in both positive and negative ways, overall the industry may experience a net benefit from climate change, but this cannot be verified at this time.

The tourism industry is heavily dependent upon current climatic and environmental conditions with the local ecosystems of vast areas of coastal tropical areas vulnerable to climate change (Agnew and Viner 2001). The most serious impacts are likely to occur as a result of sea-level rise affecting small island states. The comparative 'attractiveness' of coastal destinations around the world could shift negatively as a result of climate change impacts including coral bleaching, increased bush fires, flooding, the spread of vector-borne diseases, changed migration patterns of birds and animals, and higher temperatures (Smith 1990).

The key stakeholders in the adaptation to changing climate conditions in tropical coastal tourism destinations include hoteliers and staff, utility companies, tour operators, airlines, the coastal communities, fishermen, NGOs and endangered species interest groups, insurance and financial services, local and national tourism organizations, emergency services, and the tourists themselves. Assessment of the vulnerabilities of these stakeholders was the focus of an initial step in the implementation of the Caribbean Planning for Adaptation to Global Climate Change (CPACC) Project, Component 6, Coastal Vulnerability and Risk Assessment

(Nicholls 1998). In this report, six separate vulnerability assessment methodologies were evaluated for adaptation to the Caribbean context, with a focus on sea-level rise. Nicholls clearly recognises that "the biophysical effects of sea-level rise are likely to give rise to a range of potential socio-economic impacts" (Nicholls 1998 p.3). Stakeholders are central to problem definition, and to the planning and management options available to cope with climate change in coastal areas. The figure below illustrates an example of a screening assessment matrix for Guyana that shows both the biophysical and socio-economic impacts of sea-level rise.

Information contained in Figure 5-6 below is by no means representative of the consensus of opinion on these issues. Rather this is one interpretation prepared by CPACC based on best available information at the time (1999). Clearly the state of knowledge and understanding of climate change and climate variability is improving constantly. This table then can be best understood as indicators of potential impacts of sea-level rise. The brief description of sea-level rise later in this section is a more probable description of impacts.

Figure 5-6 Guyana Screening Assessment Matrix for Biophysical and Socio-Economic Impacts of Sea-Level Rise.
Source: (Caribbean Planning for Adaptation to Global Climate Change 1999)

Adaptation to changing climate patterns is likely to be a necessary component of tourism planning for all tropical coastal areas in future. This is already the case in a number of regions where initiatives have been taken by private entrepreneurs and/or government tourism organizations. Uncertainties, such as the extent of regional climate change, the likely social, economic and ecological impacts, and the ability of society to adapt to climate change, are the three major challenges facing tourism enterprise in coastal tropical areas. The remainder of this section will look at various factors that are at the source of these challenges.

Water

As a result of climate change, the tourism sector is facing a highly possible water shortage (potable fresh water) (World Tourism Organizatioin 2003) that raises risks for this water intensive industry. Changes in water availability, as a result of climate change could further affect already overburdened systems, and changes could occur in the frequency, duration, and intensity of floods and droughts. Although climate change is a long-term phenomenon, adaptive actions need to be taken now to reduce the vulnerability of, and risks to the tourism industry. Anticipating problems and applying best practices (examples from destinations where initiatives have been undertaken) immediately will serve to reduce the impacts of water shortages in the future.

The strong probability of reduction in water availability during the high tourist season is possibly the most obvious immediate concern as a result of reduced fresh water availability. The following are a few of the likely risk scenarios, or situations where water shortages may occur, and why, which destination managers in tropical coastal areas should be monitoring:

i. Restricted availability from the primary water source due to pollution;
ii. Deterioration of infrastructure resulting in wastage and/or the inability to distribute to users efficiently and with minimal waste;
iii. Overdraft on limited supply of water (excessive water use, unmonitored usage, etc.); and
iv. Water catchment problems associated with variability of precipitation rates, upstream damming, etc.

In the absence of precise information on the extent of potential water shortages, the industry can employ water conservation efforts, install water saving devices, reduce or eliminate leaks in infrastructure, involve staff and guests in reducing water usage, and reduce dependence on municipal supply by recycling water, capturing rainwater, and the extraction of brackish water. These steps can be called risk control measures. Other measures would include for example:

i. Increasing storage capacity;
ii. Upgrading infrastructure;

iii. Recycling water;
iv. Reducing pollution sources;
v. Building desalination plants;
vi. Improving co-ordination of the many agencies with flood or drought-related responsibilities;
vii. Furthering the development, dissemination, and use of modelling and forecasting tools that could greatly enhance water resource management; and
viii. Promoting demand management to improve water-use efficiency, for example, denying golf courses water access unless they can prove that they will not stress the municipal supply.

Sea Level Rise

The primary concerns related to sea level rise are coastal inundation in low-lying areas, beach erosion and partial or total loss of beach areas. Issues related to land ownership and tax regimes for coastal zone safety (legislation tied to high water mark setbacks, for instance) would have significant economic and financial impacts due to the need to relocate infrastructure (roads, buildings, etc.). Climatic variability may result in increased levels of storm surge, salt-water intrusion into freshwater aquifers (which will also have negative impacts on coastal agriculture), loss of mangroves and wetlands, and general ecosystem depletion and damage, as well as increased coastal flooding.

Between 1996 and 2001, the South Pacific Regional Environment Program (SPREP) and the National Tidal Facility at Flinders University in South Australia established sea-level monitoring stations across the Pacific. Results show a sea-level rise of up to twenty-five millimetres per year, well above the IPCC estimates of two millimetres per year. These findings have been validated by satellite data (twenty to thirty millimetres per year) in a region stretching from Papua New Guinea to southeast Fiji (Tutangata 2001).

The Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO) has determined that pollutants emitted up to 1995 have already built a five

to twelve millimetre sea-level rise into natural systems, peaking by about 2020-2025. They modelled the scenario of global commitment to the emission reductions called for in the Kyoto Protocol[17] by 2020 after which the model assumed zero emissions (an unlikely scenario). According to this over-optimistic script, seas would rise fourteen to thirty-two millimetres by 2050. Putting it mildly, the prognosis is not encouraging for small island states some of which have maximum elevations of less than five metres above sea level. Tourism in these popular destinations is severely at risk, to say nothing of the livelihoods of their local populations.

Increased Temperatures

The impact of rising temperatures (particularly higher minima) around the world will affect coastal tropical areas by potential increases in coral bleaching; fisheries will be affected; water sports, such as diving and snorkelling may become less attractive to tourists because of large areas of depleted live coral populations; warmer winters in temperate zones may decrease demand for coastal destinations by tourists feeling less inclined to escape warmer winters (and to enjoy warmer summers in their home regions). There is likely to be an increased utility demand (energy, water, and possible increases in solid and liquid waste), as well as an increase in vector-borne diseases, causing health impacts on both animals and humans. Agriculture will also be affected by a reduced crop supply resulting in higher levels of imports and therefore increased competition within the domestic market, with higher costs being passed on to the consumer (tourists and the local population).

Precipitation Patterns

The likely changes to precipitation levels in tropical areas may result in an increased intensity of precipitation and run-off, and subsequent flooding, erosion, and infrastructure damage (Agnew and Viner 2001). The increases in run-off into the sea will increase turbidity, which will adversely affect reef ecosystems. Reduced precipitation levels will result in water stress (reduced availability of water for the

[17] In April 2001, President George Bush, citing the "economic best interest of the United States" and the desire not to "take jobs away from the American people", opted not to commit to the Kyoto Protocol, reversing policy promises and outraging the global community. The US produce more that one quarter of global greenhouse gasses from less than five percent of global population.

tourism sector), possible sewage disposal problems (associated with reduced standards due to reduced water availability), and hydroelectric power reductions where water is a source of power.

Extreme Weather Activity

Climate change predictions of a possible increase in intensity and/or frequency of storms will have a significant impact on the tourism industry in coastal areas, including direct damage to tourism infrastructure and coastal ecosystems (Agnew and Viner 2001). The increased costs of insurance in vulnerable coastal areas have resulted in cuts to insurance as a risk-sharing mechanism. The El Niño weather phenomenon has brought stronger storm surges to Pacific islands. Kiribati and the Marshall Islands in 1998 and again in 1999 saw storm surges destroy sea walls, bridges, causeways and flooding of houses and plantations adjacent to the coast. A very real concern for native populations in these islands is that their traditional knowledge of ocean currents, tidal fluctuations and fisheries patterns no longer holds true. Their livelihoods are severely threatened (Tutangata 2001). Malaria has taken hold in the highlands of Papua New Guinea and the Solomon Islands where previously it was too cold for the mosquitoes that carry the disease to survive (Tutangata 2001).

5.4 THE PRACTICE OF TOURISM RISK MANAGEMENT

Tourism risk management is the model that is described in the remainder of this chapter. Sections 5.4 and 5.5 provide a number of intentionally practical outcomes of the research. Many of the ideas for these practical recommendations came from the Delphi survey. Those ideas have been improved or detailed using material particularly from Zamecka and Buchanan (2000) and AS/NZS 4360:1999. While these practical suggestions are in support of the model, they do not comprise a comprehensive set of practical guidelines to apply the model adequately. Rather, they reflect the practical outcomes arising from the current research. These recommendations are then a starting point from which it is hoped that the gaps may be completed in follow-up activities to this research.

This material is included here in support of Aim 2: To develop a risk management model appropriate to the tourism industry that could manage these risks in the future (as described in the Research Design in Chapter 1). To adequately investigate the potential modelling of tourism risk management, one of the two research questions that were posed was: Can tourism risk management be developed as a valid and practical tourism planning and management tool? These practical outcomes, which include a description of four risk management processes, are aimed at operationalising or providing practical guidance for the use of the conceptual model described in Section 5.5.

5.4.1 The Need for Tourism Risk Management

Identifying, understanding and evaluating risk is becoming increasingly important as emergency management in Australia is now, at all policy levels, based on the principles of risk management according to Risk Management Standard AS /NZS 4360. This has effectively moved the emergency management planning focus away from responding to emergencies and disasters and assisting in recovery to the more holistic approach of managing risk within the context of supporting safe, sustainable communities.

Disaster risk management is not about understanding the hazard. It is about understanding the hazard potential in the context of the human (social, political and economic) environment upon which it impacts, and understanding and managing the full range of the consequences of the hazard impact in terms of the physical and social capacity of the community. It is about recognising that risk is a part of human existence and that in most instances it is neither possible nor practicable to eliminate all risk. Human communities must therefore decide how to minimise the amount of risk they are exposed to and adapt to living with the remaining risk (Zamecka and Buchanan 2000). Buckle (1999) describes the risk management approach to emergency management as being "about understanding the relationships of environmental, political, social and economic forces that influence and shape the frequency, nature and location of emergencies" (Buckle 1999 p.21).

Risk mitigation (moderating the severity of a hazard impact) is the principal objective of risk management. In this context, risk mitigation might be seen as the process by which the uncertainties that exist in potentially hazardous situations can be minimised and public (and environmental) safety maximised. The objective is to limit the human, material, economic and environmental costs of an emergency or disaster, and is achieved through a range of strategies ranging from hazard monitoring to the speedy restoration of the affected community after a disaster event (Granger 1998).

It is clear, then, that uncertainty is a key factor. Indeed it can be argued that, in many instances, the effectiveness of risk mitigation strategies is inversely proportional to the level of uncertainty that exists. The risk management process, particularly the risk analysis and risk evaluation stages, is clearly aimed at developing the best and most appropriate information with which to reduce that uncertainty.

When used in an emergency management context a true appreciation of the values and principles that guide decision makers is central to developing an understanding of the range of acceptable options for risk mitigation and treatment. Risk management planning must be flexible enough to respond to context specific community needs and this necessitates an in-depth understanding of the inter-woven community structure of a human population residing in a hazard-impacted area

The groundbreaking document (AS/NZS 4360: 1999 Risk Management) provides a generic guide to the risk management process, applicable to any scale of organisation or business, public, private, or community enterprise. Zamecka and Buchanan (2000) illustrates the flexibility of these generic guidelines by adapting the risk management standard specifically for dealing with community risks and disaster risk management. Both documents provide practical guidelines, templates, and sample documentation in a systematic, logical hierarchy. These two documents are valuable resources for tourism risk managers.

There are many sets of guidelines on the risk management process and much literature aimed specifically at tourism industry crisis and disaster planning (for

example Canadian Parks Service 1993; Federal Emergency Management Agency 1996; Vaughan 1997; Feeney 1999; Kreimer 1999; Steene 1999; Zamecka and Buchanan 2000; Luhrman 2002; Glaesser 2003; Kishore 2003; Wilks and Moore 2003) some of which are rather academic and rhetorical, others more practical in nature and intent. Many have in common a set of six basic steps in the risk management process, summarized by the following:

1. Determining objectives;
2. Identifying risks;
3. Evaluating the risks;
4. Considering alternatives and selecting risk treatment devices;
5. Implementing the decision; and
6. Evaluating and reviewing.

Like any other form of management, risk management can be understood as a process having three basic elements of a control system, namely:

a. Goal-setting (whether explicit or implicit);
b. Information gathering and interpretation; and,
c. Action to influence human behaviour, modify physical structures, or both (Hood and Jones 1996 p.6).

In 1998 the World Tourism Organization and the World Meteorological Organization prepared the Handbook on Natural Disaster Reduction in Tourist Areas. This report did not follow these conventional steps, but rather focussed on what to do if affected by one of five particular natural hazards. Essentially descriptive and not analytical, the Handbook proved to have less practical value than was intended.

This document has been supplemented by a recent publication, "Crisis Guidelines for the Tourism Industry" by WTO consultant Deborah Luhrman,[18] (2002) and is available free of charge on the WTO website. The focus of this document is largely

[18] Deborah Luhrman was previously Head of Communications at WTO in Madrid prior to her consulting career in the area of crisis management.

on risk communications, stating that "Good communications based on the principles of honesty and transparency is [sic] the key to successful crisis management, but other tourism specialties also need to be involved" (Luhrman 2002 p.1), and consequently nominating the communications strategy as the first step in preparing a crisis management plan. Again, the result is not a comprehensive approach to crisis or risk management. The audience for this document is not specified other than as WTO members (who are predominantly National Tourism Organisations (NTOs) and major operators only), to assist them to "get tourists returning to the destination as quickly as possible and good crisis management techniques can speed up that process" (Luhrman 2002 p.1). While the guidelines might provide the general heads of consideration for an NTO or major operator to prepare for potential disasters, it is not, as the title suggests, 'Crisis Guidelines for the [entire] Tourism Industry'.

The 1998 handbook correctly points out that "Tourism developments are often located in areas exposed to, or likely to be exposed to, sudden-onset natural disasters, in particular beach and coastal areas, river valleys and mountain regions. Moreover, should tourists become victims of a natural disaster, the negative impact on the image of the destination concerned can be both serious and long-lasting" (World Tourism Organization 1998b p.iii). Apart from stating the obvious in the preface, the Handbook does not discuss the full extent of natural hazards, risk management processes, or preventive measures to reduce exposure or vulnerability, but focuses on recovery measures. It is therefore rather narrow in scope, dealing only with five natural hazards: tropical cyclones (including hurricanes and typhoons), storm surges, flooding (including coastal, estuarine and river flooding), avalanches and earthquakes.

The handbook is not user friendly (minimal use of hierarchical text, diagrams or illustrations, graphically uninteresting, no index, simplified table of contents, etc.), and assumes that a national disaster or emergency management organisation has been established which will co-ordinate with the national tourism organisation; a broad generalisation. Together, both documents illustrate four deficiencies in the resources that WTO has available for its members:

a. Information to assist tourism businesses to cope with catastrophe must be prepared specifically for both natural and anthropogenic hazards, and for larger businesses and small and medium enterprises;
b. WTO as the premier advisory tourism organisation in the world, needs to temporally move from disaster reduction to risk management in its approach to assisting tourism businesses prepare for, manage, and recover from catastrophic events;
c. Therefore, a dire need exists for thorough and comprehensive tourism risk management guidance tailored for specific sectors of the industry which accounts for the economic, social, and geo-physical environment of destinations, particularly those in vulnerable coastal tropical areas; and
d. Tourism risk management should be designed to promote resilience against unexpected catastrophes, rather than simply trying to prevent their occurrence or lessen the impacts.

Risk management is not just good for business, but absolutely necessary in order for tourism and related organisations to remain competitive, to be sustainable, and to be responsible for their collective future. It is not just about avoiding or mitigating losses, but also identifying opportunities to improve planning and management practices, and building confidence in the organisations' preparedness for various uncertainties. Risk management then means taking a systematic approach (or well planned steps) to improve the chances that plans, hopes, and actions will lead to intended results. It is a way of preparing a community or an individual business for uncertainties that can be identified, and also for those uncertainties that are not immediately obvious. Important basic activities to identify risks to tourism business (to guarantee that important exposures are not overlooked) include a review of the internal records of the firm or operator, insurance policy checklists, risk analysis questionnaires, flow charts and process charts, analysis of financial statements, interviews and inspections of business operations.

"Risk management is an iterative process consisting of well-defined steps which, taken in sequence, support better decision-making by contributing to a greater insight into risks and their impacts" (Standards Association of Australia 1999 p.iii). While this definition is applicable to a wide range of industries, as was the intended use of the generic Australian Standard, its application to the tourism industry requires more industry-specific guidance for the development of an effective risk management strategy. For an industry made up of such a variety of stakeholders and scales of investment, and catering for a range of clientele in a myriad of geographic locations, the preparation of risk management guidelines for 'tourism' might appear futile. However, there is an opportunity to design a standard set of guidelines and templates that is aimed specifically at tourism businesses and their support communities. It must be made eminently clear that any guidelines or standards must be able to accommodate or be adaptable to, the specific tourism risk management needs and subsequent risk management processes of individual groups, businesses, organisations, or stakeholders. This would include accommodating differences in, for example, specific sectors of the industry, and the economic, socio-cultural, and geo-physical environment of destinations, particularly those in vulnerable coastal tropical areas.

An example of the description of a risk management approach for a specific sector of the tourism industry is provided below with specific reference to community leaders (local government) and businesses in small community tourism destinations, i.e. small to medium tourism enterprises in discrete communities or destinations. This example has been chosen to illustrate the basic value and importance of risk management to small communities, and to provide simple and practical recommendations for implementing risk management practices. After all, it is these small and medium enterprises (SMEs) that are at the very heart of the tourism industry worldwide.

5.4.2 Local Government and Small and Medium Enterprises

While this material is directed at local government and SMEs, the design and implementation of a risk management strategy for larger organisations will use the

same principles with added detail and complexity. The objective is then to provide an overview of risk management tools, techniques and practices to demonstrate how to make risk management work at a community level. Risk management for all organisations and businesses consists of a series of steps, which, when carried out thoroughly and systematically, will provide the basis for better decision-making to protect life and property from the unforseen impacts of natural and anthropogenic hazards.

Local governments have a strong mandate to protect all aspects of community health, safety, security, stability, and the local economy. Many of these issues are what can be termed high-risk issues. Local governments have a responsibility to protect businesses and residents from the risk of fire, crime and disorder, hazardous waste disposal, impure water supply and other common accidents and hazards.

Sources of Risk

Having a good understanding of where certain risks can come from and what causes them to occur is a good starting point in identifying and then analyse risks. The following is a short list of the types of circumstances and instances where risks can occur for all types of tourism businesses and government organisations:

i. Commercial business and legal relationships;
ii. Economics (national and international, exchange rates etc.);
iii. Human behaviour (individuals, groups, and organisations);
iv. Natural hazard events;
v. Political climate (stability, legislation, leadership);
vi. Technologies (direct and indirect impacts of technological issues); and
vii. Management (leadership, controls).

While the impacts of risks that a small business or community might take will often come in the form of surprises, risks can also be generated by poor planning or when a hope or action is wrong or faulty in the first place. Local governments are in the business of managing a vast variety of community risks. The overall goals of local government in almost any geographic or cultural context are necessarily aligned to the community risk management actions described below. These actions are

applicable for SMEs and larger tourism businesses, as much as they are for local governments; the scale changes accordingly, but the principles remain the same.

Risk Financing and Insurance

The options available to local governments to establish the appropriate risk financing methods will be largely dependent upon the size of the community – the smaller the community the fewer options available. Certain risks can be self-financed, or the financial burden can be shared in a risk pool or, most commonly, commercial insurance policies can be purchased and tailored to the needs of the risks involved. Insurance companies can offer a wide range of insurance coverage to local governments and small businesses.

There will be instances or specific risks for which commercial insurance might not be available at all. One must shop around for the insurer that meets specific needs. Brokers or insurance agents act as intermediaries and can be a good source of information on the options that are available. Smaller communities will have little control over the cost of insurance premiums. Larger communities or businesses might have the leverage (scale of investment, scale of risk) to be able to negotiate with brokers or directly with insurance company underwriters.

Risk pools, initially formed in the 1970s and 1980s in the USA in response to difficult insurance market conditions, were formed to operate as both insurers and risk managers, that is sharing and managing risk. There are around 40,000 such pools for smaller local governments in the USA. These risk pools have been lifesavers for smaller communities by providing affordable and consistently priced insurance coverage while providing risk management services and advice. The example of risk pooling in the USA might prove a valuable model for smaller communities to approach risk management collectively.

Brief examples from local government and SMEs are used again to illustrate the four risk management processes described below. These processes are aimed at tourism businesses and host communities of all types.

5.4.3 Four Tourism Risk Management Processes

It is an objective of this thesis to derive a tourism risk management framework, or a model planning and management tool, which can illustrate the relationship between variables that constitute a description of total risk for tourism businesses and their host communities. There are some basic principles of a comprehensive approach to tourism risk management that indicate the fundamental processes of such an approach. Four steps in this approach are described below. Thorough and well-organised documentation is also recognised as a basic component of the process and is also described in this section.

Local governments should, and in many examples in Australia do, consider it critical to include consultation with the community, particularly for the development of risk evaluation criteria. This is standard emergency management practice in most developed countries of the world. For SMEs and larger businesses, this is a significant opportunity to communicate, throughout the organisation, the need for a broad commitment from all employees to contribute to and facilitate the inclusion of risk management into their personal work. Good employee involvement in the development of the risk evaluation criteria is most useful in developing risk management skills within the organisation. Senior management must be supportive and thoroughly understand the value and importance of risk management to the future success of the business. They should also thoroughly understand the four steps described below, illustrated in Figure 5-7. For brevity, the four steps in the diagram are titled: The Context; The Risks; The Analysis; and The Treatment. Longer more descriptive titles are indicated below.

The main elements (or required actions) of tourism risk management then include:

1. The Risk Environment or ‘The Context’ (describing the context or business environment in terms of where the business is exposed and vulnerable to risks of all kinds, and the social, economic and environmental context of the business)
2. Risk Identification or ‘The Risks’ (identifying what risks exist and the subsequent eventualities that can occur as a result of those risks)

3. Risk Analysis or 'The Analysis' (evaluating the risks, their likelihood and consequences, control measures), and
4. Risk Treatment or 'The Treatment' (formulating policy statements, finance options, and coordination)

Figure 5-7 is based on a variety of risk management process diagrams and corresponds to the standard and accepted steps used to illustrate the big picture or an overview of the basic risk management steps (see risk management approaches in the following: (Mehr and Hedges 1974; Canadian Parks Service 1993; Vaughan 1997; Standards Association of Australia 1999; Steene 1999; Zamecka and Buchanan 2000; Bowden, Lane *et al.* 2001). This diagram summarises a thorough framework and approach to the risk management procedure. When followed sequentially, the results will outline a thorough risk management process, which will be as complex as the risks and context or risk environment requires.

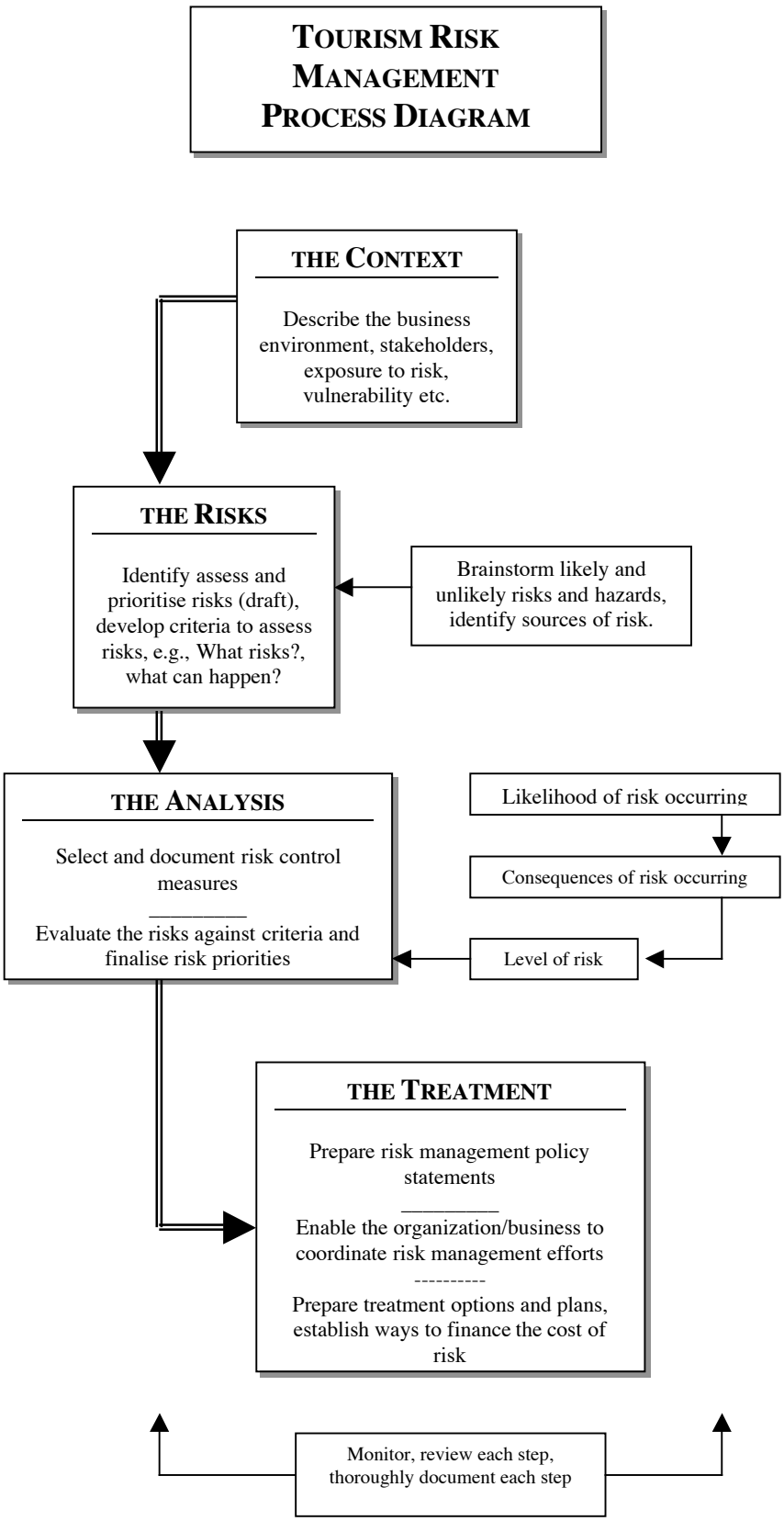

Figure 5-7 Risk Management Process Diagram.

Figure 5-8 Risk Management Overview Diagram, shows a simplified version of Figure 5-7 above, drawn from AS/NZS 4360:1999. Both diagrams are included to show two different ways to illustrate the key components of the risk management process. It is notable that the description of establishing the context in AS/NZS 4360:1999 does not place a high priority on this step, whereas the model and processes described below recognise the significance of this action, and the significance of thoroughly understanding the risk environment because of its influence on all subsequent actions in the risk management process.

Figure 5-8 Risk Management Overview Diagram.
Source: Adapted from AS/NZS 4360:1999.

The two figures above illustrate the basic tasks that need to be undertaken to establish a risk management strategy for any size of business or even for a local government organisation. The steps in Figure 5-8 are not necessarily linear but, taken in accordance with the arrow indicators, are a useful, systematic way of identifying all the basic risk management needs or of forming the basis of a plan to prepare for and manage potential risks. The main challenge is to obtain a clear picture or basis for understanding all or most of the risks that the business or organisation might face now, and in the future.

This can be achieved quite effectively at the outset by brainstorming with a variety of people in the organisation or community, and serves as a useful team building-exercise as all these people will eventually need to work together in the event of a crisis or disaster. A good facilitator can keep the brainstorming focussed. A small business can do this by bringing all the staff together for the session, and need not be a costly exercise. Identifying the risks should at first be all-inclusive, considering risks big and small, and the session should be documented thoroughly. Those that are obvious priorities can be the focus to determine at least a basic course of action. While this is quite standard practice, it is worth restating here because of the often-vertical structure of responsibility in some organisations and communities where group participation is uncommon. Hazards affect us all, irrespective of our status within the community or organisation.

Step 1. The Risk Environment (The Context)

Establish the context, describe the risk environment

In this step, it will be necessary to describe the business environment, the stakeholders, the exposure to risk, and the vulnerability to the impacts of various hazards. The objective is to describe those aspects of the business or organisation that are relevant to the process of managing risk. While this will include a variety of operational aspects of the business in particular, there will be a number of outside or external influences over which the business has little or no control. For instance, in the case of local government, there are few opportunities to influence tourism demand in the local region; or for a small business, there might be little opportunity to influence regional investment policy or incentives to assist business growth.

Within the organisation, however, there are considerable opportunities to integrate risk management objectives into existing goals and development plans, and to identify all areas or parts of the business that are exposed to risks of all kinds.

For local governments, the general community safety and well-being will be a primary concern when describing the 'business environment'. Exposure to hazards and community vulnerabilities will focus on social aspects such as gender, ages, residents per dwelling, access to hospitals, and many other aspects of susceptibility and resilience to hazards in the community. (See the description of various community vulnerability assessments in Section 2.4.3). All of the above attributes describe the risk environment. These attributes will have an impact on all elements of the risk management process, and indeed on all the variables in the tourism risk management model described in the following Section 5.5.

The term 'risk environment' has therefore been used here to describe a broad interpretation of an environment as being more than just natural features but rather being inclusive of a range of contextual attributes where 'environment' means circumstance, setting, and situation. This might include for example the following attributes: i) the socio-physical environment (including the built environment, the natural environment, and social environment); ii) the planning environment (including the capacity to plan effectively, resource availability, and gain support from additional sources of experience and knowledge); and iii) the economic environment (including access to risk sharing mechanisms, the 'ability to pay' or affordability, and access to financial support).

These attributes (described in greater detail in the next Section 5.5) all contribute to an understanding of both the risks posed by hazards of all kinds, and to the way in which those risks need to be managed. Earlier models are not inclusive of the array of attributes described above. The variable termed 'the risk environment' has been added to the Crichton and Granger models (described above) to complete the new model developed in this thesis, together with an alteration to the relationship of the variables of the earlier models in order to provide a comprehensive approach to tourism risk management.

Step 2. Risk Identification (The Risks)

Identify the risks

Risk evaluation criteria should also be drafted at this early stage. The two terms 'likelihood' and 'consequence' should be clearly understood by all in their use and application. Other criteria might be useful to add for specific risks or hazards. The aim of the criteria is to be able to arrive at an objective rating of the risk and to assign it a value so it can be prioritised. This is not a difficult exercise once the criteria are closely described and understood by all.

Identification and description of hazards should be done on an all hazards basis, i.e. for all likely potential hazards, and those that might seem unlikely hazards that could have an impact on the organisation or business (see Section 2.2 for a description of various types of hazards). Identify the hazards, the risks, the source of those risks, and set initial priorities to those identified.

For a local government, for example, one way to do this would be to start by breaking down the areas where hazards could have an impact. Many hazards or risks will impact upon more than one of the areas of responsibility of local government; however it is useful to go through the list, as there will be risks that are specific to one part of the community only. It will be important to list them all without concern for repetition at the outset. This will help in indicating the likely priority of the risk. The list below might also provide a useful means of identifying vulnerabilities in the community. The list below is also a useful means of identifying vulnerabilities in the community, being a breakdown of the areas of responsibility of the local government, to initially identify how and where risks will have an impact:

i. The physical environment of the community (landforms, land-use, waterways, climate, etc.);
ii. The social context of the community (population, living standards, safety, age and gender make-up, income levels, etc.);
iii. The political environment (leadership, representation, community involvement, investment policy, etc.);

iv. The economic environment (business climate, investment trends, cost of living etc.); and
v. The legal and operational environment (local, state and national legislation, law enforcement, community development policies, etc.).

The list of potential risks can then be examined one by one to assign priority and to then consider the next series of questions and apply the questions to each of the identified risks. This begins to build up the risk management blueprint or what will form the basis of a tourism risk management plan. In this way, each risk will be determined and described in terms of how each of the identified hazards will affect or have an impact upon the vulnerable people and places in the community.

At this stage it is important to develop a set of criteria against which one can later evaluate each risk with the help of risk analysis tools described below in Step 4. These criteria will be based largely on the internal policy of the business (organisational goals and objectives), and the interests of clients or constituency. For example, there are likely to be legal criteria for assessing risks because of local legislation, insurance policy requirements, environmental laws, or national safety regulations. So the criteria will need to be based on operational, technical, social, humanitarian, or other aspects of the business operations. The aim of using these criteria is to be able to better understand how particular risks affect the business or organisation, and to set priorities. Figure 5-9 below illustrates the risk identification brainstorming process.

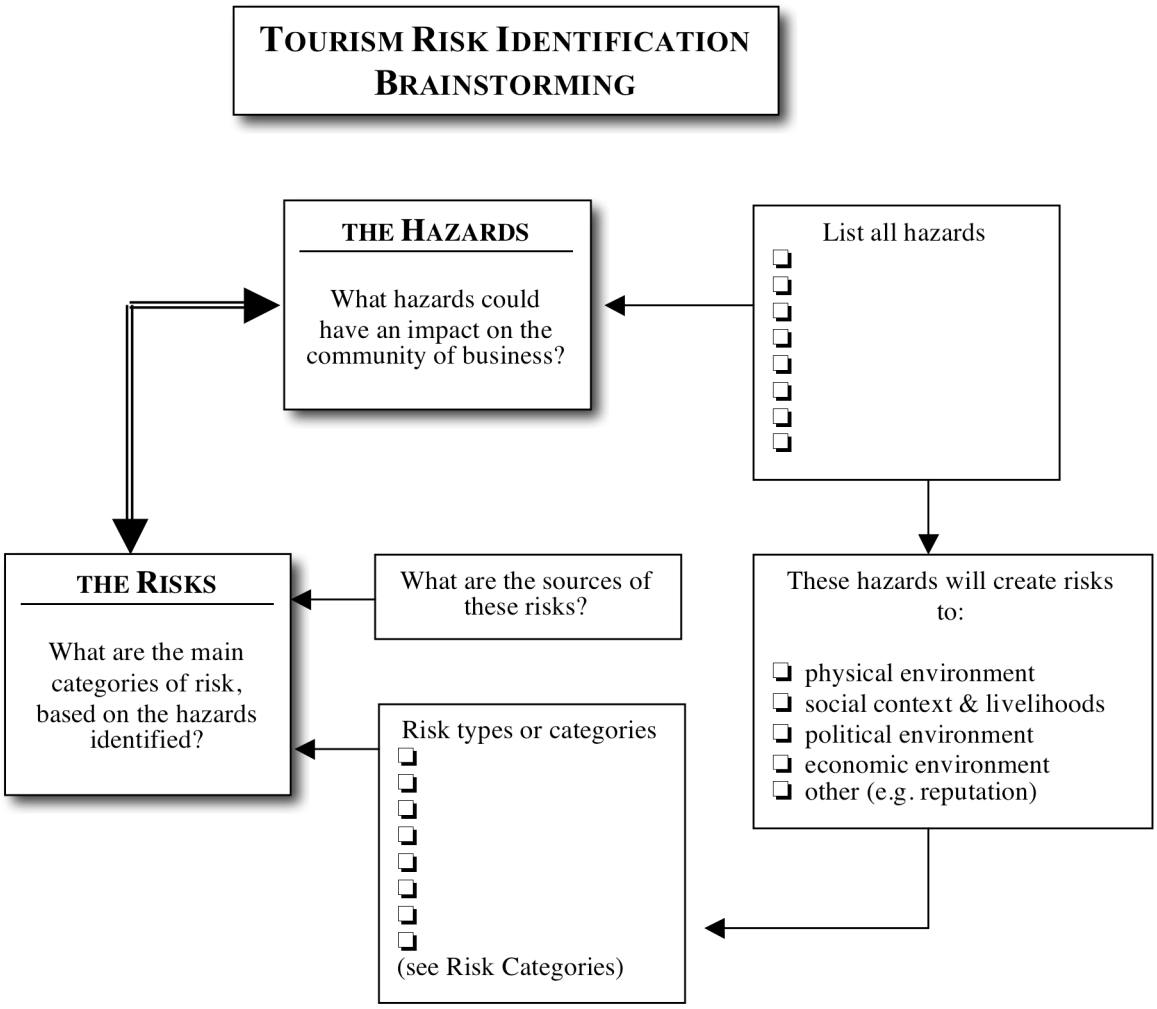

Figure 5-9 Risk Identification Process Diagram.

Step 3. Risk Analysis (The Analysis)

The process of analysis

In Step 2 above, the sources of each of the risks were identified. Two other components of risk analysis are i) to determine the likelihood and ii) to determine the magnitude of the consequences of the event should it occur. These two determinants can be measured (qualitatively or in descriptive terms), and are combined in a matrix or table to provide an indication of the overall level of risk. Figures 5-10, 5-11, and

5-12 provide some conventions for measuring these two determinants and the resultant level of risk.

Figure 5-10 Measuring the Consequences of a Hazard.
Source: Adapted from AS/NZ 4360:1999.

Figure 5-11 Measuring the Likelihood of a Hazard.
Source: Adapted from AS/NZS 4360:1999.

Figure 5-12 Describing the Level of Risk.
Source: Adapted from AS/NZ 4360:1999.

For example, a risk that is almost certain to occur (Likelihood level 5), and that will have at least Moderate or occasionally Major consequences (Consequence level 3 or 4), might be considered as a very high risk or possibly even extreme (see Figure 5-13 Level of Risk Descriptors below). This would fall at the position indicated by *** on the Level of Risk figure above. In the Pacific Islands for instance, extremely heavy and torrential wet season rainfall is almost certain to occur, and in some cases might have significant consequences due to flash localised flooding, water supply contamination or other consequences. This could be considered a high-risk event for which a treatment strategy will be required.

For the Level of Risk figure above, the blank area needs to be completed with a description of those levels. A suggested list of four such levels is given below.

Figure 5-13 Level of Risk Descriptors.
Source: Adapted from AS/NZ 4360:1999.

Information for this type of analysis will come from a variety of sources such as past records, experienced persons, books and other publications, market research, experiments, economic models, specialist or expert judgements, and many other sources. It is often useful also to indicate a level of confidence in the levels of risk identified, i.e., to indicate a level of confidence in the designated level of a specific risk.

Using the criteria developed in Step 2, one can now evaluate the risks against these criteria in order to assign a priority. The control measures described below will also assist in the assignment of priorities. Step 3 refers to risk control measures, which are important risk management tools. In a local government context, these refer to all the measures that can be undertaken to avoid risks, or to prevent their occurrence, to reduce their impacts, or to transfer those risks. Risk control measures are all the possible means of controlling those identified risks. These are described briefly below.

Risk Control Measures

Risk avoidance would be any measure that could be taken to avoid being exposed to a risk or even to completely cut off that exposure. The sale of redundant plant and machinery could avoid the risk of such objects becoming highly dangerous projectiles in the case of a high wind hazard, like a cyclone, tornado or hurricane. Risk avoidance is widely considered to be the least expensive risk management tool.

Risk prevention measures are the measures that can be taken to reduce the likelihood of a loss event occurring. While risk prevention aims at reducing the likelihood of the risk event resulting in losses, risk reduction is any measure that can reduce the scale or size of the impact of the losses that occur. There are a variety of obvious measures that can be taken to minimise loss potential or to prevent losses occurring on a massive scale. Commonly, one cannot totally avoid certain risks, but one can often decrease or minimise the scale or extent of impacts and subsequently the scale or extent of the losses. An emergency response plan or risk management plan is a good example of risk reduction.

Risk sharing is simply a means of spreading the responsibility for the risk (and for the potential losses) between more than one organisation or business. The best example of a type of risk sharing is insurance, i.e., paying an insurance premium, sharing the risk with the insurer and therefore sharing the responsibility for potential future losses.

Risk transfer is a tool used to transfer a risk or responsibility for a risk to another party. This might involve the exchange of ownership of certain buildings or equipment, the privatisation of a business or service of government, a contractual arrangement to transfer management responsibility for a business or service, etc. In certain instances, ownership can be retained while aspects of risk can be transferred under a lease arrangement, for example.

Certain risks cannot be ‘managed’ or treated in the ways described above. That is, there are no specific tools to minimise impacts, to share the risk or prevent it. There is, however, a useful tool of last resort, which is risk uncertainty reduction. Sometimes this will be the only option available: to simply reduce our uncertainty, or to try to know as much as possible about something for which there is little knowledge, or little access to knowledge on the subject. Reducing uncertainty is a relatively common way of gaining some confidence about how one might deal with a risk or hazard about which little is known. This can be achieved by gathering as much information on the risk as one can and making all possible efforts to improve both knowledge and understanding of that risk. Each identified risk should be

examined for both likelihood and consequence. The level of risk can then be assigned with consideration of these two factors as well as other technical economic, legal, social, or other criteria the risk management team might deem necessary.

Step 4. Risk Treatment (The Treatment)

Select the appropriate risk treatment options

Before being able to treat risks (i.e., before knowing what is needed to make adequate preparations for the possible consequences), it is necessary to: i) identify possible treatment options; ii) assess those treatment options; iii) prepare treatment plans; and iv) to finally implement those treatment plans.

Risk Treatment Options

There are four primary options, although there might be others, depending on the specific situation and circumstance.

Option 1) Reduce the likelihood of that risk occurring

This might include, for instance, changes to: technical controls, organisational arrangements, supervision, security, safety measures, structured training, research, quality assurance, performance monitoring, standards compliance, preventive maintenance, project management, formal review processes for production, etc., contract conditions and many others.

Option 2) Reduce or control the consequences of the event

This might include for instance: contingency planning, contractual arrangements and conditions, design features, disaster recovery planning, engineering and structural reinforcement, minimising exposure to the sources of risk, separating or relocating an activity or resource, public relations, and many others.

Option 3) Avoid the risk

This would often mean to stop doing the activity that generates the risk. This is rarely the most feasible or even possible course of action. Risk avoidance is not ignoring the presence of a certain risk, ‘passing the buck’, leaving unavoidable decisions until later, or selecting another less risky course of action, irrespective of

benefits or other consequences. Great care must be taken to ensure that any risk avoidance does not increase the significance of other risks.

Option 4) Transfer the risk

As described above, risks might be transferred or shared through contractual arrangements, organisational structures, partnerships and joint ventures, and the most common form of risk sharing and risk transfer: insurance policies. Transferring or sharing risk does not necessarily diminish the level of this risk to society.

Option 5) Retain the risk

Even after risks have been decreased or minimised by transfer, sharing or reducing likelihood or consequence, there will still be some risk (residual risk) that has to be managed because that risk is retained. As with other forms of treatment, treatment options and plans for this retained risk must be put in place as well as a means of financing that risk. The options above can help manage the risk retained. Care must always be taken to avoid retaining risk by default which occurs when, for instance, a risk has not been properly identified or a risk has not been properly treated by reducing that risk, sharing or transferring the risk.

The following Sections 5.4.4, 5.4.5, 5.4.6 and 5.4.7, provide some additional detail on the four steps described above, by providing additional information on organising the risk management process and selecting appropriate treatment options

5.4.4 Coordinating Risk Management

For small communities and SMEs, co-ordinating risk management might not necessarily mean hiring a new person; however someone needs to be charged with the responsibility for preparing, managing and co-ordinating the implementation of risk management efforts in the company or organisation.

Depending on the size of the community or organisation, there will be a number of necessary actions that must be taken, since they are considered to be the most critical. Then there will be some less critical actions that are deemed necessary but

which might be done at a later date, when all the critical actions have been completed. These two types of activities are listed below as Critical Basic Needs, and Non-Critical Needs.

Critical basic needs to begin treating risk in the business, community, or organisation:

1. Establish a Risk Management Policy Statement

   This is the document that authorizes activities to occur and provides the basic blueprint for the risk management activities, not in great detail, but describing the intention of the policy, its rationale, and the way it will be implemented (an illustration of the policy documentation process is provided below in Figure 5-15).

2. Assign Responsible Person(s)

   Responsibility for all risk management activities should be assigned to one person or a group of people who share the responsibility (an existing or new committee for instance). This person or group translates the policy statement into action; it is responsible for ensuring that the policy is implemented in the way in which it was intended, on time and on budget. Other specific responsibilities of this person or group would be:

   i. To establish the extent and detail of the risk management policies;
   ii. To ensure these policies are then translated into specific actions to be implemented, when, by whom, requiring what resources, etc.;
   iii. To ascertain the specific natural and anthropogenic hazard insurance requirements of the organisation;
   iv. To locate, negotiate and appoint an insurer as required;
   v. To ensure that the organisation is fully in compliance with local government safety requirements regarding emergency preparedness and any other legal standards; and
   vi. To develop and review all contracts, purchases and proposals for risk management.

Non-critical needs to support managing risk in the organisation (the following short list contains items that are not critical but which, in time, could greatly assist the development of a more comprehensive risk management policy and program within the organisation):

i. Develop safety and training programs;
ii. Establish claims and accident reporting procedures;
iii. Provide rewards and incentives for employees for safe practices and competence development;
iv. Create a Risk Management Manual;
v. Develop an annual Performance Monitoring System and produce annual Performance Reports;
vi. Develop public forums and community safety programs; and
vii. Undertake periodic risk audits.

Safety management programs that necessarily trade-off costs and safety beg the question of what is an 'acceptable' level of risk, and "How is an acceptable level of exposure to be determined?" (Horlick-Jones 1996 p.146). What is determined to be an acceptable level of safety must therefore be based on a participatory process of consensus building on this issue, as it will be a key determinant of the treatment options chosen, and the subsequent risk management planning components. As Horlick-Jones indicates, "safety involves a multi-dimensional interaction of human, managerial, and technical factors with a host of influences from the operating environment" (Horlick-Jones 1996 p.144). High safety standards can be achieved in conjunction with other business goals and are not necessarily a major additional cost to business operations but, rather, good risk management is an investment in maintaining good management in general.

5.4.5 Treatment Options and Plans

There will be several options for treatment of most risks. These options can be assessed in terms of: i) how effectively they reduce the risk; ii) the benefits and costs of the treatment options; and iii) if there is an opportunity for more than one option to be combined. In the end, there must be a clear picture of the benefits of a

particular option that justifies the cost of implementing that treatment. Therefore, the costs of managing risks must be balanced by the benefits obtained. Options, including costs and benefits, should be clearly documented as with other components of the risk management process.

It might not be simple to estimate benefits and costs in some instances. With a risk that is of very low probability (will rarely occur, very unlikely event) but very high impact (extremely costly in terms of life and/or property), such as a tsunami in a low tsunami-prone area of the Pacific, it might be difficult to justify expenditure on treatment measures for such events when there might be scant evidence of such a phenomenon having occurred in the past. There is a danger with cost-benefit techniques for managing risk, in that establishing the costs or value of loss of life or other negative impacts as though risk can be measured like a physical quantity such as temperature, might result in failure to capture the socio-cultural or political nature of the risk construct. A simple cost-benefit treatment might not, therefore, be compatible with "preventive risk management associated with the 'precautionary principle' which has increasing influence in environmental regulation" (Horlick-Jones 1996 p.146).

In this case, as with others, any one-risk treatment option might not be the complete solution. This is particularly pertinent when considering the impacts of natural hazard events where there are commonly cumulative impacts that occur as a result of one hazard causing damage that then causes additional damage. Loss of electricity supply, for example, might cause loss of life or equipment damage as a flow-on effect.

It is possible that not all risks can be treated at once because of the cost, or the available expertise, or because other priorities take over. It is important to at least document what is known, and indicate what is not known at the time so that, when the budget and expertise is available, the priority risks can be treated urgently. Treatment plans, for example, are the best way to document how the treatments can be implemented, managed, and monitored. Examples of treatment plans are described in the following section.

When some positive action is not taken to avoid, reduce, or transfer risk, the possibility of loss involved in that risk is retained (see Figure 5-2). Generally, risks that should be retained are those that lead to relatively small or certain losses. Risk, pure or speculative, might be transferred to another individual to deal with (e.g. hedging). Insurance is an example of transferring risk, similar to risk sharing.

To reduce risk, at least one of the following three components of risk needs to be reduced;

a. the magnitude of the potential loss;
b. the chance of the loss occurring; or
c. the exposure to loss.

There are three basic determinants of risk, or causes of loss:

i. lack of control (extreme examples are natural disasters and political uprisings which are essentially out of our control);
ii. lack of information (it is rare to have complete information on the outcomes of various choices, forcing a choice from the best alternatives based on the information immediately available); and
iii. lack of time (there are always time constraints on decision-making, if more time is available, it is possible to be more certain of the outcomes of decisions).

Having reliable information on an uncertain event allows the prediction of possible outcomes to reduce exposure to situations that might increase the risk. In the immediacy of disaster situations, the degree or availability of time, information and control is rarely optimal. These three elements can however be used to mitigate risks, at least partially. Figure 5-14 below plots the relationship between the risk determinants and the three components of risk. This matrix provides a useful indicator of the required information and resource needs to plan a risk management strategy.

Figure 5-14 Relationship Between Components and Determinants of Risk.
Source: After Emerald Reviews (2000) (Quality Assurance and Risk Management Courseware p.3)

The entire Section 5.4 above provides some of the basic tools with which to prepare for and manage risks to tourism businesses and the livelihoods of host communities at tourism destinations. The templates and illustrations indicate the need for an organised and comprehensive approach to tourism risk management. The model to follow is the culmination of much of the research investigations. It is an attempt to simply state the relationship between the most important variables that comprise a comprehensive approach to the subject.

5.4.6 Risk Management Documentation

A documented plan for tourism risk management is only as good as the people who are diligently and systematically following the guidance it offers. Thorough documentation is critical to the successful implementation of risk management strategies and plans. All documentation should be clearly marked with the date and

author, with follow-up actions highlighted, and with persons or groups responsible for all actions described in the plan.

The extent to which this level of documentation is affordable, or the expertise exists to compile the necessary documentation, will depend on the individual location or organisation and the priority that is placed on risk management. Deciding on the necessary level or extent of documentation (how complex, how detailed) will be determined by first calculating the overall cost of the exercise, and then describing the key benefits of detailed documentation. Risk managers should consider how much information the decision makers in the business or organisation need in order to properly understand all aspects of the risk management process. Unnecessary complexity can diminish the ability to easily communicate the intention of the documentation; this is especially true of policy documents. Short concise wording can be a most valuable communications tool.

As a basic, minimum level of documentation for both large and small tourism businesses and advisory organisations (National Tourism Organisations in particular), the preparation of at least an outline of the four documents described below is strongly advised. While the accompanying illustrative diagrams have been designed to fit a variety or circumstances and organisations, they can be readily simplified for use by small businesses. They illustrate examples of the four most important documents:

i. General Policy Documentation for Tourism Risk Management;
ii. A Risk Register;
iii. Risk Treatment Schedule and/or Risk Action Plan; and
iv. Monitoring and Audit Statement.

A template or illustration for the first three of these documents is included below in Figures 5-15, 5-16, and 5-17.

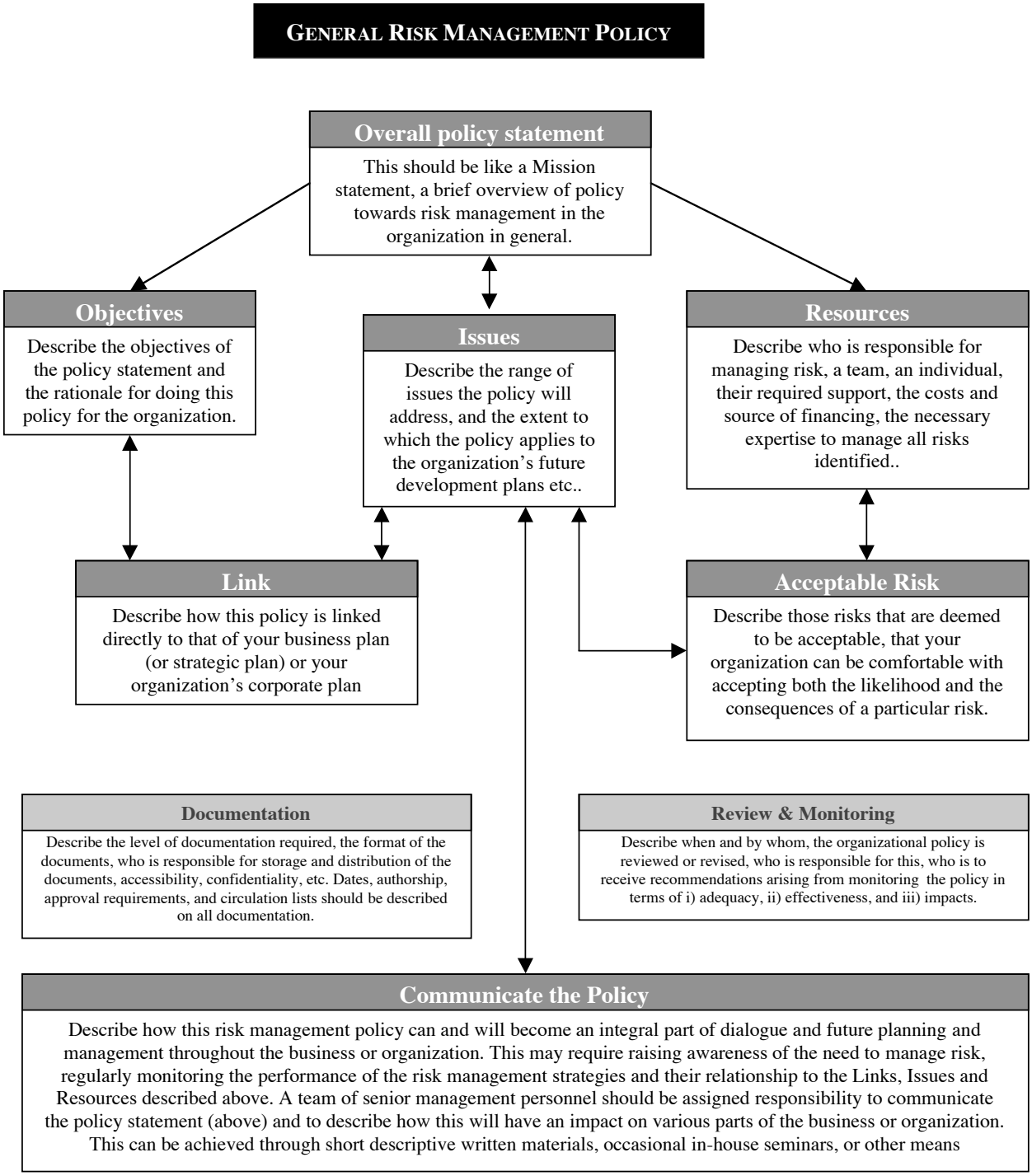

Figure 5-15 General Policy Documentation for Tourism Risk Management.

Figure 5-16 Risk Register Template.
Source: Adapted from AS/NZ 4360:1999.

Figure 5-17 Risk Action Plan Template.
Source: Adapted from AS/NZ 4360:1999.

The above template will assist with the documentation of the control measures that have been decided for on specific risks. That is, each identified risk should have at least this outline of an Action Plan prepared, to briefly describe what needs to be done, the responsibility for the implementation of the Action Plan, the resources that are required to do so (budget, personnel), when this will be done (timetable), how the Action Plan will be monitored, and what reporting will be generated.

The final document, iv. Monitoring and Audit Statement, is an often forgotten but critical description of when and by whom recommendations are reviewed, and the required follow-up is implemented. There is no illustrative template for this document, however it should contain, as a minimum, the following:

i. Monitoring

   A description of who will be responsible for monitoring the appropriateness and timeliness (keeping everything up to date) of all risk management arrangements. When periodic reviews are required; who will do this review; where or to whom the review findings are to go, etc.

ii. Audits

   A description of when and how often (at what frequency) a thorough review of all risks and all the proposed risk management arrangements should be completed, by whom, with what level of detail, and to whom are results to go for follow-up. The outcomes of all monitoring and audits should be clearly documented, resources made available, and a mechanism put in place to ensure that all follow-up recommendations are implemented nominating a specific person responsible for this process. A risk management audit would therefore include at least the following activities:

   a. Evaluate risk management objectives and risk management policy;
   b. Identify and evaluate potential exposures to loss;
   c. Evaluate the decisions for dealing with each exposure;
   d. Evaluate the implementation of risk treatment techniques used; and
   e. Recommend changes for improvement in the program or strategy.

Thorough documentation will ensure there is a clear record of all aspects of the risk management process as evidence of a systematic approach to risk identification and analysis. The documentation will provide the base information from which the main points can be extracted to circulate, share and communicate to staff and other stakeholders (including insurers, to negotiate premium levels). Accountability and transparency within an organisation can be enhanced by comprehensive and well-organized documentation, as is the case for any planning and management tool used to guide business and development practices in almost all organisations.

The primary objective of the documentation process is to provide the relevant decision makers with an organised, systematic, and clearly communicated risk management plan for approval and subsequent implementation. When a variety of people in an organisation will need to have an input to different aspects of a planning process, the communication of that message to all those people involved is one of the most important attributes of a successful plan. Experience has shown that one of the primary causes of plan failure (or the non-implementation of a plan) is that the objectives, intent, and details of the plan are poorly communicated.

Finally, it should be stressed that this entire section is not intended to illustrate a thorough risk management planning process, but rather to describe the most basic elements and principles required of the risk management process that would be applicable to a small community, group of businesses, or local government organisation, to understand at least the fundamentals of risk management as it applies to tourism SMEs and local governments.

5.5 A TOURISM RISK MANAGEMENT MODEL

Total risk has its roots in a simplified equation that equates risk to the sum of vulnerability and hazard (R=H+V). The Risk Triangle developed by Crichton (1999) was a logical extension of this equation used by insurers to illustrate the relationship between hazard and vulnerability with the addition of exposure, shown in Figure 5-1 on page 270. Exposure in this instance has specific meaning for the insurance discipline, see Definitions in Chapter 2: Literature Review.

Blaikie essentially agrees with the Risk Triangle concept by suggesting that it is simply not adequate to deal only with the hazard threat in the risk management process, but rather the risk manager must design policies "to reduce vulnerability and therefore disaster" (Blaikie, Cannon *et al.* 1994 p.8). The expression of total risk is a further extension of both the equation and the risk triangle, developed by Granger (1998) by converting the risk triangle to a simplified mathematical equation to indicate a theoretical relationship that describes the total risk faced by a particular location or entity. Granger also redefined exposure to mean those elements that are exposed to hazards and are vulnerable which would include buildings, community attributes, etc. He recognised the need to redefine exposure from its original insurance meaning. The Risk Triangle diagram therefore remained the same, although the meaning of exposure differed.

$$\textbf{Risk}_{\text{(Total)}} = \textbf{Hazard} \times \textbf{Elements at Risk}_{\text{[Exposure]}} \times \textbf{Vulnerability}$$

This equation and the risk triangle were offered for comment to panelists in the Delphi Tourism Futures Study. While fifty-seven percent of panelists considered that this equation was an adequate framework or model to apply to the tourism industry in order to analyse future risks, many offered suggestions to improve the applicability of the concept to tourism risk management. Suggested additions to the concept included:

- the model needs to incorporate complexity and randomness, a dimension of time and randomness;
- the model should reflect the perception of safety;
- there should be a fourth element, which includes costs through insurance or financing mechanisms, cost of insurance, etc.;
- the difference between exposure and vulnerability is not clear;
- the model should reflect frequency, predictability, insurability, and awareness;
- tourism "risks" are perceptual in nature and therefore require a more social-science model;

- the model should include socio-economic factors such as safety and security issues somehow;
- the coincidence of multiple hazards is not well represented in this model;
- it ignores responses/preparation e.g. planning and management;
- add human behaviour particularly as it might affect hazard in either a positive or negative manner;
- the model does not cover media exposure or the impact of public knowledge on vulnerability, and the influence of formal and informal education at all levels; and
- the equation might not be meaningful for certain threats, e.g. political instability.

There was strong support from panelists for the extension of the concept of vulnerability to be more inclusive of social dimensions for risk analysis. It can be concluded that, while the concepts of the risk triangle are essentially useful, two specific changes were needed to apply to tourism-related risk in a variety of geographic locations and cultural circumstances. That is, that i) the confusion between exposure and vulnerability needed to be addressed, and ii) that socio-economic and planning and management factors should be included in the equation. With these changes, the value of the equation as a modelling tool for tourism risk management would be improved, given the addition of social and managerial dimensions. A new definition of tourism risk management and a revised conceptual equation (and a new Tourism Risk Management diagram) to model total risk is described below.

The following summary definition of Tourism Risk Management is suggested by the author:

> Tourism risk management is a systematic approach to making decisions under conditions of uncertainty by anticipating possible opportunities and accidental losses, and designating and implementing procedures that minimise: i) the occurrence of loss, and/or ii) the social, economic or environmental impact of the losses that do occur**.**

Tourism risk management requires a comprehensive approach (Total Risk) to minimizing future uncertainties that might have an adverse impact on existing or future tourism facilities and the communities that support them. Total Risk is the product of vulnerability, the exposure of the elements at risk, the hazards that pose a risk, and the physical, economic, social and organisational environment of the community or entity at risk. The concept can be represented by the quasi-mathematical equation:

$$\textbf{Risk}_{\text{(Total)}} = [\textbf{Hazard} \times \textbf{Exposure}_{\text{(Elements at Risk)}} \times \textbf{Vulnerability}] \times \textbf{Risk Environment}$$

This equation is not meant to be mathematical, but rather it indicates the relationship between the variables that give us a good picture of a particular risk, namely, the hazard (source of harm or loss), the exposure (just what it is that could be damaged or destroyed), the vulnerability (the susceptibility and resilience of the community and environment to hazards) and the risk environment (inclusive of a range of contextual attributes where 'environment' means circumstance, setting, and situation).

This equation can then be represented in the following diagram:

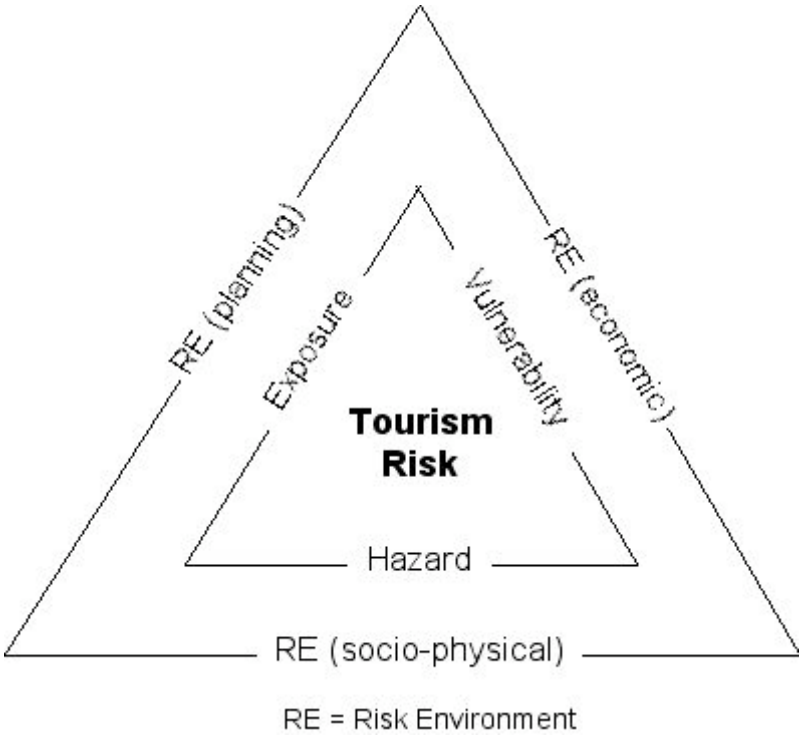

Figure 5-18 Tourism Risk Environment Diagram.

In this revised conceptual model, 'Risk Environment' has been added to accommodate the addition of a variety of contextual issues to add further specificity to the model and its potential for application to tourism risk management. As the diagram indicates, the Risk Environment variable encompasses the other three variables as it has a significant impact on each variable, which in turn are products of the Risk Environment as shown in the model equation.

The term 'Risk Environment' used in the model (equation and diagram) is a broad interpretation of an environment being more than just natural features but rather being inclusive of a range of contextual attributes where 'environment' means circumstance, setting, and situation. Therefore it includes the following attributes:

a. The socio-physical environment;
    i. the built environment including elements such as buildings and infrastructure that provide for the movement of people, goods and services;

ii. the natural environment including topography, water and vegetation, ecosystems, protected areas and all other natural resources; and

iii. the social environment including religious and cultural behaviour, economic and commercial features of the community, political stability, and collective community functions. This would also include the consideration of the cultural acceptance of a perception of risk that is compatible with accepted and effective risk treatment measures; and

iv. all tangible and intangible cultural heritage property, sites, persons, and places of cultural significance.

b. The planning environment;

i. Capacity and experience of community and local authorities to plan effectively, manage plans, monitor and evaluate planning adequacy, effectiveness, and impacts;

ii. Resource availability including access to funding, information, and expertise not available locally, awareness-building, and on-going training and education facility; and

iii. Support from and access to local, national and international sources of experience and knowledge to accommodate collaborative co-operation on issues of collective benefit (the existence of political will and the sharing of local knowledge on issues of national and international significance, multiple or cumulative hazards, for example).

c. The economic environment;

i. Access to risk sharing mechanisms including insurance and co-financing;

ii. The 'ability to pay' of the community (affordability of risk minimization measures) and the absorptive capacity of the community (the ability of the community to absorb financial investment in risk minimization), and the cultural acceptance of risk-related investment (financial and human effort); and

iii. Access to financial support for all elements listed above.

In conclusion, the tourism risk management model is then a framework around which a comprehensive view of risk management requirements can be identified and recorded. While aspects of the four variables of vulnerability, exposure, hazard and risk environment might be able to be quantified, the conceptual model is essentially a qualitative tool that can guide the process of identification, analysis and treatment described in the Four Risk Management Processes. The primary value of the model lies in its comprehensive approach that ensures the risk environment is considered or taken into account as a multiplier (that has a cumulative affect) when identifying, analysing and identifying treatment strategies for each of the remaining three variables. In short, the model can provide practical planning and management guidance to the process of tourism risk management.

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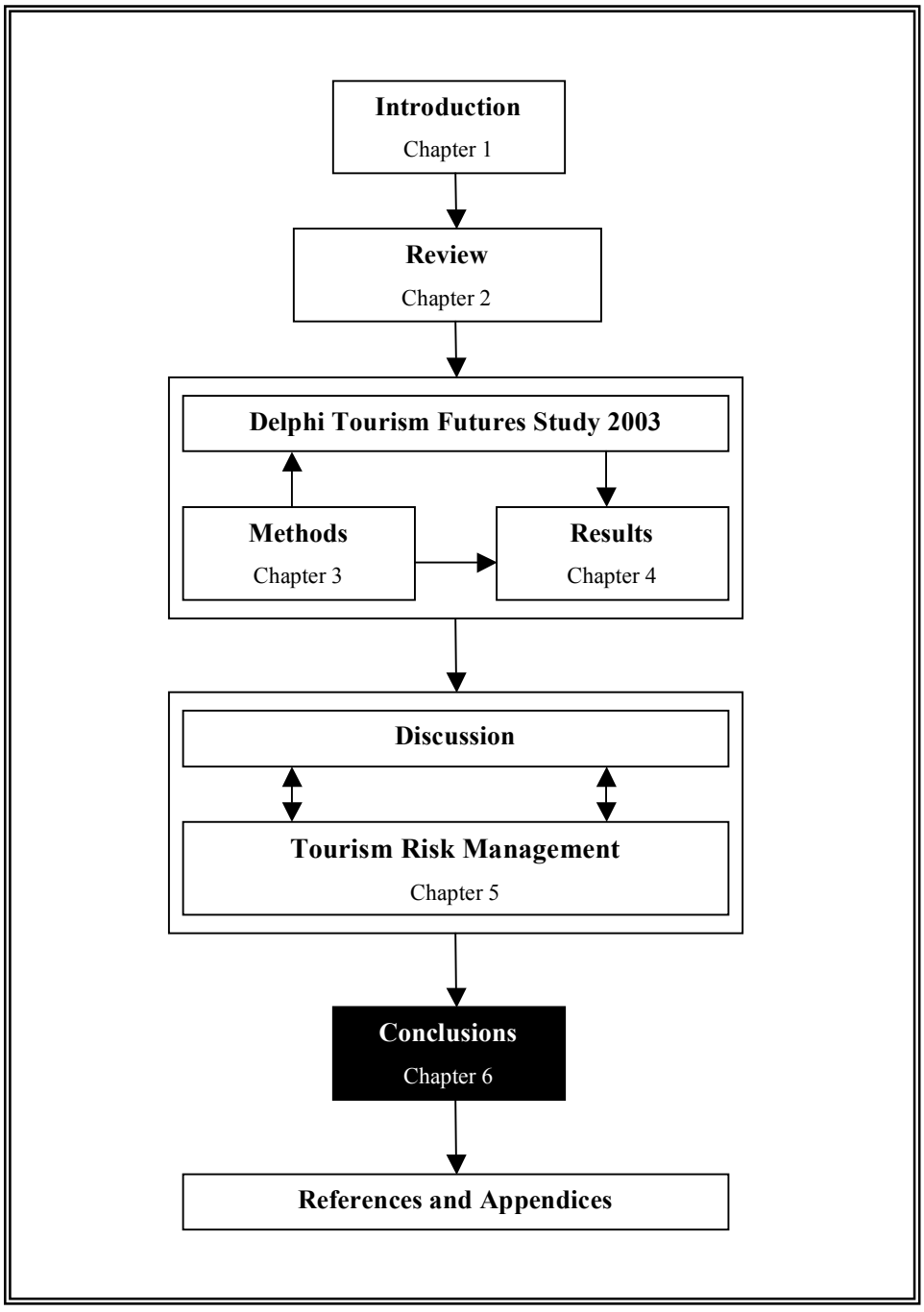
Chapter 6

Conclusions



5.5.1.1.1 Table of Contents

6 CONCLUSIONS

"... the forces of nature, social, and political dynamics, scientific discovery, and technological innovation largely determine the future. However, as human capacity has evolved, our choices increasingly shape the future" (Glenn and Gordon 2004 in press).

6.1 INTRODUCTION

It is hoped that the investigations into risk management for tourism and the development of a tourism risk management model has practical application for today's planners and future managers of tourism development in tropical coastal areas. As tourism risk management continues to gain recognition and experience as a practical working tool of sustainable tourism development planning and management, the new model and methodology will probably need to be developed concurrently and in response to new hazards, the changing needs of tourists, host communities, and all those involved in the business of tourism. More must be spent on risk mitigation and risk reduction, through working with governments, sharing knowledge and experience, and developing awareness of the value of risk management as a working tool for sustainable tourism development in the future. The research found that a framework for tourism risk management strategies could be developed as a valuable planning and management tool that can assist in reducing the adverse impacts of hazards and catastrophic events.

Future Risks and Hazards

Tourists, tourism industry businesses, and host communities in tropical coastal areas will, in the future, contend with a myriad of natural and anthropogenic hazards that will threaten social, economic, and environmental stability. Flooding, climate change impacts and tropical storms will be the key natural hazards for the tourism industry to cope with in the next two decades. Potential anthropogenic hazards in the foreseeable future (twenty years, for example) will include the potential for major global recession or economic meltdown, overdevelopment and uncontrolled development, uncontrolled extraction of natural resources (fish, reef, forest, mineral resources, petroleum, etc.), and especially war, terrorism and political instability.

The availability and shortage of fresh water will pose significant risks to destinations in the immediate future, increasing the risk to destination viability to 2050. Climate change will influence demand (through economic effects) as well as supply. The spread of areas affected by chronic diseases, feral and other pest infestations induced by climate change is also a major concern. Before 2050, sea-level rise will have a significant impact on the tourism industry in tropical coastal areas.

Insurance will be more important to travellers in the future (health and personal injury insurance, life insurance, destination satisfaction insurance, credit insurance for carriers, tour operators and hoteliers for example). Less than ten percent of one's overall travel budget for a typical family holiday will be spent on direct insurances. Various means of risk sharing and risk minimization are the two most likely ways in which the insurance industry can cope with future massive loss claims pertaining to the tourism industry. Risk sharing with governments will be essential. Where event frequency cannot be estimated (e.g. terrorism and war) the insurance and finance industry will not be able to bear the increasingly huge losses. Where expected losses can be estimated (e.g. natural hazards) the insurance and finance industry can cope. Costs and frequency of occurrence of both insurance and litigation will experience significant increases in the future, for tourists and service providers alike, as quality standards, expectations and guarantees grow in importance as marketing tools.

The insurance industry is looking long and hard at the willingness of governments around the world to become the ‘insurers of last resort’ in the event of future major catastrophes. Like many of his peers, Warren Buffett of Berkshire Hathaway, an insurance conglomerate facing claims of $2.3 billion related to the September 11 attacks, has concluded that the private insurance market can no longer shoulder large-scale terrorist risk (*The Economist* 2001). Could this sentiment be extended to the future impacts of climate change or other future large-scale natural catastrophic events? The answer is clearly “Yes”, despite increasingly complex insurance industry natural catastrophe modelling. This also implies that for the tourism industry, the time is ripe to systematically review current and future vulnerabilities and exposure to likely future hazards of all kinds.

Some leaders are taking initiatives; others wait for a disaster to occur before a policy change is made. For example, the World Tourism Organization, in April 2003, convened for the first time an international meeting on "Climate Change and Tourism", recognising the significant influence of weather and climate on the global tourism product. The potentially dire consequences for the tourism industry, unprepared for coping with the likely impacts of climate change, were not recognised at this important meeting, which stated that "unless climate change leads to a net loss in demand for leisure tourism [which the Conference did not identify explicitly as a risk], a loss of demand for a given destination or type of destination may well lead to increases in demand for alternative destinations" (World Tourism Organization 2003 p.8).

While this may well be the case in some instances, it does not account for those communities and businesses that rely on tourism for their livelihoods. Destination businesses and communities must bear the full costs (apart from those shared with insurers) and must therefore plan to survive the impacts of all hazards. The above quotation comes from the Main Conclusions and Summary section of the Proceedings. This is at best a narrow, industry-oriented view of an issue that clearly goes beyond the numbers of arrivals and fluctuating demand. Much has yet to be achieved to raise tourism professionals' awareness and understanding of hazards, vulnerabilities and other elements that comprise the total risk to a tourist destination.

September 11 was not just another catastrophe[19]. More people were killed in two hours than in the last fifty years of terrorist atrocities in Ireland and Israel combined. This was a genuine watershed in world history and things are now going to be very different. Physical and economic vulnerability has reached a previously unimaginable scale. The sight of the two massive towers crumbling to the ground, as a result of a well-organised handful of fanatics using simple knives and box-cutters, is both frightening and memorable for us all, not least because of the scale of the physical impact and loss of

[19] Despite the importance of the September 11 attacks to the tourism industry from this point of view, it is important not to overstate the relative importance of this event in terms of numbers of fatalities. Thousands of people in China ad India for example are killed every year from various natural and

life. “What next” was in the minds of many immediately after this event. Are major urban conurbations around the world prepared for a more sophisticated chemical, biological, or nuclear attack?

The Indian Ocean tsunami in December 2004 will likely go down in history as our biggest natural catastrophe in terms of loss of life, in the history of humankind. Although the northern Pacific Ocean region is regularly affected by tsunamis of varying intensities, the scale of devastation of this recent event was unprecedented. The media have brought the misery and wreckage of this natural disaster into the homes of much of the world’s population. It is fair to say that the media coverage has been even more global than past coverage of natural or anthropogenic disasters by the death of international tourists from countries around the world. The perception of safety of these regions has now changed. For example, Thailand’s biggest concern is not physical recovery, but rather the potentially damaging effects of a lingering perception of the Thai destination being ‘unsafe’.

What destinations are ‘safe’ choices for tourists searching for locations unhindered by the risk of natural and anthropogenic disasters? At present every major city and financial centre is hopelessly unprepared to either prevent or cope with a terrorist attack of the scale of September 11. Unfortunately, much the same could be said of most major tourist destinations and their vulnerability to natural hazards, particularly those in tropical coastal areas. In fact there are a number of additional such ‘wildcard’ events that are not just plausible, but are deemed likely to occur (Peterson 2001). For example, Peterson suggests some eighty potential ‘wild card’ events (natural and anthropogenic) including the following anthropogenic ‘wild cards’: life expectancy approaches one hundred years; foetal sex selection becomes a norm; collapse of the US dollar; faster than light-speed travel; hackers blackmail the Federal Reserve; inner cities arm and revolt; society turns away from the military; and altruism movement is formed in the US. The list of natural ‘wild cards’ includes: ‘the big one’ (Californian earthquake); a

anthropogenic hazard events. Likewise, thousands die in Africa and Asia annually from malaria, which is still the number one killer in the developed world.

large piece of Antarctica cracks off; meteorite collision, etc., all of which would result in major catastrophic damage to society and the Earth as we know it today.

It is somewhat frightening to consider that a majority of the Delphi panelists expected that before 2010, tourism development would need to contend with a catastrophe (natural and/or anthropogenic) on a scale exceeding that of the September 11 events in the United States. This prediction has now occurred in 2004.

6.2 THREE KEY FINDINGS

The three major findings of the research emerged from three separate aspects of the research process, namely: i) how the primary research was conducted (method); ii) the development of a model based on the literature review, discussion, and survey results; and iii) the findings of the primary research.

1. **Method (Qualitative Futures Forecasting)**:
   Based on the Delphi technique, the method developed in the thesis for long-term tourism futures forecasting, is a valid, replicable and appropriate tool for qualitative investigations into tourism development futures.

2. **Modelling (Total Risk for Tourism)**:
   The model, which has been developed in the thesis to represent total risk, is a practical and appropriate means for analysing, assessing and managing risk to tourism businesses and their support communities. When the components of the model are applied to a specific situation, community or business, the model acts as a guide to a comprehensive approach to tourism risk management.

3. **Safety and Security**
   Recent literature and the primary research confirmed the growing preponderance of issues related to safety and security as prime generators of current destination choice, and this concern is likely to continue to grow as a key aspect of any tourism business or community planning and management in the foreseeable future.

Apart from the essential results of the research findings, and with the advantage of retrospect in this final chapter, there are two highlights that emerge from the research. The first has to do with a way of thinking, or at least what has changed in an analytical sense, to the way in which this researcher now approaches a problem-solving exercise. The second relates to the value and usefulness of models. The research has provided an insight into the value of collective opinion, and an awareness that subjective, qualitative investigations can yield valid results. This was a new perception for the writer. Secondly, the research provided an understanding of the opportunities for the use and application of a model that offers more than academic investigatioin, and the realisation that models can and do have valuable and practical application in the real world.

6.2.1 Research Method

The research was ambitious for two main reasons: i) that it required a thorough adaptation of the Delphi technique to apply it to future uncertainties in the tourism industry; and ii) that the research would necessarily draw on theory and concepts from a variety of disciplines including social theory, insurance, emergency management, and business management theory. The research attempted to relate these interdisciplinary concepts to tourism. Taking a long-term view of any development process is a daunting task and such an approach to the future trends of tourism development and likely future risk management needs was no exception. The combination of the strengths of relevant experience and knowledge from other disciplines to forecast risk and risk management needs for up to five decades into the future has culminated in a model that can contribute to improved tourism risk management.

Future massive catastrophes, natural or anthropogenic, will affect the tourism industry negatively, and on a global scale, in ways that have not yet been experienced. Indications of the increasing level and extent of crises and catastrophic events suggest good reason to study the future. The research provided a systematic exploration of future possibilities. It can now be concluded that the method, based on a successful application of the Delphi technique, was an appropriate choice of method for long range tourism development forecasting to bring to light probable future tourism trends and the risks the

tourism industry is likely to face in the next twenty-five and fifty years. The iterative process of soliciting qualitative expert opinion was an acceptable means of determining certain long-term forecasts.

Qualitative information on how and why certain events (such as catastrophic events of various kinds) will affect travel patterns in the future is necessary for a comprehensive forecast. In short, the future is not necessarily a simple extrapolation from the past, and discussions of econometric methods and models highlight the fact that forecasted volumes of tourist flows (inbound, outbound and expenditure) are an insufficient planning basis for tour operators, let alone tourism planning in general. The results of the survey illustrate a variety of responses to the apparent lack of preparedness of the tourism industry to plan for and effectively respond to future uncertainties and risks, particularly those related to natural and anthropogenic hazards.

The research has contributed to the body of knowledge in the tourism forecasting discipline by: i) developing and testing a long-term forecasting methodology; ii) providing forecasted results to 2025 and 2050; and iii) indicating the likely risks that the tourism industry will be exposed to in tropical coastal areas. The research has also provided the insurance industry with a systematic exploration (an early warning) of possible future risk exposures. It is to be hoped that the replicability of the method can make a valuable contribution to tourism planning and management.

6.2.2 Modelling Total Risk for Tourism

The development of a model of total risk which can be applied to specific locations or tourism destinations adds significantly to the body of knowledge on risk management for existing and future tourism developments in tropical coastal areas. The model (supported by the survey findings and strengthened by the practical guidance offered in Chapter 5), can assist host communities, tourism industry managers, insurers, tour operators and investors in setting policy, making future decisions, and opertionalising risk management for tourism development by focusing on the risks that shape today's tourism industry development and investment.

Of course, the next logical step will be to test this model in a real world application to determine its strengths and weaknesses. It is hoped that this will be possible in 2005 with the support of the Centre for Disaster Studies and the Sustainable Tourism CRC.

6.2.3 Safety and Security

The importance of safety and security to tourists during their evaluation of destination alternatives has become one of the most important determinants for people from all countries of origin. The hazards posed by climate change, general issues of health and safety and the now ever-present threat of terrorism and war are all pertinent to an industry that relies on personal preferential choice for its success and sustainability. The perception of what is a safe destination versus the reality of the existence of potential threats or hazards is still not communicated consistently throughout the tourism industry. Tourists are increasingly forced to make their own decisions on these matters, and to rely less on the advice of travel agents for information of this nature.

Tourism destinations will also be affected in the longer-term by political instability, demographic trends, changing levels of disposable income, and changing technologies, particularly those in transportation. Tourism is vulnerable to any alteration to the delivery of an expected product, planned or unplanned. For a tourism service provider, and indeed for tourists themselves, uncertainty has to be avoided at all cost. Failure to pay attention to risks, uncertainties and potential hazards to tourism in tropical coastal areas might result in unnecessary inconvenience to visitors, losses to businesses and their reputations, and damage to the environments (natural, social and economic) upon which the industry is dependent.

Throughout the Delphi survey, panelists reiterated the priority that is and will continue to be placed on safety and security and the influence this has on tourism patterns, tourism spending and length of stay. They thereby emphasised the critical need for tourism goods and service providers to respond positively and effectively to this demand.

6.3 TOURISM TRENDS

From the research, it has been possible to conclude that there are six major change agents that will affect four specific parts of the ever-changing global tourism industry. These change agents, or factors that affect tourism development trends, include demographics, health, learning, transportation, sustainability and safety. The descriptions to follow of each of these factors are drawn from both the literature review and the results of the Delphi survey.

As tourism becomes truly global, it is likely that the following factors will influence the shape of world tourism:

1. Public and private sectors will need to jointly acquire market intelligence to be able to focus on the increasing awareness and experience (awareness of the choice of holiday options) and therefore the risks faced by international tourists in tropical coastal areas;
2. Technology and increased competition has reduced the real costs of travel, and the large- scale emerging markets in Asia (India and China) will demand increasing access to the regional and international marketplace;
3. Mature markets (the US and EU) are experiencing a transformation from mass-market tourism to niche market and independent tourism (considered more risk-prone) thus requiring a response from those providing these product types; and
4. Strategic alliances and regional trading groups (EU, NAFTA, and APEC) have begun to replace the typical national-level bilateral agreements. How these agreements will affect tourism developments in the future is as yet unknown, but they suggest that there exists potential for greater access and opportunity to share knowledge and experience with all types of risk and emergency management policies and guidelines.

As society changes, the economic, social and natural environments of our planet change, necessitating appropriate adjustments to policies, products and services. The impacts on tourism of these societal changes require constant and immediate response to demand and market preferences. The Delphi panelists expected that global tourist arrivals figures in 2025 would be 1.5 to 2.0 billion, which corresponds closely to WTO forecasts made

to 2020. They also expected that global tourist arrivals figures in 2050 would be 2.5 to 3.5 billion. As the market becomes increasingly saturated with more self-assertive consumers (with critical attitudes to quality and to the price-quality ratio) having more free leisure time and disposable income, the competition is becoming more intense. Six major factors contributing to future trends in tourism development are described below.

6.3.1.1.1 Demographics

Older people are travelling more. Seniors are becoming healthier and have higher disposable incomes than they did in the past, and are supported by early retirement schemes. Even though pressures on European pension schemes, for example, will ensure a gradual downgrading of pension benefits which, together with a trend to increase the pensionable age, will slow the growth in seniors travel within the next three decades, retirees are expected to be a growing future market (World Tourism Organization 2001b). This growing sector of the tourism marketplace alters product demand by increasing the demand for quality, convenience (particularly in transportation) and particularly for all aspects of safety and security (see also Chapter 4: Section 4.2.2 Topic One: Tourism and Economic Growth Trends). Ecotourism, Asian tourism, and domestic tourism are the key growth areas supported by global demographic changes, the rising Asian middle class, and regionally differentiated growth patterns.

Household size in Europe will continue to decrease still further, which will affect both disposable incomes and spending power. This will influence tourism demand in general, and demand for long-haul travel and short breaks in particular. There will still be a strong demand to supply low-cost products to all sectors of the tourism marketplace (the global tourism market). The Delphi panelists expected that there would be only a small increase in average tourist expenditure over the next five decades, inclusive of all transportation, food, accommodation, and amenities.

6.3.1.1.2 Health

Health-related travel will continue to increase. The choice of destination and tourists' behaviour on health-related holidays will alter the content of the supply of goods and services, with 'luxury' in pristine natural environments becoming more of a premium,

and the demand for the current mass-market sun-holidays will continue to decrease. Destinations with a reputation for variety in activities (learning, discovery, cultural experiences, etc.) will be increasingly preferred, including, in particular, facilities offering wellness products, spas and fitness centres. There will be an increased specialization of suppliers relating to specific health issues, hobbies and other interests, and there will be an increase in health/wellness oriented (spiritual and physical) tourism, as well as surgery and specialist medical assessments combined with travel for recreation.

6.3.1.1.3 Learning and Discovery

With education levels increasing globally, the demand for holidays where the arts, culture, spiritual experiences and history play a more prominent role will rise. This will require a response from the industry to cater for the inclusion of these types of experiences for both package tour holidays and FITs (free independent travellers). The Internet is gradually providing better and more creative communication of information on these types of products. The purchasing of tourism products and services on the Internet will continue to increase. The use of sophisticated search engines on the net to analyse products and compare destinations is one of the strongest change agents in twenty-first century travel and tourism.

Direct bookings on the Internet by both experienced and inexperienced travellers will alter the role of travel agents as the jet engine altered the world of tourism in the fifties. National tourism organisations (NTOs) will need to adapt marketing and product development strategies similarly, in direct response to the changing market. Providing in-depth information on suppliers, products, destinations, hazards, and information relating to safety and security will be one such response that will be required from NTOs but one that is slow to be taken up. In general, continuity will be more prominent than change in the tourism marketplace, and, although there will be fragmentation of markets, the mass tourism market will continue to satisfy large numbers of travellers, with proportionally fewer people using travel agents.

There will be more intense competition for tourism market share with greater regional variation in growth within countries and continents. This may result in shorter and multiple holiday breaks, and less destination loyalty and fewer repeat visits. There will be a greater emphasis on activities (especially learning activities) at destinations.

6.3.1.1.4 Transportation

Road traffic is likely to face more congestion around the world and bus travel will decrease in importance. The low-cost airlines will continue to provide easy and affordable access for short journeys particularly in cities and city-regions (to the detriment of rural areas). The 'interconnectedness' of transportation will expand to meet the growing need for easy access to destinations. There will probably be a decline in the demand for fully escorted tours in favour of partial group tours with more personal time and smaller groups. Slower marine transportation systems such as cruise ship travel will continue to grow (particularly for those over fifty years of age) as a more significant tourism product in the marketplace (increasing over time to 2050) thereby gaining a modest market share supported by upgrading and expansion of the required infrastructure.

The removal of aviation tax breaks (should that occur as an initiative to increase private investment in alternative energy sources, for example) will expose the currently unfair competition with other forms of transport, which will change the air transport business, as we know it today. Bigger, faster, more comfortable aircraft will, however, be the most significant change in aviation transportation systems to 2050. The impact of Green House Gas emissions from air transportation systems used by long haul travellers will require improved mitigation strategies, and/or the development of more efficient aircraft.

The oil and petroleum crisis facing the world in the first half of this century is not a common discussion topic amongst tourism decision-makers at this time. It remains one of the most potent threats to the tourism industry whose transportation providers continue to rely almost exclusively on this source of energy for virtually all means of transport. While this matter appears to be a longer-term issue, better dealt with through the slow process of multi-lateral discussions, agreements and conventions, to avoid

facing this reality in the early decades of the twenty-first century could have a disastrous impact within the lifetime of the generation of readers of this document, say before 2050. While the use of alternative fuels in the future may reduce the overall impacts of tourism, the real danger is that no substantial reduction is likely to occur before 2050. Petroleum will run out, causing air travel to become much more expensive at the start of recognised oil shortages.

6.3.1.1.5 Sustainability

The demand for sustainable destinations and ecotourism will grow slowly with the costs of developing sustainable practices passed on to the consumer. Destination management policies will need to improve with the introduction of risk management and more integrated and comprehensive planning for local, national and international tourism development practices. Despite their lower prices, destinations perceived as being overdeveloped, unattractive, or poorly located or serviced, will be gradually rejected as destination options increase and modernize, despite the lower price of such destinations.

Growth in the tourism industry is expected to continue to rise to 2050 with significant growth in short-stay vacations in the developed world. The continued threat of terrorism may result in a slowing of tourist arrivals growth rates in Asia and other regions that experience continued political, environmental, or economic instability. The East Asia/Pacific region (not including South Asia or the Middle East) will maintain a sustainable growth rate in the tourism sector, through to 2050, of five to six percent as the World Tourism Organization forecasted for the twenty-five-year period 1995 to 2020.

Water quality (freshwater, saltwater, water supplies, access and availability) will grow in significance at all tourist destinations, those in coastal areas. Hazards, such as the impacts of climate change on destinations, water shortages, currency controls, epidemics, the price of oil and the aftermath of war and terrorism will have a significant effect on growth trends to 2050. Clean coastal areas may become much more expensive and therefore a privilege for an elite. Overcrowding, i.e., approaching or exceeding the

carrying capacity of a destination or site, will be a significant determining factor for destination reputation, environmental sustainability and long-term destination viability.

Ideological blocs (such as anti-USA sentiment, Christianity versus Islam, western countries versus less developed countries) will increasingly affect choice of destination. The prime motivations for destination choice in the next fifty years will continue to be different for different age groups but will not change much from the current motivations. Cost and value for money will continue to be the main factors influencing occupancy rates in the next twenty-five years, just as they are currently. The political stability of the host nation however will be a significant emerging issue future hotel occupancy.

6.3.1.1.6 Safety and Security

Under this sub-title, safety and security includes environmental safety as well as all perceived aspects of safety for tourists and service providers.

The perception of safety and security is probably the biggest factor in future destination and transportation choice. In the future, more than ever before, known risks of any kind will cause tourists to avoid potential danger or interruption to valuable holiday time. As access to knowledge and information about natural and anthropogenic hazards increases through the media and growing public awareness, safety issues will continue to dominate the destination choice of large sectors of the marketplace. The desire to possess second homes for holiday and recreation (serviced by smaller regional airports) will also be stimulated by the desire for greater levels of safety and security.

The tourism industry will continue to rebound quickly following localized crises (acts of terrorism and war, pollution, political instability, etc.), despite immediate and significant damage to the short- to medium-term market. The ability of a destination to prepare for, respond to, and recover from crisis will become a recognized attribute of responsible, sustainable destinations in the future. Again, the 2004 Indian Ocean tsunami has shown both the desire and the need for tourism destinations to get back to ‘business as usual’ as soon as possible to restore livelihoods for locals, and confidence for international and domestic tourists. The more discerning traveller of the future (certainly over the next

decade of relatively recent memory-span) will likely look more closely at safety precautions taken by hotels (set-back form beaches etc.) to prepare for possible tsunami and earthquake damage.

Standards acceptable to an increasingly self-assured, sophisticated consumer will cause destination loyalty to suffer more in the future as consumer behaviour, affordability, and quality demands change. Cultural authenticity and the personalized service demands of tourists will require new management approaches to meet higher standards. A region offering a varied product in terms of facilities, activities and services, in a secure environment, will be increasingly preferred. This will require new approaches to destination management and safety assurances.

The Delphi panelists considered that the large proportion of the costs of new additional security measures (since September 11) should be shared between national governments, the insurance industry, the travelling public, and airlines/transportation providers. They also suggested the recovery of terrorists' assets and the use of these assets (financial) to mitigate the costs of dealing with such security measures. It is likely that the costs of guaranteed safety and security will also be passed on to the consumer. The panelists expect the most significant factors influencing hotel occupancy rates in tropical coastal areas in twenty-five years' time will be cost/value for money, the political stability of the host nation (safety), and climate related guarantees, as well as the ability of destination managers to be responsive to changing tourist expectations, particularly with regard to environmental concerns.

6.4 RESEARCH DESIGN

The research will add to the body of knowledge of the short-the and long-term impacts of hazards to tourism, and therefore contribute to more effective and successful planning and management of tropical coastal tourism. Amongst industry experts surveyed, there was agreement that risk management could enhance or supplement existing tourism planning and management tools to contribute to a more sustainable tourism development process in tropical coastal areas.

The research design successfully provided a framework designed to prepare for and organise the preliminary review of the related research literature, to formulate the research questions, design the research method, to compile the definition of concepts, variables and hypotheses, and to schedule the research activities.

The choice of the Delphi technique as the survey tool required a combination of exploratory and descriptive methods. This qualitative survey investigation of expert opinion, to identify trends, likely future developments and possibilities, was appropriate in this instance and is replicable in the future. Risks and uncertainties for tourists and tourism organisations do exist and will continue to exist. These risks can be in order to minimise potential losses from surprise events and adverse impacts. Further to this, the need to look towards the future, to identify possible trends and change agents is both possible (indicated by the success of the Delphi survey in this regard), and necessary (indicated throughout the Delphi survey findings).

The two aims of the research were realised. The discussion of the literature and the survey results determined that: i) risks from natural and anthropogenic hazards will have an impact on the development of the tourism industry in tropical coastal areas from 2001 to 2050; and ii) that a risk management model appropriate to the tourism industry that could manage these risks in the future could be developed. Specific detail regarding these general conclusions is included in two sub-sections below.

Research Questions

The following summary addresses all the research questions described in Chapter 1, including the overarching research question: Can a model be developed that reflects the concerns and need for tourism risk management arising from the literature and a qualitative investigation of future risks to tourism in tropical coastal areas?

Tourism is extraordinarily resilient to disasters and catastrophe. History has shown that recovery from the impacts of such events is surprisingly rapid. While this strength appears unlikely to change in the immediate future, the growing threat of major catastrophe (coupled with the growing ‘interconnectedness’ or global nature of the

industry) might result in slower rates of recovery in the future, or even total abandonment of certain areas affected by continued risk to tourists, tourism businesses and their host communities. This rather gloomy long-term outlook is only the view of the author, and is somewhat contradictory to the probable sustained growth trends for tourism in tropical coastal areas to 2025 and 2050 indicated by the survey panelists. Indeed, valid forecasts can be made to 2025 and 2050, but the reliability of those forecasts is at best equivocal. Such long-term forecasts are difficult to derive, however, a systematic qualitative survey process can provide a realistic view of possible long-term outcomes.

Forecasts or predictions of the likely future growth and development of tourism can provide useful indications of expected future change but cannot be accepted with certainty. Extrapolation techniques are useful for short-term forecasts, and the systematic investigation of expert opinion can be a most useful long-term forecasting tool. But it is the risk management process that is critical to preparing for uncertainties that forecasting cannot predict. It is risk management, therefore, that is necessary to complement future projections by filling the knowledge gap where uncertainties reside.

The likely natural and anthropogenic hazards that will have an impact on tropical coastal areas in the coming decades are unlikely to alter significantly from those of today. Certain technological, political, environmental and economic situations might generate new and as yet unknown hazards and threats to the sustainability of the tourism industry. However, the capacity of businesses and communities to prepare for and respond the adverse impacts of hazards and disasters of all kinds will remain firmly based on risk management strategies that take a comprehensive approach to these uncertainties.

Can tourism risk management be developed as a valid and practical tourism planning and management tool? Thesis findings point to a clear yes, and the model developed for this purpose reflects the concern and need for tourism risk management arising from the literature and the qualitative survey investigation. Those businesses and communities that do not, in the immediate future, undertake to identify risks and plan strategically to manage those risks, might in future be exposed to significant potential loss. The model

and practical guidance presented in Chapter 5 provide a good framework for utilising risk management as a planning and management tool. With the assistance of national governments and their national tourism organisations, this should be a priority for small businesses in order to reduce the risk of catastrophe and the negative impacts of disaster.

Hypotheses

There were three fundamental hypotheses examined in the research:

i. that the tourism industry is experiencing an increase in risk exposure;
ii. that risks from natural and anthropogenic hazards will have an impact on the development of the tourism industry in tropical coastal areas in the coming decades; and
iii. that a model can be developed as a planning and management tool to illustrate the relationship between variables that constitute a description of total risk for tourism businesses and their host communities.

The primary research confirmed the first two hypotheses positively. Indeed the increased exposure is evident by the build-up of development in coastal areas in response to:

i. demand from growing numbers of tourists for specific locations that satisfy the demand for views, accessibility, and access to pristine natural areas;
ii. the opportunity for potential gain (profit) by goods and service providers (supply);

The incidence of disease outbreaks on a scale never before seen also increases potential exposure to real and perceived risk. Terrorism is now an accepted hazard that can have massive, even globally negative impacts, not least of all on tourism. Climate change is slowly becoming more of an accepted reality as IPCC strengthen the accuracy of forecasts and their credibility in the eyes of the general public. The impacts of climate change are now a major concern for small island states in particular. In the short term (less than five years), it is envisaged that tourism developments in coastal areas will look to their national-level advisers for advice on managing this potential threat to future business viability.

Tourism businesses will have to contend with all these risks (and others described in the thesis) primarily because the economic consequences of inaction are severe, but also because of social and environmental repercussions that can damage or destroy the very resources that provide the attraction value of a destination. Risks from natural and anthropogenic hazards will have a significant impact on the development of the tourism industry in tropical coastal areas in the coming decades. More than ever before , individuals are forced to cope with complex externalities (including the impacts of hazardous events) that have an effect on their livelihood, to which they have made no contribution or of which they have had any previous experience.

The final hypothesis is supported by the model described in Chapter 5.

6.5 TOURISM RISK MANAGEMENT

Risk management for the tourism industry is an on-going process that is critical to every aspect of business, including the viability and sustainability of the support community, the reputation of the destination and its local and national tourism leadership, and the safety and security of the tourists themselves. There is no constant in risk management: hazards change, new hazards can emerge; vulnerability is relative and can increase or decrease at short notice; exposure can be controlled but remains dependent (at times) on unpredictable hazards; and the risk environment is constantly shifting due to regular change in the political and administrative environment. Risk management is therefore relevant to the time and place in which it is considered, assessed or evaluated, and therefore requires regular monitoring and upgrading to accommodate changes to the basis upon which it is determined. Risk is ever-present.

Risk is a part of virtually every aspect of the tourism industry from accounting practices, to client satisfaction, and from health and safety needs to terrorism and fraud. It cannot be avoided, and to fail to recognise the value and significance of tourism risk management is perhaps the greatest risk of all.

Reducing vulnerability emerged as possibly the most significant aspect of minimising exposure to risks of all kinds. The following list of potential steps or measures that can

be taken to reduce and weaken the negative effects of the tourism disasters of the future has been drawn from a variety of sources cited in the thesis. The list would include at least the following:

i. Recognising disasters as social events with negative social impacts that can be minimised with social policy.
ii. Moving towards an all-hazards approach away from the distinction between natural and anthropogenic disasters.
iii. Ensuring that disaster mitigation is given at least equal priority in planning and application as are emergency preparedness, response and recovery.
iv. Integrating disaster planning and risk management strategies to the development planning processes of the social systems involved.
v. Addressing both disaster issues and environmental issues concurrently, where there are similarities, by clarifying their similarities and differences.

Mitigation as a risk management strategy has assumed a strong following in more recent emergency management approaches and guidelines. Vulnerability reduction is one such measure. For real property (tourism infrastructure, plant and equipment), specific risk mitigation measures that can be undertaken include:

i. Hazard mitigation measures and mechanisms such as developing and enforcing building-code regulations;
ii. Disaster planning through cautious land-use management and the establishment of legal restrictions for building on exposed locations;
iii. Hazard mapping[20] of vulnerable areas to determine the intensity of risks from all natural hazards (hurricanes, other winds, flooding, earthquakes, etc.), and the use of hazard maps to assist in proper land use management;
iv. Assessments (underwriting) conducted by insurers or other hazard experts to conduct (underwriting) assessments of asset and property values, resistance to wind or other hazards, and likelihood of damage (as reflected in probable

[20] Hazard mapping is not a new idea, this has been utilised successfully as a working planning tool for many years in a variety of cultural and geographic contexts.

maximum loss estimates by insurers), based on probability data on the occurrence of such natural disaster events; and

v. Given the importance of disaster data, additional compilation of event frequencies and estimated probabilities, as well as covariance and correlation studies among regions and between events, to feed into the valuations of property risk.

The National Framework for Mitigation produced by Emergency Management Australia provides an apt summary of the proactive approach to risk management proposed in the thesis. Although it refers specifically to mitigation, it can also apply to the overall summary of the intention of the risk management model, which entails "measures taken in advance of a hazardous event which are aimed at decreasing or eliminating its impact on society and environment" (Emergency Management Australia 2004 no page numbers).

6.6 OPPORTUNITIES FOR FURTHER RESEARCH

Scenario planning could provide a useful complement to Delphi investigations in future. Specific tourism futures scenarios have not been developed in the thesis; however the Delphi Tourism Futures Study 2003 provides considerable input to the basic background information required of a scenario planning exercise. This would be a logical extension of the research.

The application of the model to a specific location or business operation would be a valuable follow-on activity to test the model in a real world context. Further detail could be generated from the initial testing process, to supplement the practical guidance offered in the thesis. The results of this exercise could then be reduced to a set of simple Tourism Risk Management Guidelines to be made available to interested risk managers. Illustration of the practical use of the model would be critical to any such guidelines in future. Quantification of the model variables would be a necessary component of the guidelines.

The interest in the topic expressed by many of the panelists suggests that there would be support for extending this research through case study applications and adding to the

practical working tools. In addition, the author's experience as a tourism development planner suggests that larger organisations, such as National tourism organizations, WTO, WTTC, the larger hotel groups and transport providers, could first be targeted to consider upgrading their existing risk management strategies with the model and other components of the research. Ultimately, however, it is the small and medium- sized enterprises of the tourism industry in tropical coastal areas that would benefit most from an improved awareness and understanding of tourism risk management strategy planning. A Tourism Risk Management website could be developed to act as a clearinghouse for the discipline and to provide contact with additional organisations and persons around the world to facilitate a sharing of existing resources regarding risk management for the tourism industry.

To make one final projection: it is hoped that, by 2015, a decade from now, tourism risk management will be recognised as a significant component of any tourism development planning that can minimise loss of lives, property damage and economic disruption resulting from the impacts of natural or anthropogenic hazards. The tourism industry will have benefited from adopting a comprehensive approach to tourism risk management that has as its goals:

i. To create widespread public awareness of the value of risk management to a sustainable tourism development process;
ii. To amend (or enact) legislation and provide adequate incentives to implement risk management standards for all levels of tourism businesses and community organisations;
iii. To protect the natural environment and wildlife habitat from adverse hazard impacts, including the impacts of tourism;
iv. To construct new buildings which are safe from hazards specific to the location, and to retrofit existing buildings for improving hazard resistance and safety.
v. To minimise, throughout the tourism industry, loss and injury from all natural and anthropogenic hazards by improved risk management; and

vi. To cause tourism risk management to be an accepted method and practise for business and community forward planning for sustainable tourism development.

End

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