

**Coastal tourism: the response of Indian  
Ocean island tourism destinations to  
climate change.**

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## **Abstract**

This research examines tourism within developing island states in the Indian Ocean that will be at extreme risk from the impacts of climate change. Many have a high economic reliance upon tourism and yet will be adversely affected by both higher sea levels and raised water temperatures. However, many developing islands utilise tourism as a vector for economic growth and ironically they too tend to be some of the first destinations to observe possible impacts of climate change like the disappearance of beaches and the greater intensity of storms. Destinations in the developing world are extremely concerned that tourists from developed countries will reduce the number of long haul flights they take to ameliorate their carbon footprint.

Three tourism island destinations in the Indian Ocean are used as case studies, namely Sri Lanka, the Maldives and the Seychelles. The research seeks to establish the knowledge levels and actions of public and private sector stakeholders within the tourism industry in response to the impacts of climate change within these island destinations. A multi-method approach is used to gather data: semi-structured interviews, participant observations and documentary evidence. This is useful for the purpose of triangulation and to increase the construct validity of the research.

The findings build a detailed picture of the cases and enable an understanding into the respondents' knowledge of climate change; climate change adaptation and mitigation measures taken or planned within the destination; current and future impacts of climate change and how the tourism industry has responded. This provides an insight as to whether sustainable tourism policies are being encouraged, adaptation and mitigation measures taken or planned and also an assessment of the effectiveness of transfer from policy to practice.

The results illustrate that all the destinations are currently experiencing changes which they associate with climate change; these impacts vary within each of the destinations. Contextual factors identified as being significant in understanding the responsiveness of tourism island destinations to climate change within the Indian Ocean were the unique political, economic, social, geographic and technological aspects of each island. These contextual factors influenced the stakeholders' knowledge, attitude and behaviour regarding climate change. This provides an indication of the tourism islands' preparedness for the consequences of climate change and an indication of the future of tourism on the islands. Based on the analysis of the findings a model is proposed that seeks to explain the relationship between these factors that will provide an indication of the future shape of tourism on these Indian Ocean island tourism destinations.

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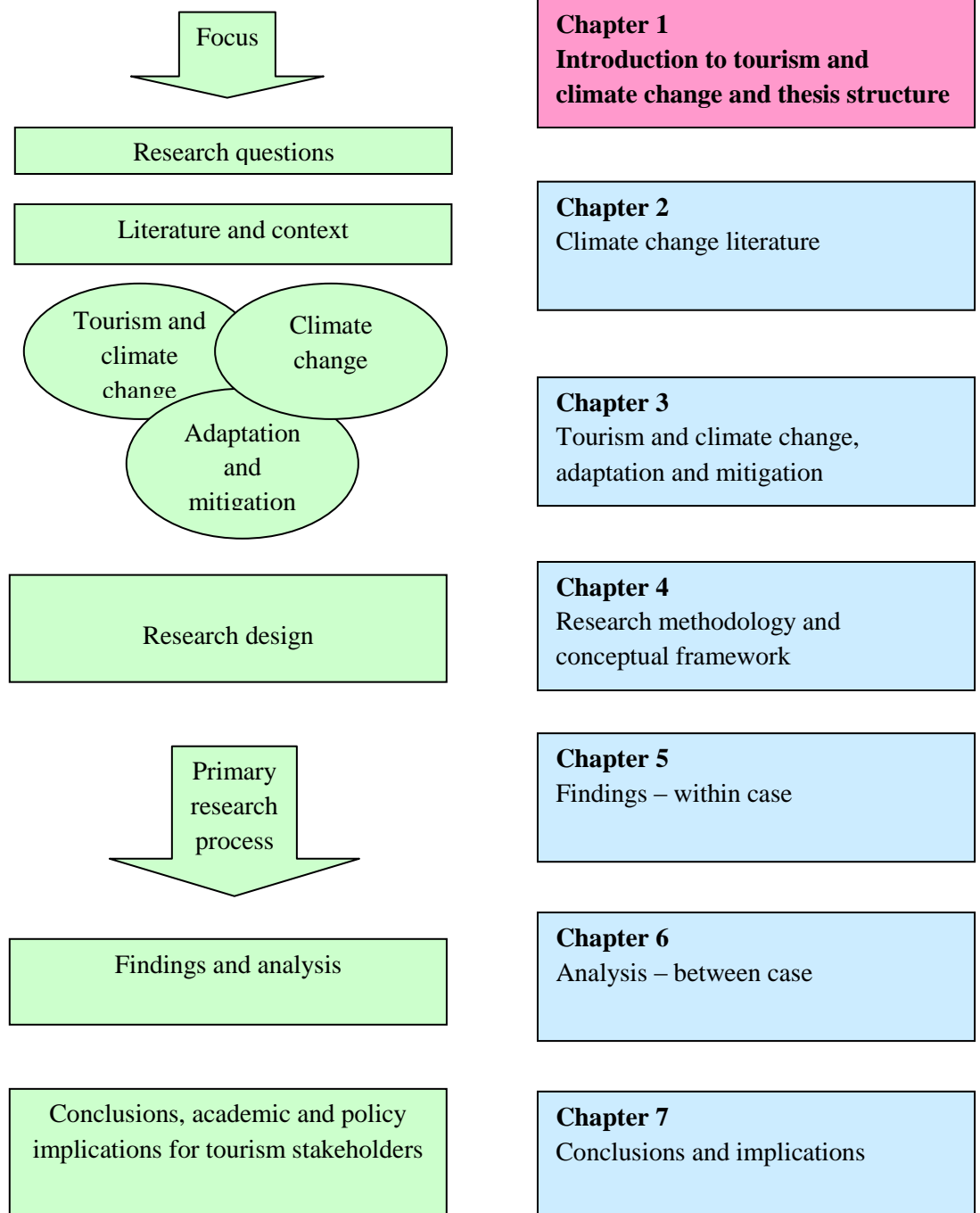
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## List of abbreviations

AR4	IPCC Fourth Assessment Report
CIA	Central Intelligence Agency
DEFRA	Department for Environment, Food and Rural Affairs
DMOs	Destination Marketing Organisations
EMS	Environmental Management System
GDP	Gross Domestic Product
GNP	Gross National Product
GHG	Greenhouse gases
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IPCC	Intergovernmental Panel on Climate Change
LDC	Less Developed Countries
LTTE	The Liberation Tigers of Tamil Eelam
MDG	United Nations Millennium Goals
MJ	Mega Joule
Mt	Megatonne = 10 <sup>6</sup> kg
NGO	Non-governmental Organisation
NPPD	National Physical Planning Department
OECD	Organisation for Economic Cooperation and Development
RF	Radiative Forcing
SARS	Severe Acute Respiratory Syndrome
SIDS	Small Island Developing States
SLAITO	Sri Lankan Association of Inbound Tour Operators
SLTDA	Sri Lanka Tourism Development Agency
SME	Small and Medium Enterprises
SRES	Special Report on Emissions Scenarios,
TALC	Tourism area lifecycle
VFR	Visiting Friends and Relatives
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNWTO	United Nations World Tourism Organisation
WEF	World Economic Forum
WTTC	World Travel and Tourism Council
WMO	World Meteorological Organisation

# Chapter One Introduction



## 1.0 INTRODUCTION TO THE CHAPTER

*This Chapter introduces the key areas of literature pertaining to the study of tourism and climate change and the theoretical basis for this research. It goes on to outline the rationale for the research and identify the research aim and objectives. Finally, the structure of the thesis is outlined.*

### 1.1 Background to the research

This research seeks to examine the responsiveness of Indian Ocean island tourism destinations to the impacts of climate change. These tourism destinations often have an economic dependence upon the tourism industry, but they too are likely to experience the impacts of climate change earlier than other destinations. In addition, the impacts of climate change may well erode the ‘tourism product’ that attracts tourists to visit these destinations.

Climate change is not an abstract concept for tourism; it is already reported by the World Tourism Organisation (2008) that it is a phenomenon that already affects many destinations. The IPCC (2007c) suggests that the predicted impacts of climate change are likely to be temperature increases, sea level rises, reduction of glaciers, changes to precipitation patterns and increased extreme weather events, which will become more evident and result in the deterioration of the natural environment in some tourism destinations. Some geographic areas, such as Northern Europe, will potentially be able to benefit with warmer summers, whilst others will be particularly vulnerable. The focus of this research is on, tourism destination islands in the Indian Ocean with low lying coastal areas, as these are identified as the IPCC (2007c) as being some of the first nations to be put at extreme risk from the effects of climate change.

The predicted impacts of climate change will have adverse effects on some tourism destinations, particularly island tourism destinations in the Indian Ocean. Increased temperatures will make the climate too hot to be comfortable for tourists to rest and relax or take part in recreational activities, such as sun bathing. Sea level rises could



result in part or complete submersion of atolls in low lying destinations being submerged. The increase in precipitation is likely to deter visits to destinations predominantly associated with ‘sun, sea and sand’ type holidays. Finally, increases in extreme weather events, such as hurricanes and typhoons, could compromise the security of visitors and thus act as a deterrent when people are considering where to go on holiday. This will obviously diminish the ‘pull factors’ that influence tourists’ decisions to travel to a particular destination and could adjust the worldwide flow of tourists, resulting in new destinations evolving and the decline of some current destinations.

Many developing countries utilise tourism as a vector for economic growth (Scheyvens and Momsen, 2008) and ironically they too tend to be some of the first destinations to observe tangible impacts of climate change, such as the disappearance of beaches and the bleaching of coral. The culmination of these impacts could change the worldwide flow of tourists dramatically; new destinations may evolve and some current destinations may fold. For those destinations with a high economic reliance upon tourism that are likely to be adversely affected by the impacts of climate change the consequences could be grave. As a result the tourism industry has little choice but to take suitable action to adapt to the effects of climate change and mitigate against the causes of climate change.

Even given the current economic downturn, the WTTC (2011) predicts that over the next decade travel and tourism’s total contribution to GDP is forecast to rise by 4.2 percent pa to US\$9.2 trillion, bringing with it 65 million new jobs. Further, by 2021, 1 in 10 people on the planet will be employed either directly or indirectly as a result of travel and tourism. These growth predictions imply that more tourists will be transferred from their generating regions to the destination region. The UNWTO (2007), calculated that approximately 45 percent of international tourists travel to their destination by air, which is likely to increase greenhouse gas emissions contributing to global warming as a direct result of tourism travel. Such emissions from tourism, currently stand at approximately 5 percent of global emissions (IATO, 2011), but they are predicted to grow rapidly, with an increase of 152 percent forecast between the years 2005 – 2035, if concrete action is not taken to address this problem (UNWTO, 2007). So whilst the tourism industry might be adversely affected by the impacts of climate change in some destinations, so too is an increasing contributor to anthropogenic greenhouse gas emissions.

The key responses that the tourism industry can take are to mitigate the causes of climate change through the reduction of their greenhouse gas emissions or adapt to the impacts of climate change as they occur. The IPCC (2007a) states that even if greenhouse gas emissions were to cease today, there is inherent inertia within the climate system that will result in global warming continuing over a number of decades. Thus the problem of the resulting impacts from climate change is not likely to diminish quickly. It is a problem that needs to be addressed. In this context, it is vital for public and private sector stakeholders to anticipate the impacts of climate change upon destinations and make appropriate efforts to adapt to the effects of climate change and mitigate against its causes.

## **1.2 Rationale for the research**

Section 1.1 provided an overview of the context within which this research is located. Namely, that the impacts of climate change are already being experienced by some tourism destinations, and that tourism destinations are vulnerable to these impacts as they compromise the 'tourism product'. In addition, Gössling and Peeters (2007) suggest that tourism contributes to the problem of global warming, a large part being through the transportation of tourists between the generating and destination regions.

When this research started in 2006, there was very limited coverage of climate change within the academic tourism journals (Scott *et al*, 2005). So the area of tourism and climate change was under researched, particularly, with a lack of a knowledge base in the area of the responsiveness of destinations to the impacts of climate change.

The World Tourism Organisation (WTO), held a conference in Djerba, Tunisia in 2003, which resulted in a request that governments respond to the issue of climate change, through the adoption of effective measures to reduce the impacts of global warming. This research was influenced by the Djerba Declaration 2003 (Appendix 2) which recognised the value of having research that was not purely from a scientific arena but also recognised the implications that climate change was having on societies, not just the environment. The complex relationship between tourism as an economic sector, especially in small island developing states, was highlighted specifically with regard to raising awareness of the relationship between economy, society and the environment and strengthening co-operation between the different tourism stakeholders.

In 2007, the UNWTO, held a second conference on Tourism and Climate Change in Davos, Switzerland, which resulted in the Davos Declaration. Key areas for research were identified to encourage targeted, multi-disciplinary research on the impacts of climate change in order to address regional gaps in knowledge. More specifically, there was a call to examine action taken on mitigation (derived especially from transport and accommodation activities) and examine how adaptable tourism businesses and destinations are to changing climate conditions. The Researcher conducted a literature research and found that there was very limited research being conducted into these issues within the tourism sector, thus these themes have been reflected within this research.

### **1.3 Research aims and objectives**

#### **Research aim**

*This research seeks to examine how Indian Ocean island tourism destinations are being affected by climate change and what they are doing in relation to adapting to the effects of climate change and mitigating its causes of climate change. More specifically, the research objectives are as follows:*

***Research objective 1:*** *to investigate the relationship between climate change and the tourism industry, in particular the predicted effects that climate change will have upon Indian Ocean island tourism destinations.*

***Research objective 2:*** *To establish both the public and private sectors' levels of awareness of climate change within Indian Ocean Island tourism destinations.*

***Research objective 3:*** *To examine what actions are being taken to relation to adapting to the effects of climate change and mitigating the causes of climate change by key private and public sector stakeholders in Indian Ocean Island tourism destinations.*

#### **Research design**

To fulfil the first research objective and inform the primary research an extensive review of the literature was undertaken in relation to both climate change in general and tourism and climate change specifically. This led to a clearer understanding of the

issues of tourism and climate change, in particular adaptation and mitigation options, and set the foundations for conducting research in this area.

The second and third research objectives were fulfilled through the use of a social constructionist methodology, as this supports a critical stance towards knowledge; highlighting the historical and cultural specificity of knowledge; the role of social processes; and the relationship between knowledge and social action (Burr, 1995). This methodology is particularly helpful for generating understanding and shared meanings in relation to tourism and climate change, as was evident both within and across the three Indian Ocean island tourism destinations. It has led to the development of an in-depth picture of Sri Lanka, the Maldives and the Seychelles, where face to face interviews and observational fieldwork took place. The emphasis was to examine the understanding, observations and meanings that tourism stakeholders gave to climate change through the use of an 'interpretive approach' (Bredo and Feinberg, 1982; Rabinow and Sullivan, 1979). Analysis of the data involved content analysis through which key themes emerged that informed the research outcomes.

#### **1.4 Structure of the thesis**

This Chapter serves to introduce the research area and explain the structure of the thesis. Firstly, a brief overview has been given to the research highlighting the paucity of published materials within the tourism sector on climate change. The rationale behind the research was identified as being generated from the Djerba and Davos conferences on tourism and climate change. The research objectives have been identified with an insight into the research design. The remainder of this Chapter provides an outline of the structure of the thesis.

Chapter Two introduces the issue of climate change. It draws on the scientific evidence generated from the Intergovernmental Panel on Climate Change (IPCC) to establish the climatic changes occurring and examines the implications of these changes on communities in different parts of the world. The actions of the international community are reviewed to see what progress has been made and what adaptation and mitigation options are available. It is only at the end of this Chapter that the relationship between tourism and climate change is introduced.

Chapter Three develops a greater insight into the tourism sector by establishing the scope and scale of the global tourism industry. Key tourism concepts are used to establish the background of each tourism destination. This Chapter then examines in detail the specific tourism and climate change literature to highlight the difficulties coastal areas are likely to experience, particularly those of small island developing states. The Chapter concludes with an examination of adaptation and mitigation options available within tourism destinations.

Research methodology and design are the focus of Chapter Four. The research aim and objectives are highlighted and the conceptual framework is proposed. The specific features of the social constructionist methodology, which have supported the research design are explored. The case study approach is introduced, which includes triangulation of data sources and collection methods: in-depth interviews, fieldwork notes and photographs, and supplementary interviews with key informants. The methods of analysis are explained at the end of this section.

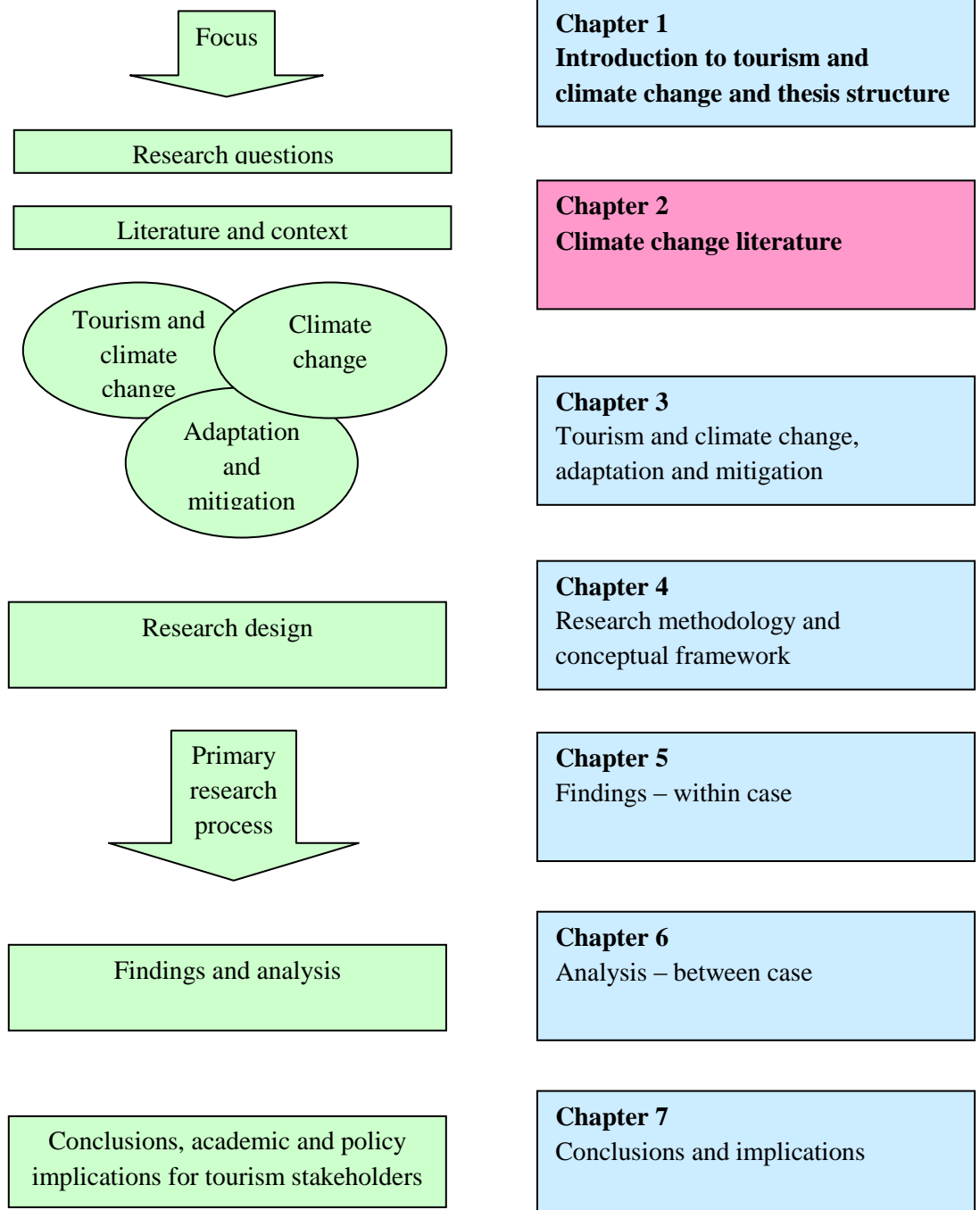
Chapter Five is the first of the findings chapters, the within case analysis. This is split into three distinct sections, one for each of the case studies, namely, Sri Lanka, the Maldives and the Seychelles. Each case study commences with an overview developed through from secondary data sources, then goes on to present findings and analysis derived from the primary data generated from the fieldwork. Nine key themes emerged during the analysis stage and these are used to present the data.

The second analysis Chapter is Chapter Six, which provides a between case analysis of the three Indian Ocean island tourism destinations. The comparative analysis generates emergent themes in relation to contextual factors, observations of climate change impacts and environmental consciousness within the destinations. Environmental consciousness was a new theme to become apparent at this stage and involves an examination of the respondent's attitude, knowledge and behaviour. The behavioural assessment includes adaptation and mitigation actions within the destination.

Chapter Seven concludes the thesis. It draws together the research to offer a model that can be used by both academics and tourism practitioners to assess the progress that Indian Ocean island tourism destinations are making in response to the challenge of climate change. The original contributions to research are highlighted, the research aims are reviewed and suggestions are made for future research.

For reference, each Chapter commences with a flowchart which signposts the reader through the thesis, highlighting the particular Chapter in pink and relating this to the stage in the research process.

# Chapter Two Climate Change



*This Chapter introduces the issue of climate change. The initial part of the Chapter provides an overview of the evidence that change is occurring, followed by a section that identifies the likely impacts of climate change and where they are predicted to occur. Next, the implications of these changes are established from a broad perspective including human health, food security and the international actions that are being developed to address climate change being reviewed. Finally, the relationships between tourism and climate change are established and a review of the emergence of the literature is provided. This Chapter does not seek to enter the scientific debate about climate change; it simply sets out the scientific consensus to provide a background understanding into the subject.*

Climate change is seen by many as the biggest threat to our future, as Professor Sir David King (the previous Government's Chief Scientific Adviser) proclaimed:

*“There is no bigger problem than climate change. The threat is quite simple, it’s a threat to our civilization” Climate Group (2006, p354).*

Over 1000 of the world’s scientific experts are in agreement that the global climate<sup>1</sup> has changed and these changes are anomalous to the normal patterns of natural climatic fluctuations (IPCC, 2007d). In the first few years of the twenty-first century, floods, tsunamis, droughts and hurricanes have demonstrated how vulnerable the globe is to changes in the climate. The issue has filtered down to the general public and there are frequent media stories about it.

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<sup>1</sup> Climate change in IPCC usage refers to a change in the state of the climate that can be identified (e.g. using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. It refers to any change in climate over time, whether due to natural variability or as a result of human activity. This usage differs from that in the United Nations Framework Convention on Climate Change (UNFCCC), where climate change refers to a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods. (IPCC, 2007a:30)



A review was published in *Science* (Oreskes, 2004, p5702) where 928 scientific journal articles that matched the search global climate change were examined. It was found that 75 percent agreed with the consensus view that ‘Human activities ... are modifying the concentration of atmospheric constituents ... that absorb or scatter radiant energy’. Most of the observed warming over the last 50 years is likely to have been due to the increase in greenhouse gas concentrations. 25 percent of the reviewed articles took no stand one way or the other and none rejected the consensus. This demonstrates that both the scientific community and the public are becoming more aware of the issue of climate change.

The following section provides an explanation of climate change and outlines the ‘greenhouse effect’, which creates changes within the climatic system; introduces the intergovernmental organisation that has been set up to provide some co-ordination of the scientific evidence and outlines some of the key scenarios that have been developed to enable policy makers and practitioners to understand the changes that might happen as a result of increased greenhouse gas emissions.

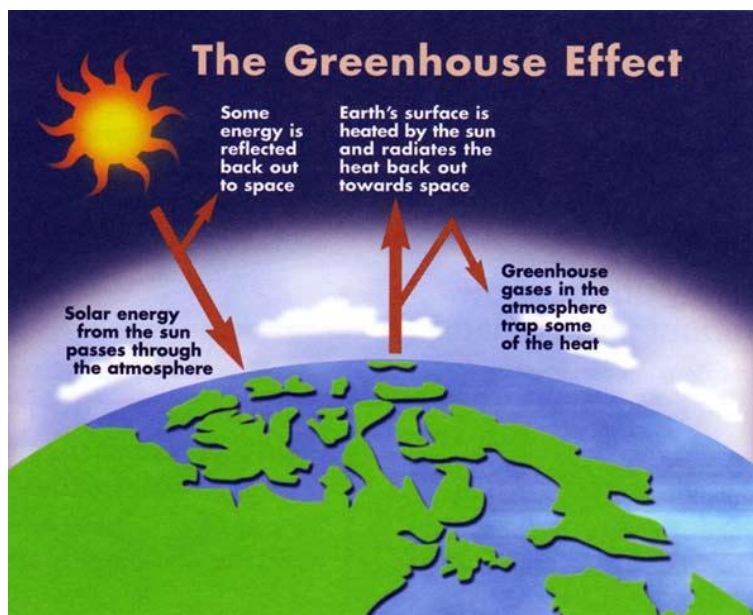
### **2.1.1 An explanation of climate change**

There are several sources of evidence that suggest that the earth’s climate is warming. A number of direct sources, such as sea surface and terrestrial temperature stations, weather balloons, satellite images and tide gauges have recorded evidence of increasingly higher average global temperatures. This trend has been corroborated by the reduction in Arctic sea ice (Maslanik *et al.* 1996; Stoll, 2006), decrease in snow depth and ice volume in the European Alps (Beniston 1997; Haerberli and Beniston 1998), southerly migration of the limits of ice shelf variability (Vaughan and Doake 1996) and a rise in the altitude of the tropical 0°C isotherm (Diaz and Graham 1996). The Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) finds increased evidence (with a 95 percent confidence) that global mean surface temperatures have increased by 0.74 °C over the 20<sup>th</sup> century (IPCC, 2007b). This demonstrates a gradual, but consistent increase in temperature, that is known as the greenhouse effect and could trigger many other climatic changes around the world. The subsequent section will explain the greenhouse effect.

## The 'greenhouse effect'

The Earth's climate is driven by a continuous flow of energy from the sun. Most of this (approximately 70 percent) passes down through the atmosphere in the form of short wave radiation to warm the earth's surface. As the earth is cooler than the sun it does not need all the energy, so it gets rid of the excess by sending it back to the atmosphere. The earth re-radiates its energy back into the atmosphere as long wavelength, infra-red radiation, which helps to keep the earth cool. Greenhouse gases (GHGs) in the atmosphere block infrared radiation from escaping directly from the surface into space (Figure 2.1), thus keeping the planet at a temperature warm enough to sustain life. The main greenhouse gases are water vapour, carbon dioxide (CO<sub>2</sub>), ozone, methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and halocarbons and other industrial gases. All but the industrial gases occur naturally; together they make up less than 1 percent of the atmosphere. The greenhouse gases are essential and act as a blanket around the earth and keep the planet 30 percent warmer than it would otherwise be. This is essential for life to exist as we currently know it (Topfer and Waller Hunter, 2002).

Figure 2.1. The 'Greenhouse Effect'



Source: Climate Change Group, 2006

The problem is that levels of all key greenhouse gases are rising (with the possible exception of water vapour). The IPCC (2007a) report that global GHG emissions due to human activities have grown since pre-industrial times, with an increase of 70 percent between 1970 and 2004. The international scientific community has become increasingly aware that change is taking place in the climate and an organisation to co-

ordinate the scientific knowledge has evolved, the Intergovernmental Panel on Climate Change (IPCC).

### **The Intergovernmental Panel on Climate Change**

In 1988 UNEP (United Nations Environmental Programme) and WMO (World Meteorological Organisation) established the Intergovernmental Panel on Climate Change (IPCC) to provide independent scientific advice on the complex and important issue of climate change. The role of the IPCC is to assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts and options for adaptation and mitigation. Review by experts and governments are an essential part of the IPCC process. The Panel does not conduct new research, monitor climate-related data or recommend policies. It is open to all member countries of WMO and UNEP (Jarraud and Topfer, 1994). The IPCC has three working groups looking at the scientific observations of climate change, the impacts of climate change, and mitigation and adaptation strategies respectively. The IPCC produced four major reports in 1990, 1994, 2001 and 2007. The first report established the overall policy framework for addressing climate change issues. The second report provided the technical and scientific information that was used to inform the Kyoto Protocol in 1997. The third assessment report provided up to date information and was developed to be used as a reference guide for the UN Framework Convention on Climate Change (UNFCCC). The fourth assessment report produced in 2007 has provided a comprehensive update to the previous assessment reports. A fifth assessment report is being prepared and is due in 2012. The IPCC has also developed a number of different scenarios to enable the public to have a greater understanding of the likely impacts of climate change.

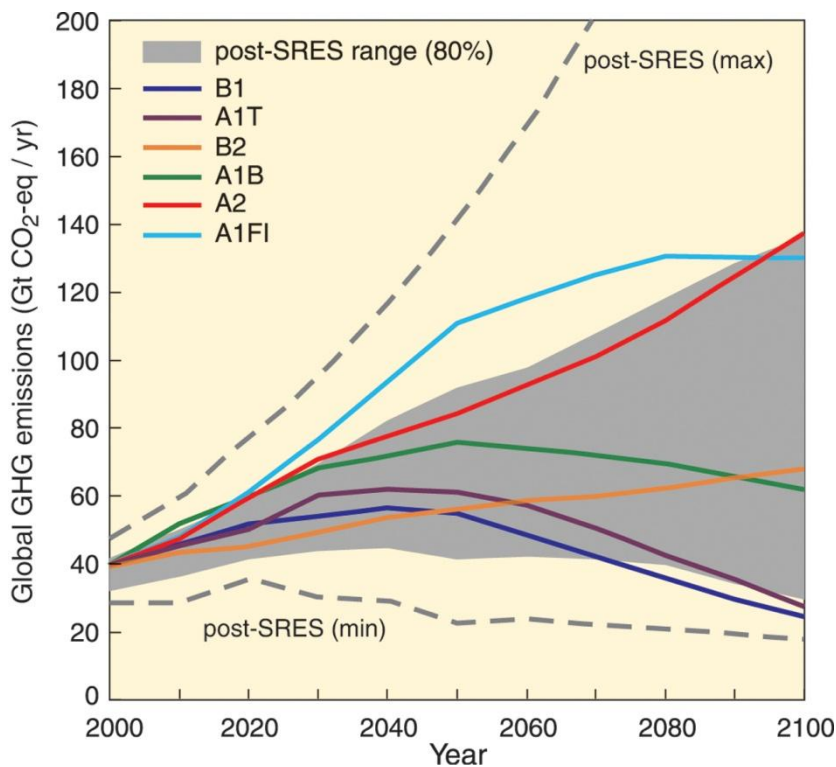
### **Climate change scenarios**

The IPCC (2000) has developed four scenarios A1, A2, B1 and B2 (which were outlined in the Special Report on Emissions Scenarios, SRES). The scenarios are used for modeling (Low emissions; Medium-Low Emissions; Medium-high Emissions and High Emissions). To help in the understanding of the problem, they take into account the possible changes in technology and lifestyle over the next 100

years. Figure 2.2 illustrates the different scenarios for GHG emissions until the end of the century. The scenarios differ according to the rate of global economic growth, population change and other socio-economic factors.

The A1 storyline assumes a world of very rapid economic growth, a global population that peaks in mid-century and rapid introduction of new and more efficient technologies. A1 is divided into three groups that describe alternative directions of technological change: fossil intensive (A1FI), non-fossil energy resources (A1T) and a balance across all sources (A1B). B1 describes a convergent world, with the same global population as A1, but with more rapid changes in economic structures toward a service and information economy. B2 describes a world with intermediate population and economic growth, emphasising local solutions to economic, social, and environmental sustainability. A2 describes a very heterogeneous world with high population growth, slow economic development and slow technological change. No likelihood has been attached to any of the SRES scenarios (IPCC, 2007a:44). These scenarios are referred to in later sections when predictions of changes are examined.

Figure 2.2 Scenarios for GHG emissions from 2000 to 2100 in the absence of additional climate policies



Source: IPCC, 2007a:44

Care should always be taken when interpreting and using any climate model predictions as they have been developed using computer modeling which means that

Chapter Two

the results show optimal deterministic results which do not take into consideration of all aspects and possible factors. As a result the IPCC provides an indication of the level of confidence that they have in their predictions. The way that the IPCC handles uncertainty is identified below.

### **Treatment of uncertainty in climate change science**

The Intergovernmental Panel on Climate Change (IPCC) is very aware that there are different degrees of variance and uncertainty in the science of climate change. To provide a more credible understanding of the issues the panel's working groups have developed a framework for the treatment of uncertainty across all the IPCC reports.

Where uncertainty is assessed qualitatively, it is characterised by providing a relative sense of the amount and quality of evidence (that is, information from theory, observations or models indicating whether a belief or proposition is true or valid) and the degree of agreement (that is, the level of concurrence in the literature on a particular finding). This approach is used by Working Group III through a series of self-explanatory terms such as: high agreement, much evidence; high agreement, medium evidence; medium agreement, medium evidence; etc.

Where uncertainty is assessed more quantitatively using expert judgement of the correctness of underlying data, models or analyses, then the following scale of confidence levels is used to express the assessed chance of a finding being correct: very high confidence at least 9 out of 10; high confidence about 8 out of 10; medium confidence about 5 out of 10; low confidence about 2 out of 10; and very low confidence less than 1 out of 10.

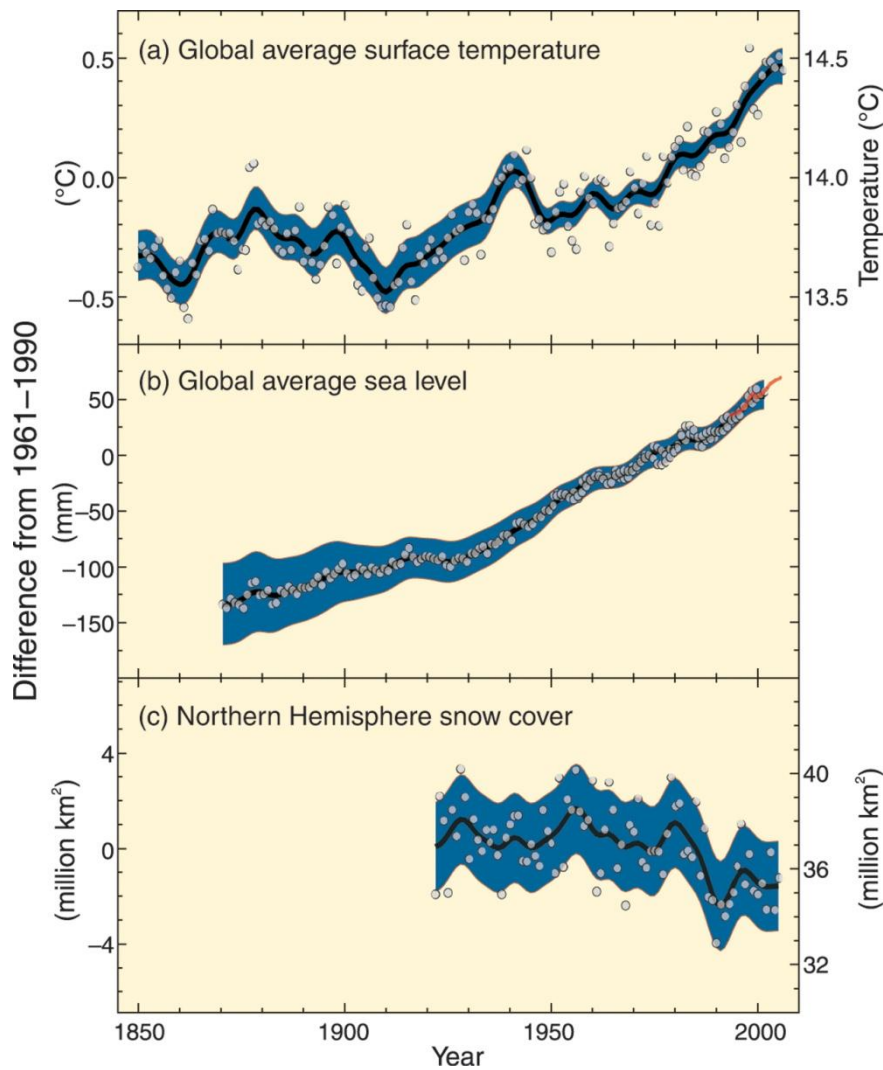
Where uncertainty in specific outcomes is assessed using expert judgment and statistical analysis of a body of evidence (e.g. observations or model results), then the following likelihood ranges are used to express the assessed probability of occurrence: virtually certain >99 percent; extremely likely >95 percent; very likely >90 percent; likely >66 percent; more likely than not > 50 percent; about as likely as not 33 percent to 66 percent; unlikely <33 percent; very unlikely <10 percent; extremely unlikely <5 percent; exceptionally unlikely <1 percent. (IPCC, 2007a:27). This section has been included as later in this Chapter predictions are made with regard to climatic changes and where appropriate the level of confidence that the IPCC has projected is provided.

The next section draws together some of the evidence that changes are occurring to the Earth’s climate system.

### 2.1.2 The evidence that changes are taking place

In the IPCC’s Fourth Assessment Report the Panel states “Warming of the climate system in unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level” (IPCC, 2007a:30). The mapping of increase in temperature, sea levels and snow cover in the northern hemisphere can be seen in Figure 2.3.

Figure 2.3 Changes in temperature, sea level and northern hemisphere snow cover



Source: IPCC, 2007a:31

## **Temperatures**

Reliable measurement records have been kept of surface temperatures in the northern hemisphere for many hundreds of years but reliable records have only been kept in the southern hemisphere since 1861 and these indicate an increase of 0.74 [0.56 to 0.92]<sup>2</sup>°C<sup>2</sup>. Most of the warming occurred from 1956 to 2005 (0.13 [0.10 to 0.16] °C per decade) and is nearly twice the rate of that for the 100 years from 1906 – 2005. In the latest IPCC report that was published in 2007, eleven of the last twelve years (1995-2006) have been ranked amongst the twelve warmest years of those recorded since 1850. Records have also been kept for average temperature of the global ocean since 1961 and these show that the depths of the average temperature have increased by at least 3000mm and that the ocean has been taking up 80 percent of the heat being added to the climate (IPCC, 2007a:30).

## **Sea levels**

Increases in sea level rises are consistent with observed warming. As the upper layers of the oceans warm, water expands and sea level rises. Global average sea level rose at an average rate of 1.8 [1.3 to 2.3] mm per year over 1961 to 2003 and at an average rate of about 3.1 [2.4 to 3.8] mm per year from 1993 to 2003. Since 1993 thermal expansion of the oceans has contributed about 57 percent of the sum of the estimated individual contributions to the sea level rise, with ice melt from decreases in glaciers and ice caps contributing about 28 percent and losses from the polar ice sheets contributing the remainder. There are other, harder to predict, changes that affect the real and apparent sea level, notably snowfall and ice-melt in Greenland and Antarctica and the slow ‘rebound’ of northern continents freed from the weight of ice age glaciers (IPCC, 2007a, :30).

## **Snow and glaciers**

The observable decreases in snow and ice cover are also consistent with temperature increases. Satellite data since 1978 show that the average annual Arctic sea ice extent has shrunk by 2.7 [2.1 to 3.3] percent per decade, with larger decreases in summer 7.4 [5.0 to 9.8] percent per decade. Mountain glaciers and snow cover on average have declined in both hemispheres. The maximum areal extent of seasonally frozen ground has decreased by about 7 percent in the Northern hemisphere since 1900, with decreases in spring of up to 15 percent. Temperatures at the top of the permafrost

---

<sup>2</sup> Temperature increases are greater in the northern hemisphere  
Chapter Two

layer have generally increased since the 1980s in the Arctic by up to 3°C (IPCC, 2007a:30). This data is supported by NASA (2001) scientists, who published a major study based on observations by satellite and aircraft. It concluded that the margins of the Greenland ice-sheet were dropping in height at a rate of roughly one metre a year. In 2004, the team recorded falls as dramatic as 10 metres a year - in places the ice is dropping at a rate of one metre a month (BBC, 2004).

### **Precipitation**

Between the period of 1900 and 2005 there has been more precipitation in many regions of the world, particularly in eastern parts of North and South America, northern Europe and northern and central Asia. Whereas precipitation has declined in the Sahel, the Mediterranean, southern Africa and parts of southern Asia. The IPCC (2007a) predicts that globally the area affected by drought has increased since the 1970s.

The IPCC (2007a) has collated evidence that illustrated how some extreme weather events have changed in frequency and/or intensity over the last 50 years:

- It is very likely that cold days, cold nights and frosts have become less frequent over most land areas, while hot days and hot nights have become more frequent.
- It is likely that heat waves have become more frequent over most land areas.
- It is likely that the frequency of heavy precipitation events (or proportion of total rainfall from heavy falls) has increased over most areas.
- It is likely that the incidence of extreme high sea level has increased at a broad range of sites worldwide since 1975.

There is also observational evidence of an increase in intense tropical cyclone activity in the North Atlantic since about 1970, and suggestions of increased intense tropical cyclone activity in some other regions, although there is still some concern about the quality and comparability of the data (IPCC, 2007a:30).

The way the climate has changed over the 20th century is consistent with what the IPCC would expect as a result of increases in emissions of greenhouse gases. Observed spatial patterns of warming are consistent with the model predictions scenarios (outlined in section 2.1.1.) Surface, balloon and satellite measurements



have been used to show that while the earth's surface has been warming, the stratosphere has cooled. In addition, the earth is warming more slowly over the oceans than over the land, particular in those ocean regions where surface water mixes down, distributing any warming to the ocean depths (Topfer and Waller Hunter, 2002).

The IPCC tend to use these four key indicators: temperature, sea level rise, snow and ice coverage, and precipitation to illustrate changes in the climatic system are occurring. In Chapter Three these are used as the direct impacts of climate change (section 3.5.3).

This section has illustrated that changes are occurring to the climate, the next section explores if these changes are being caused as a result of human activity or as a result in natural variations within the climatic system.

### **2.1.3 Anthropogenic climate change**

The global climate is not static and the key question is, therefore, how much anomalous warming can be attributed to anthropogenic climate change as opposed to natural climate variability. There have always been fluctuations in the climate system, but they have been within a range that enables it to correct itself. Wuebbles *et al* (1999) state that without human intervention, concentrations of greenhouse gases important to global change would be expected to change slowly, as indicated by ice core measurements before the last century.

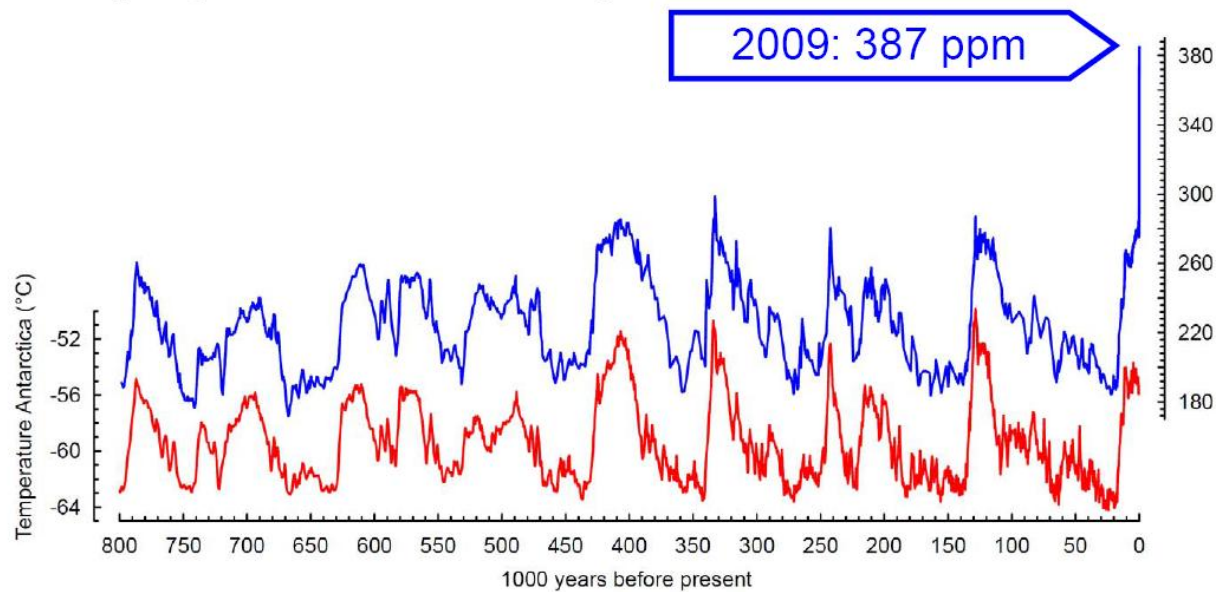
The climate system is an intricate balance of inter-linked processes involving the atmosphere, crosphere, oceans and ecosystems. The complexity of the system makes it chaotic to understand and predict; changes can occur suddenly occur and result in impacts such as flooding As can be seen in Figure 2.4 the emissions build up over a long period of time, such as an ice age, the last glacial ice age being around 10,000 years ago. These changes can destabilise the system, leading to abrupt shifts, as the system attempts to balance again.

There have been changes to the levels of greenhouse gases in the atmosphere in the past, but they have so far returned to within a reasonable range. However, as Figure 2.4 shows since industrialisation there has been a significant increase of greenhouse gases

due to human activity. Scientists believe that this build up may trigger rapid changes at some time in the next few hundred years (IPCC, 2010). During geological time the average global temperature usually varied by 5°C over millions of years. In contrast the rate of change in GHG concentrations over the next 100 years is expected to reach unprecedented levels compared to those previously recorded.

Figure 2.4 CO<sub>2</sub> emissions in the atmosphere

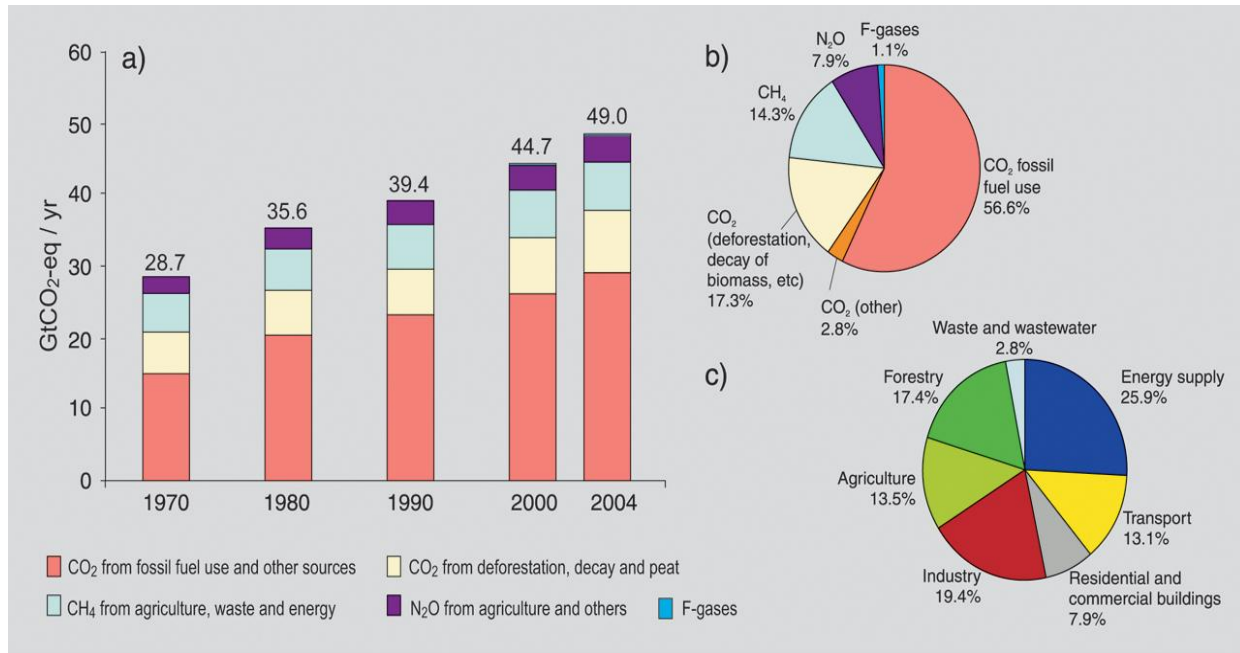
### 1. CO<sub>2</sub>: Higher levels and more rapid increase



Source: IPCC, 2010.

Now scientists believe (see Figure 2.5) that the largest growth in GHG emissions between 1970 and 2004 has come from energy supply, transport and industry, while residential and commercial buildings, forestry (including deforestation) and agricultural sectors have been growing at a lower rate (IPCC, 2007c). There will be an expectation that the tourism industry tries to reduce global emissions as it involves a transportation component which is in the group where there is still growth of emissions.

Figure 2.5 Global anthropogenic GHG emissions



Source: IPCC, 2007a

#### 2.1.4 Sceptics who contest the severity of climate change

The previous section has presented the evidence that there has been increases to the greenhouse gases over the last century and argues that scientists believe much of this results from humans as a consequence of the industrialisation process. However, not all scientists agree that anthropogenic climate change is happening. Stott (2002) suggests that changes to the climate system have previously occurred, he criticises the assumptions and computer modelling that the IPCC uses to produce its projections. The National Academy of Sciences (that is funded to provide expert advice to the federal government in the USA), reviewed the science on which the Kyoto Protocol was based. It concluded that the policy choices and the mandatory reductions in greenhouse gases adopted by the developed nations were based on incomplete science with significant uncertainties (Barnard and Morgan, 2000). The uncertainties tend to surround the data used and the reliability of the data; sceptics claim that if different data was used the picture would not be the same. The IPCC recognises that some of the data set is not as complete as it would wish and with each of the four Assessment Reports produced, the limitation of the current scientific knowledge is being addressed. The Fourth IPCC report states: “There is very high confidence that the global average net effect of

human activities since 1750 has been one of warming, with radiative forcing<sup>3</sup> of +1.6 [0.6 to +2.4] W/m<sup>2</sup>.” (IPCC, 2007c:37). (Very high confidence is seen quantitatively as 9 out of 10 and is the highest indicator used within the range – see section 2.1.1). As the science base is continuing to provide greater understanding and more robust results the IPCC continues to update the evidence and publish new reports. The sceptics on the whole acknowledge that changes are occurring in the climate, but they contest these are not as a result of human activity, but due to natural variations in the system. However, the IPCC argue, it is very clear that ‘warming of the climate system is unequivocal and that the greenhouse house gas emissions have increased markedly as a result of human activities since 1750’ (IPCC, 2007a:37). The predicted implications of climate change will now be examined.

## 2.2 THE PREDICTED EFFECTS OF CLIMATE CHANGE

In this section the IPCC’s projections for changes to surface temperature, sea temperature, sea level rises, precipitation and unexpected events is presented.

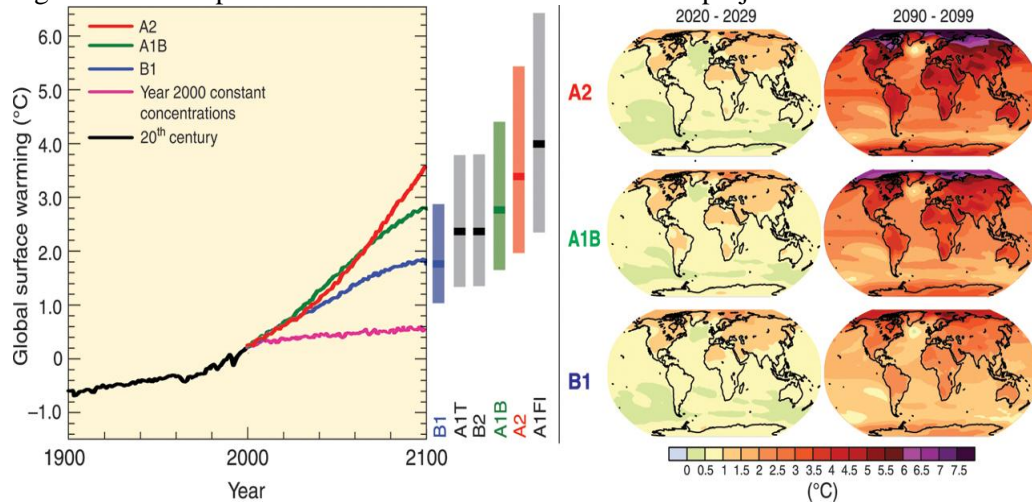
### **Current climate models predict a global warming of about 1.4 – 5.8°C between 1900 and 2100**

In response to increased emissions the climate has started to adjust to a ‘thicker blanket’ of greenhouse gases in order to maintain a balance between the energy arriving from the sun and energy escaping back. This climate change would be much larger than any climate change experienced in the last 10,000 years. Figure 2.6 illustrates the implications of this warming within the six frequently used scenarios. Temperature projections are based on a wide range of assumptions about the main forces driving future emissions (such as population growth and technological change) but do not assume any climate change policies for reducing emissions (IPCC, 2007a).

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<sup>3</sup> Radiative forcing is a measure of the influence a factor has in altering the balance of incoming and outgoing energy in the Earth-atmosphere system and is an index of the importance of the factor as a potential climate change mechanism (IPCC, 2007a).

Figure 2.6 Atmosphere Ocean General Circulation Model projections of surface warming

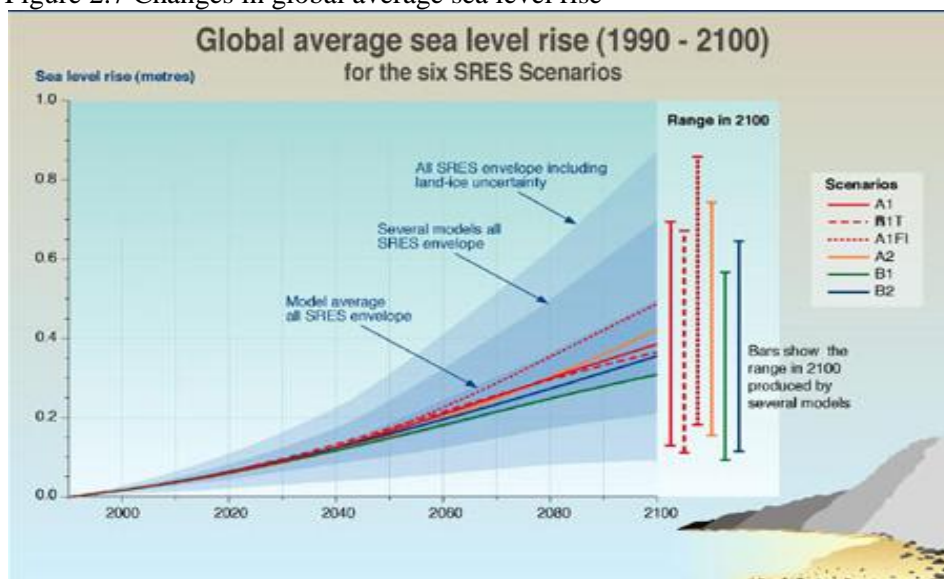


Source: IPCC, 2007a:46

**The average sea level is predicted to rise by 18 to 59 cm by 2100**

This would be caused mainly by the thermal expansion of the upper layers of the ocean as they warm, with some contribution from melting glaciers. The uncertainty range is large, and changing ocean currents, focal land movement and other factors will cause local and regional variations in the rise of sea levels. The slightly faster melting of the Greenland and Antarctica ice sheets is likely to be counteracted by increased snowfall in both regions. As the warming penetrates deeper into the oceans and ice continues to melt, the sea level will continue rising long after surface temperatures have levelled off (IPCC, 2007 a). The predicted sea level rises for the six scenarios are shown within Figure 2.7.

Figure 2.7 Changes in global average sea level rise



Source: IPCC, 2001

## Regional and seasonal warming predictions are much more uncertain

Although most areas of the world are expected to warm, some will warm much more than others, as can be seen in Figure 2.8. The largest warming is predicted for cold northern regions in winter. The reason is that snow and ice reflect sunlight, so less snow means more heat is absorbed from the sun, which enhances any warming: a strong positive feedback effect. By the year 2100, winter temperatures in northern Canada, Greenland and northern Asia are predicted to rise by 40 percent more than the global average (IPCC, 2007a).

Figure 2.8 Projections of Surface Temperatures

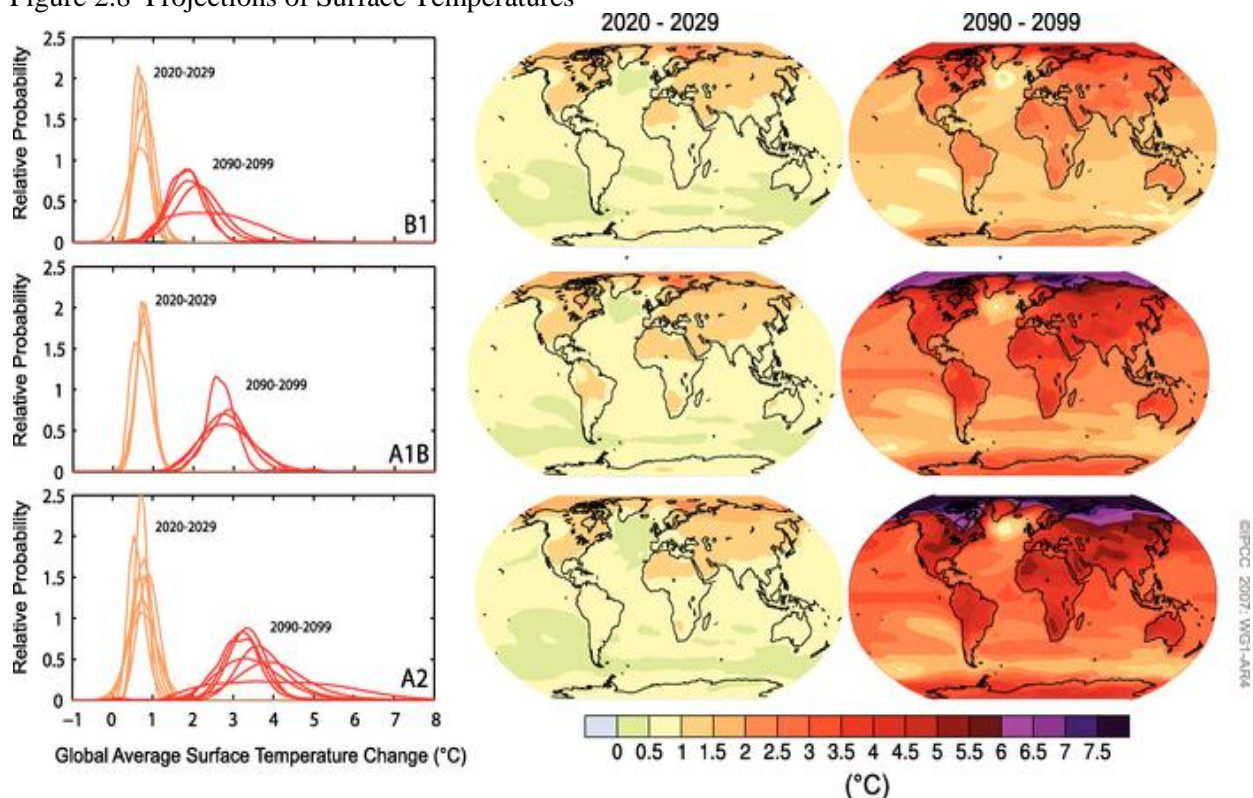


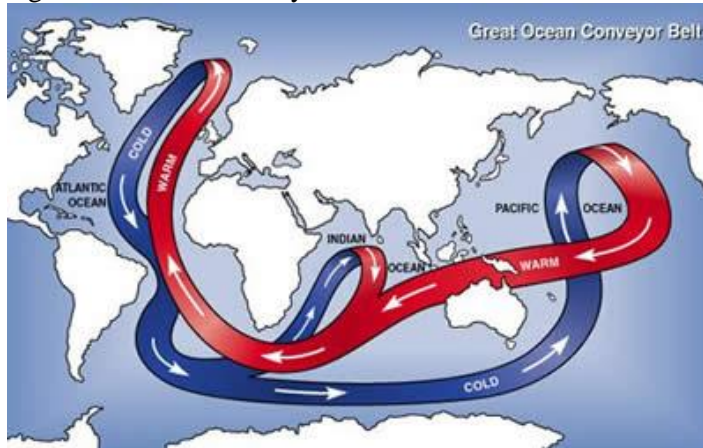
Figure 2.8. Projected surface temperature changes for the early and late 21st century relative to the period 1980–1999. The central and right panels show the AOGCM multi-model average projections for the B1 (top), A1B (middle) and A2 (bottom) SRES scenarios averaged over the decades 2020–2029 (centre) and 2090–2099 (right). The left panels show corresponding uncertainties as the relative probabilities of estimated global average warming from several different AOGCM and Earth System Model of Intermediate Complexity studies for the same periods. Some studies present results only for a subset of the SRES scenarios, or for various model versions. Therefore the difference in the number of curves shown in the left-hand panels is due only to differences in the availability of results.

Source IPCC, 2007b:154

## Inland regions are projected to warm faster than oceans and coastal zones

The reason for the inland regions to warm faster than oceans and coastal areas is simply the ocean delay, which prevents the sea surface from warming as fast as the land. The size of this delay depends on how deep any warming penetrates into the oceans; this is also influenced by the warming of the Gulf Stream (Figure 2.9).

Figure 2.9 Ocean Conveyor Belt



Source: Climate Institute, 2011

Over most of the oceans, the uppermost few hundred metres do not mix with the water beneath them. These upper layers will warm within just a few years, while the deep ocean stays cold. Water mixes down into the ocean depths in only a few very cold regions, such as the Atlantic south of Greenland and the Southern Ocean near Antarctica. In these regions surface warming will be delayed because much more water needs to be warmed up to get the same temperature change at the surface (IPCC, 2007a).

The projection models have been tightened up since the Third Assessment report and as a result there is greater certainty in the projections provided for global average surface warming and sea level rise. These projections are provided in Table 2.1.

Table 2.1 Projected average surface warming and sea level rise at the end of the 21<sup>st</sup> century.

Case	Temperature Change		Sea Level Rise)
	( $^{\circ}\text{C}$ at 2090-2099 relative to 1980-1999) <sup>a</sup>		(m at 2090-2099 relative to 1980-1999)
	Best estimate	Likely range	Model-based range excluding future rapid dynamical changes in ice flow
Constant Year 2000 concentrations <sup>b</sup>	0.6	0.3 – 0.9	NA
B1 scenario	1.8	1.1 – 2.9	0.18 – 0.38
A1T scenario	2.4	1.4 – 3.8	0.20 – 0.45
B2 scenario	2.4	1.4 – 3.8	0.20 – 0.43
A1B scenario	2.8	1.7 – 4.4	0.21 – 0.48
A2 scenario	3.4	2.0 – 5.4	0.23 – 0.51
A1FI scenario	4.0	2.4 – 6.4	0.26 – 0.59

Table notes:

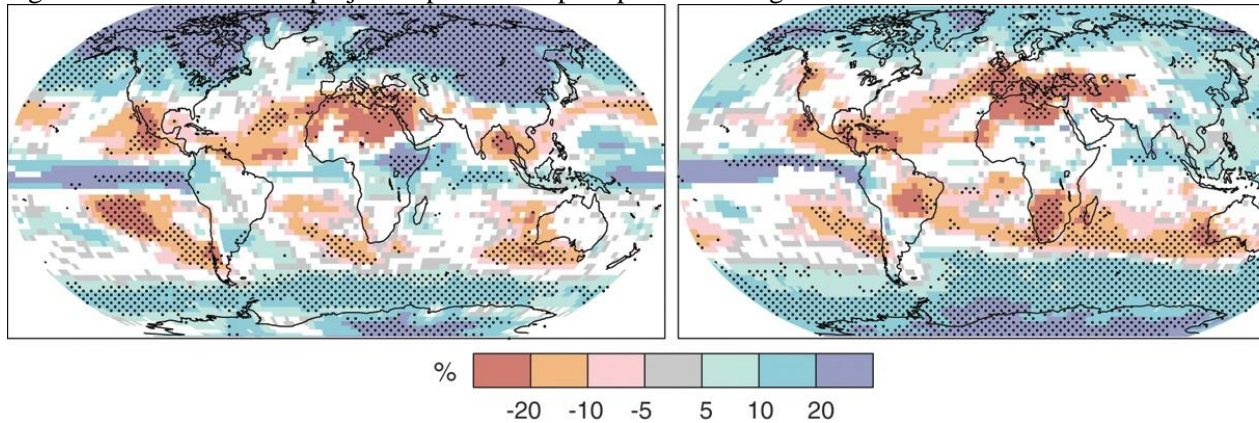
<sup>a</sup> These estimates are assessed from a hierarchy of models that encompass a simple climate model, several Earth System Models of Intermediate Complexity and a large number of Atmosphere-Ocean General Circulation Models (AOGCMs).

<sup>b</sup> Year 2000 constant composition is derived from AOGCMs only. Source IPCC, 2007b:154

**Regionally both increases and decreases in precipitation are projected typically of 5 to 20 percent**

By the second half of the 21<sup>st</sup> century, it is likely that wintertime precipitation in the northern and mid to high latitudes and in Antarctica will rise. There are likely to be decreases in precipitation in most sub-tropical land regions. This is shown in Figure 2.10 below, scenario A1B, the left hand side is for December to February and the right hand side June to August.

Figure 2.10 Multi-model projected patterns of precipitation changes



Source: IPCC, 2007a:47

**The frequency and intensity of extreme weather events are likely to change**

With increasing global temperatures the world is likely to experience more hot days and heat waves and fewer frost days and cold spells. Climate models also consistently show extreme precipitation events becoming more frequent over many areas and the risk of drought becoming greater over continental areas in summer. There is also some evidence to show that hurricanes could be more intense (with stronger winds and more rainfall) in some areas. Extra tropical storms are expected to move poleward, with consequent changes in wind, precipitation and temperature patterns (IPCC, 2007a).

**Rapid and unexpected climate transitions cannot be ruled out**

The collapse of the West Antarctic ice sheet would create the most dramatic rapid and unexpected change which would lead to a catastrophic rise in sea level, but this is now considered unlikely during the 21<sup>st</sup> century. There is evidence that changes in ocean circulation will have a significant impact on regional climate (such as a weakening of the Gulf Stream that warms Europe) and could take place in only a few decades, but it is unknown whether or not global warming could trigger any



such change. Climate models that do show a weakening in the Gulf Stream still project warming over Europe (IPCC, 2007b).

### **Summary of the predicted effects of climate change**

This section has provided an indication of the key effects of global warming and how they are likely to effect the planet. They are rather bleak prospects that would result in society having to make radical changes to the way that people live to accommodate these consequences. It could result in mass migration as parts of the world become impossible to live in due to temperature changes, sea level rises and extreme weather events, and this too would effect tourism flows. All industries will have to adjust and respond to climate change, but the tourism industry will be particularly affected as there may be less demand and fewer suitable destinations to visit.

The next section outlines the regional impact of climate change for different parts of the world.

#### **2.2.1 How climate change will affect different parts of the world**

Below key areas of the world are identified to provide an indicative illustration of how the changes outlined in section 2.3 could changes these geographic regions.

##### **Africa**

Over the next century, east Africa could receive more rain while southern Africa will probably become a great deal drier (Meadows and Hoffman, 2003). Food and water shortages are likely to increase throughout most of Africa, as will floods and storms. Desertification will remain a major threat in arid and semi-arid regions, placing increased pressure on water resources. As a result of the endemic poverty and the reliance of the rapidly growing population on natural resources and agriculture, Africa is particularly vulnerable to environmental changes (UNEP 2002). Land degradation, deforestation, habitat degradation, floods and droughts are some of the key problems that limit development and these environmental pressures are likely to be exacerbated by climate change. In addition, sea level rise will threaten beaches through beach erosion and increased sea surface temperatures will threaten fragile marine ecosystems. The implications for demand within the tourism industry in north Africa will be a probable decline in visitor numbers

during the peak summer months, but higher demand in the winter months that shoulder the main season. In eastern Africa the wetter winters are likely to diminish the demand for safari and beach holidays in such tourist destinations as the Seychelles and Madagascar (Travel Research International, 2003). New studies confirm that Africa is one of the most vulnerable continents to climate variability and change because of multiple stresses and low adaptive capacity (IPCC, 2007c).

### **Asia**

While northern and mid-latitude Asia will enjoy dramatic advances in crop production in a warmer world, south and south east Asia's many developing countries will see food production drop due to intolerably high temperatures and declines in rainfall and water supply. In arid and semi-arid Asia, higher temperatures and more evaporation will reduce rice yields dramatically. Tourists may find the summers become more reliable in north east Asia, whilst in south east Asia, the coastal areas are likely to be vulnerable to erosion, affecting one of the key pull factors for tourists such as, Indonesia and the Philippines (Travel Research International, 2003). Coastal areas, especially heavily populated mega-delta regions in south, east and south-east Asia, will be at greatest risk due to increased flooding from the sea and, in some mega-deltas, flooding from the rivers (IPCC, 2007c). This includes areas such as Bangladesh, India and Sri Lanka.

### **Australia and New Zealand**

Further reduction of scarce water resources and higher temperatures for crops already growing near their maximum heat tolerance will affect food production in arid Australia. New Zealand, which is cooler and wetter, could benefit at least initially from warmer temperatures, particularly in its more southerly regions. As a high proportion of the tourism generating regions for Australia and New Zealand are from the northern hemisphere, it is predicted that demand in the winter period (Oct – Mar) will remain strong. Tourism within the Pacific islands will be very vulnerable, due to the sea level rises and greater storm activity (Travel Research International, 2003). The region generally has substantial adaptive capacity due to well-developed economies and scientific and technical capabilities, but there are considerable constraints to implementation and major challenges from changes in extreme events (IPCC, 2007c).

## **Europe**

A changing climate will dry out the south and boost agricultural production in central and northern areas (Rowell and Jones, 2006). The Arctic landscape will change permanently as ice and permafrost melt, the tundra dries and forests migrate north. The region's key vulnerabilities will be water and land resources, semi-natural ecosystems and forests, and agriculture and fisheries. Europe has the largest number of visitor arrivals at approximately 60 percent (Travel Research International (2003). The largest flow of tourists globally is from the north of Europe to those countries bordering on the northern rim of the Mediterranean Sea in the south of Europe. Around the Mediterranean basin the predictions are bleak, with increased risk of forest fires and flash floods increasing pressure on water resources and coastal areas vulnerable to sea level rise. These factors coupled with the predictions that summers in the north of Europe will become hotter and more reliable, may well reduce the need to travel to southern Europe in search of the sun. The ski industry in southern Europe will be very adversely affected, with an increased risk of avalanches due to a combination of more snow and higher temperatures; as a result the snow line is predicted to increase in altitude by up to 100m per decade. In southern Europe climate change is projected to worsen conditions (high temperatures and drought). Whereas in northern Europe climate change is initially projected to bring mixed effects, including some benefits such as reduced demand for heating, increased crop yields and increased forest growth. However, as climate change continues, its negative impacts (including more frequent winter floods, endangered ecosystems and increasing ground instability) are likely to outweigh its benefits (IPCC, 2007c).

## **Latin America**

The Amazonian rainforests will slowly dry out. This will encourage the spread of wildfires in the expanding areas of disturbed forests and threaten the continent's rich biological diversity. If, as seems likely, El Nino events become more frequent in a warmer world, the climate will dry in northern Amazonia, northeastern Brazil and the Peruvian-Bolivian Altiplato. Andean glaciers would retreat further, while Mexico's droughts would become more frequent. The deterioration of the Amazonian rainforest may reduce the number of visitors attracted to experiencing the unique fragile environment. There is potential expansion for the skiing areas in Chile and Argentina. Some countries have made efforts to adapt, particularly through conservation of key ecosystems, early warning systems, risk management in agriculture, strategies for flood drought and coastal management, and disease

Chapter Two

surveillance systems. However, the effectiveness of these efforts is outweighed by a lack of basic information, observation and monitoring systems; a lack of capacity building; and a lack of appropriate political, institutional and technological frameworks (IPCC, 2007c).

### **North America**

Floods, droughts, storms and landslides are expected to increase in frequency, severity and duration. There will be fewer cold periods in winter, more very hot days in summer, more coastal erosion and emergencies from higher seas and bigger storms, and heavier rain and snow. The Great Plains in the US and the Canadian Prairies may face increased drought, but North American food production will rise overall in a warmer world. As a consequence of the increased rainfall and hurricane activity associated with El Nino events, tourism demand during the hurricane season (August to October) is likely to decrease. Low lying coastal areas of North America, such as the Florida Keys (Schneider, 2001) are particularly vulnerable to sea level rises. Coastal communities and habitats will be increasingly stressed by climate change impacts interacting with development and pollution (IPCC, 2007c).

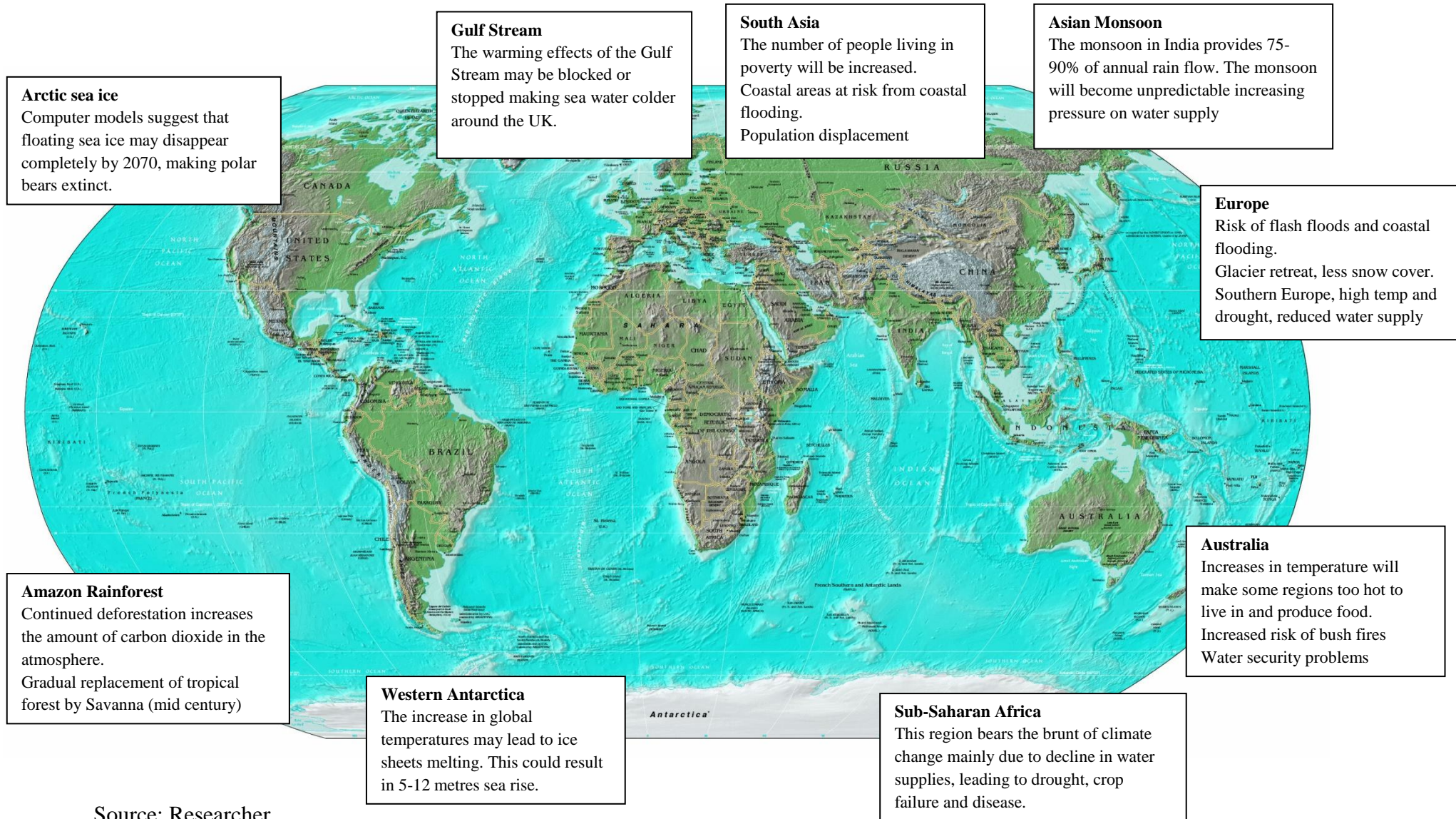
### **Small Island States**

The tens of thousands of small islands scattered across the world's oceans are particularly vulnerable to climate change. Many rise up only one or two metres above sea level, such as atolls in the Maldives and Seychelles. In addition to rising seas, risks include more savage storms, big reductions in rainfall in some parts of the ocean, and intolerably high temperatures. The Pacific islands will be very vulnerable to sea level rises and greater storm activity. Already some of the inhabitants of Tuvalu have fled to New Zealand, due to the rising water levels and contamination of ground water supplies (BBC, 2001). The pattern of tourism demand is likely to remain similar to current levels, especially within the winter season (October to March). However, often the main 'pull' factors to small island states are the rich beach and dive opportunities available for tourists, and these will be eroded due coral bleaching from rises in sea temperatures. The degradation of coral reefs has multiple problems for small island destinations. They not only provide vital income from tourism, but the reefs also protect the low lying islands and when coral bleaching occurs the reef dies. Alternative manmade protection is not as effective, so ultimately abandonment may be the only option. The economies of many small island states

especially in the Indian Ocean and South Pacific are tourism dependent, and the loss of beaches and fragile marine environments could be detrimental to the island's economy. Sea-level rise is expected to exacerbate inundation, storm surge, erosion and other coastal hazards, thus threatening vital infrastructure, settlements and facilities that support the livelihood of island communities (IPCC, 2007c). The UNWTO (2008) identify Indian Ocean Small Island Nations as being particularly vulnerable and a hotspot for major climate change impacts. They forecast that the islands will have to deal with an increase in extreme events; water scarcity; land biodiversity loss; marine biodiversity loss; sea level rise and travel cost increase from mitigation policy. The impacts of climate change to small island states make them extremely vulnerable, as they have a heavy reliance upon the ocean and coastal areas to attract tourists and rather a low adaptive capacity to respond to these changes. The convergence of these factors make tourism island destinations a suitable case for the focus of tourism research, which is why this research concentrates on tourism island destinations in the Indian Ocean.

To summarise, all geographic areas in the world will be affected by changes to the climate system. There will be implications for food and water supplies, ecosystems and human health and security, as these systems are interrelated they might exacerbate each other. Some geographic regions will see changes to the climate which could improve conditions for attracting tourism, such as the north of England, and as a result will be able to maximize the economic benefits that could be gained from higher surface temperatures, such as planting vines and attracting tourists. Some regions, particularly south Asia and Sub-Saharan Africa will bear the brunt of these changes, such as increased risk of flooding and drought respectively which are likely to result in mass migration. Figure 2.11 below provides a summary of the various predicted impacts on different geographical areas of the world. The tourism industry contributes to GHG emissions, so action needs to be taken to reduce these emissions. In addition, tourism industry professionals will need to understand the predicted impacts of climate change for their geographic location. The stakeholders of destinations will not only need to understand the predictions, but also to put in place policies and strategies that will address such issues to ensure that tourists will still travel in the future. The next section provides an overview of the actions that are being taken globally to respond to climate change.

Figure 2.11 Summary of major impacts of climatic change on key regions of the world.



This section identifies the convention process through which international actions on climate change are co-ordinated and differences in the responses of developed and developing world are established. A brief summary is provided of the Kyoto Protocol and the subsequent framework documents that have followed.

### **United Nations Framework Convention on Climate Change**

The United Nations Framework Convention on Climate Change (UNFCCC) is the foundation of global efforts to combat global warming. Its first meeting was in 1992 at the Rio Earth Summit and its ultimate objective is the "stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic [human-induced] interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner" (UNFCCC, 2006a:21).

The Convention sets out two significant guiding and precautionary principles. The first establishes that the lack of full scientific certainty should not be used as an excuse to postpone action when there is a threat of serious or irreversible damage. The second principle highlights that developing and developed countries have "common but differentiated responsibilities". This takes into recognition that the developing world has clearly pursued economic growth, resulting in additional greenhouse gases whereas many developing countries want economic growth which is likely to result in greater emissions in the short term. Placing the same limits on both the developed and developing areas would not be seen as equitable given the different stages different nations are at in the pursuit of economic growth. The following section outlines the Convention's principle in this matter.

#### **2.3.1 Differences in the responses of developed and developing countries**

The convention says that all countries will develop and submit "national communications" containing inventories of greenhouse gas emissions by source and greenhouse gas removals by "sinks". They will adopt national programmes for mitigating climate change and develop strategies for adapting to its impacts. They will also promote technology transfer and the sustainable management, conservation, and enhancement of greenhouse gas sinks and "reservoirs" (such as forests and

oceans). In addition, countries will take climate change into account in their relevant social, economic, and environmental policies; co-operate in scientific, technical, and educational matters; and promote education, public awareness, and the exchange of information related to climate change (IPCC, 2007d).

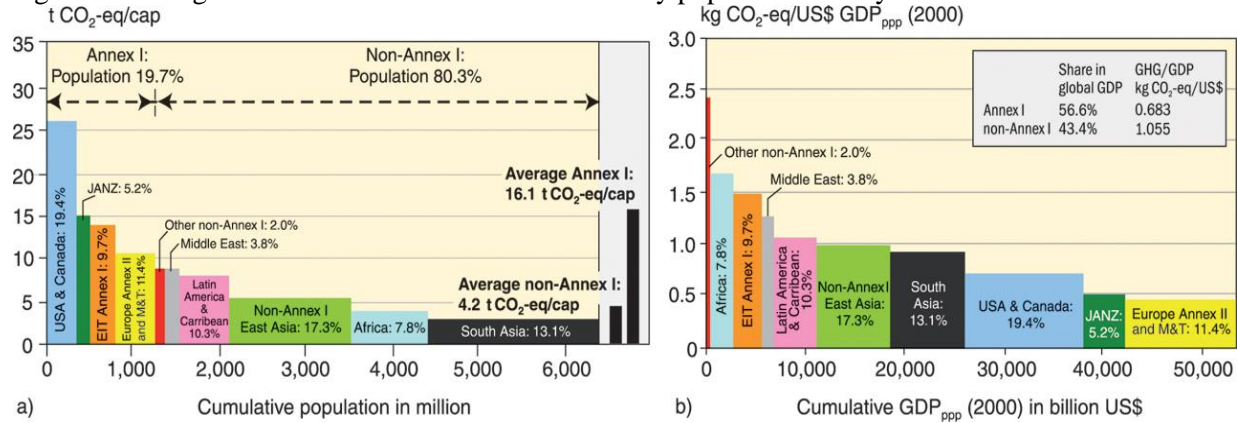
Industrialised countries undertake several specific commitments. Most members of the Organisation for Economic Cooperation and Development (OECD) plus the states of central and eastern Europe committed themselves to adopting policies and measures aimed at returning their greenhouse gas emissions to 1990 levels by the year 2000 (emissions targets for the post-2000 period are addressed by the Kyoto Protocol), these are known as Annex 1 parties. The countries in transition to a market economy are granted a certain degree of flexibility in implementing their commitments. Most developing countries are included as Non Annex 1 parties. A list of Annex 1 parties and Non Annex 1 parties is provided in Appendix 1. The richest countries shall provide "new and additional financial resources" (UNFCCC, 2006a) and facilitate technology transfer to support the developing countries. This is particularly pertinent as the majority of international tourism trips are generated from developed countries, often by air to developing countries.

### **Emissions and response of countries**

As it can be seen in Figure 2.12 there are significant differences in per capita income, per capita emissions and energy intensity among countries.



Figure 2.12 Regional distribution of GHG emissions by population and by GDP<sup>4</sup>.



Source: IPCC, 2007a:37

Emissions of greenhouse gases per capita in the USA and countries that are undergoing intense industrial development, such as China and India are significant. None of these countries has signed the Kyoto Protocol or made a commitment to reducing their greenhouse gas emissions (Appendix 1). In the next section the ongoing initiatives around the world will be examined.

### 2.3.2 The Kyoto Protocol

The Kyoto Protocol was produced in 1997, by the United Nations Framework Convention on Climate Change to strengthen the international response to climate change through the reduction of greenhouse gases. The Protocol was adopted by consensus at the third session of the Conference of the Parties (COP-3) in December 1997 and contains legally binding emissions targets for industrialised countries (these were ratified in 2004). By arresting and reversing the upward trend in greenhouse gas

<sup>4</sup> The United Nations Framework Convention on Climate Change (UNFCCC, 2010) divides countries into three main groups according to differing commitments:

Annex I Parties include the industrialized countries that were members of the OECD (Organisation for Economic Co-operation and Development) in 1992, plus countries with economies in transition (the EIT Parties), including the Russian Federation, the Baltic States, and several Central and Eastern European States.

Annex II Parties consist of the OECD members of Annex I, but not the EIT Parties. They are required to provide financial resources to enable developing countries to undertake emissions reduction activities under the Convention and to help them adapt to adverse effects of climate change. In addition, they have to "take all practicable steps" to promote the development and transfer of environmentally friendly technologies to EIT Parties and developing countries. Funding provided by Annex II Parties is channelled mostly through the Convention's financial mechanism.

Non-Annex I Parties are mostly developing countries. Certain groups of developing countries are recognized by the Convention as being especially vulnerable to the adverse impacts of climate change, including countries with low-lying coastal areas and those prone to desertification and drought. Others (such as countries that rely heavily on income from fossil fuel production and commerce) feel more vulnerable to the potential economic impacts of climate change response measures. The Convention emphasizes activities that promise to answer the special needs and concerns of these vulnerable countries, such as investment, insurance and technology transfer.

The 49 Parties classified as least developed countries (LDCs) by the United Nations are given special consideration under the Convention on account of their limited capacity to respond to climate change and adapt to its adverse effects. Parties are urged to take full account of the special situation of LDCs when considering funding and technology-transfer activities.

emissions that started in these countries 150 years ago, the Protocol promised to move the international community one step closer to achieving the Convention's ultimate objective of preventing "dangerous anthropogenic [manmade] interference with the climate system" (UNEP, 2002).

The developed countries had to reduce their collective emissions of six key greenhouse gases by at least 5 percent. This group target had to be achieved through cuts of 8 percent by Switzerland, most Central and East European states, and the European Union (the EU distributed different rates among its member states); 7 percent by the US; and 6 percent by Canada, Hungary, Japan and Poland. Russia, New Zealand, and Ukraine were expected to stabilise their emissions, while Norway could have increased emissions by up to 1 percent and Iceland 10 percent. The six gases are to be combined in a "basket", with reductions in individual gases translated into "CO<sub>2</sub> equivalents" that were then added up to produce a single figure. Each country's emissions targets have to be achieved by the period 2008 - 2012. They will be calculated as an average over five years. "Demonstrable progress" had to be made by 2005, with cuts in the three most important gases - carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O), measured against a base year of 1990. There were exceptions for some countries where economies were in transition (UNFCCC, 2011).

For the Protocol to come fully into force, the pact needed to be ratified by countries accounting for at least 55 percent of 1990 global carbon dioxide emissions. Countries like the US and Australia (at the time) were unwilling to join the pact as they considered it would be ruin their economies. The key to ratification came when Russia, which accounted for 17 percent of 1990 emissions, signed up to the agreement on 5th November 2004.

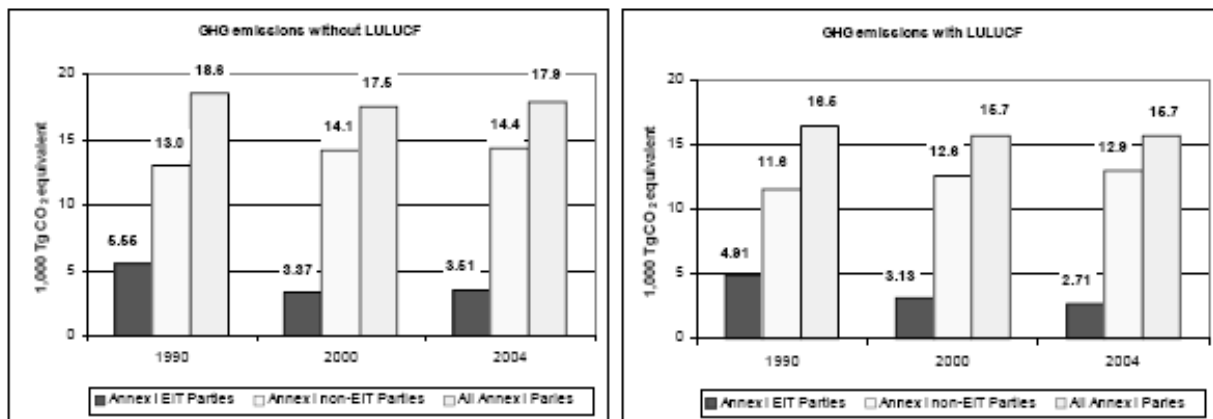
Once the agreement became binding, if any of the participating countries exceeds their proposed 2012 target, they will then have to make the promised reductions from the 2012 target and an additional 30 percent more in the next period. The EU and Japan have already promised to reduce to emissions by 8 percent from their respective 1990 levels. The EU has set up an Emissions Trading Scheme and identified the biggest polluters from industry, issuing each of them with a set quota for emissions of GHGs. If they exceed their quotas they have to purchase more quota and if they have spare quota they can sell it on. There are criticisms levelled at climate change levies (OECD, 2003, p42), questioning if they manage to achieve an appropriate level of

environmental performance (i.e. are the targets set at an appropriate level and are they achievable). Ekins and Etheridge (2005) state that fulfilment of the environmental performance required to meet the trading emissions quota has lower costs than other policy instruments.

There were countries who did not sign up to the Kyoto Protocol. The US, the world's largest greenhouse gas polluter, considered that signing up would ruin its economy. President George W Bush stated: *"I told the world I thought the Kyoto deal was a lousy deal for America. It meant that we had to cut emissions below 1990 levels which would have meant I would have presided over massive lay offs and economic destruction"* (BBC News 2007). A criticism of the Kyoto Protocol was that it imposed no obligations on developing countries to restrain the growth of their emissions and some of these countries have high emissions due to their stage of industrial development.

The reporting on the reduction of greenhouse gases for the Kyoto Protocol showed very mixed results (see Figure 2.13) with a decrease in emissions by more than 1 Percent by 19 countries; change in emissions within 1 percent by 5 countries and an increase in emissions by more than 1 percent by 17 countries (UNFCCC, 2006b). IPCC (2007a) figures suggest that to have a reasonable chance of avoiding 2°C, global emissions would need to peak and start to decline within about 15-20 years.

Figure 2.13: Interim result of the Kyoto Protocol



Note: For greenhouse gas (GHG) emissions with land use, land-use change and forestry (LULUCF), data for Estonia, Lithuania, Luxembourg, Poland, Slovenia, Switzerland and Turkey are not included because of the unavailability or incompleteness of some LULUCF data in the period 1990–2004.

Source: UNFCCC, 2006.

The time period covered by the Kyoto Protocol is due to end in 2012. At the G8 summit in Japan in 2008 the world leaders agreed to a 50 percent reduction in

greenhouse gas emissions by the year 2050. A summit was called in Copenhagen for the following year (2009) to develop a suitable framework for this ambitious target.

### **Copenhagen Accord**

A positive outcome of the Copenhagen summit was that both developed and developing countries were actively involved, in particular China, Brazil and the USA, which in the past had not recognised the issue of climate change. A number of developing countries (Venezuela, Bolivia, Ecuador and Cuba) were opposed to the Accord as they felt developing countries were being asked to do too much and gaining very little. The Copenhagen Accord was developed at the end of the conference, but this is not legally binding, the countries who signed the Accord agreed to take note of the following:

- A commitment "to reduce global emissions so as to hold the increase in global temperature below 2<sup>0</sup>C"
- Developed countries must make commitments to reduce greenhouse gas emissions, and developing countries must report their plans to curb greenhouse gas emissions to the United Nations
- New and additional resources "approaching \$30bn" will be channelled to poorer nations over the period 2010-12.
- A Copenhagen Green Climate Fund will be established under the UNFCCC to direct some of this money to climate-related projects in developing countries
- Projects to reduce greenhouse gas emissions in developing countries will be subject to international monitoring if they are internationally funded
- Progress of these goals will be reviewed in 2015, with the aim of trying to keep global temperature rise to less than 1.5<sup>0</sup>C in the future.

(UNFCCC, 2009)

### **Cancun conference**

In December 2010, the UN climate change talks took place in Cancun. This built on the Copenhagen Accord, but there was no legal standing to the outcome of the conference and no agreement on the level of emission cuts, which disappointed some nations. However, the key achievement was the establishment of the Green Climate Fund which aims to raise and disburse \$100bn (£64bn) each year by 2020 to protect poor nations against climate impacts and assist them with low-carbon development (BBC, 2011). Delegates recognised that the current emissions pledges set out in the Kyoto Protocol

needed to increase and additionally that developing countries needed to be paid not to cut down their forests for economic gain.

The UNFCCC has provided a framework that brings together world leaders, scientists and policy makers into a forum that has developed, in the initial instance, a legally binding Protocol with measurable targets for the reduction of greenhouse gas emissions. However, the Kyoto Protocol comes to an end in 2012 and the two recent global climate conferences have failed to gain agreement for a new legally binding Protocol. Although there is disappointment that the outcomes of the Copenhagen and Cancun conferences are not legally binding, there are some positive outcomes.

The next section examines the economics of climate change.

### **2.3.3 The economics of climate change**

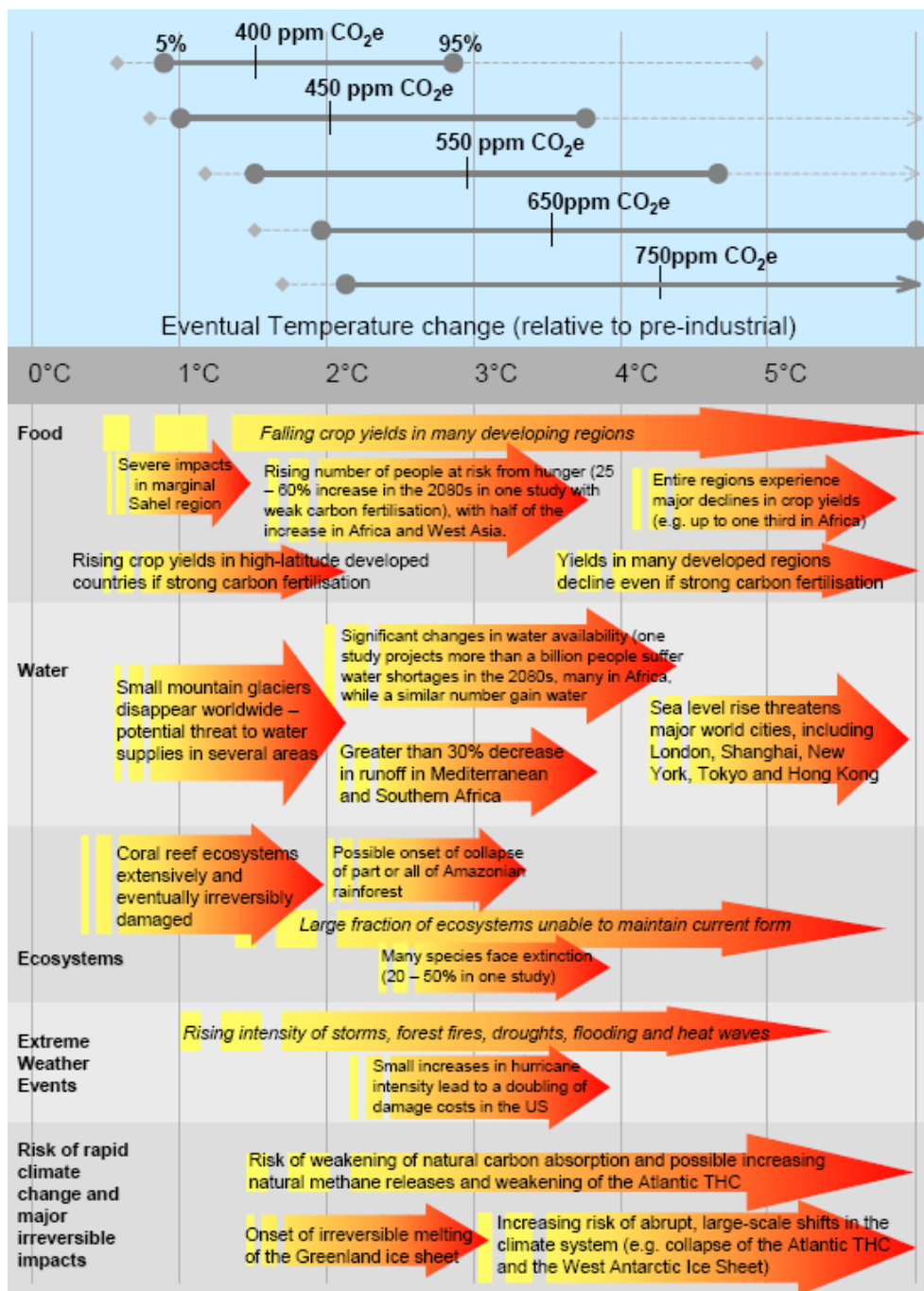
A large proportion of media coverage of climate change is focused upon the scientific and technical information and its implications. However, economists have also been researching the implications and predicting the costs and benefits of climate change with mitigation and adaptation. This is an extremely complex task as there are so many uncertainties associated with the different scenarios and the effect that climate change will have upon an economy will ultimately be dependent upon how well people adapt to the consequences. A report by Mendelsohn (1997) predicted that there will be some countries such as Russia and Canada that will gain in GDP (with a temperature rise of 2.5<sup>0</sup>C); whilst others will lose, such as Ethiopia, Mozambique and Nigeria. In 2001, William Nordhaus, known as the father of climate change economics, predicted a reduction in American GDP of 0.5 percent (Nordhaus, 2001). The key message to come from these two reports is that global economic output will fall; Mendelsohn suggests a slight reduction of 0.1 percent, whilst in the modelling developed by Nordhaus the drop predicted is 2 percent.

#### **Stern Report**

In October 2006, the most comprehensive report on the economics of climate change was published. Gordon Brown (the Chancellor of the Exchequer at the time), commissioned the report, which was written by Sir Nicholas Stern who was Head of Government Economics Service and the former World Bank Chief Economist. Although the report was commissioned by the UK government it was the most

comprehensive piece of research on the economics of climate change and so has important international standing. The report was very significant as in the previous two decades it had been the science of climate change that had made the headlines whereas this report focused on the economics of climate change and the costs that would be accrued if governments put off addressing the issue. Figure 2.14 summarises the predicted effects of climate change within the stabilisation levels of greenhouse gases; these link directly into the IPCC's scenarios.

Figure 2.14 Stabilisation levels and probability ranges for temperature increases



Source: Stern Review 2006

The Review suggests that climate change presents a unique challenge for economics, as it has the potential to have enormous ramifications and significantly reduce the gross national product (GNP). Importantly the scope of the Review took an international perspective as the causes and consequences of climate change are global in nature, so the findings and recommendations of the report are relevant for all countries.

The key conclusion of the report was that responding to global warming would be an extremely costly exercise (if stabilisation of greenhouse gases can be kept to 500 – 550ppm). Increases in CO<sub>2</sub> could reduce around 1 percent of the annual global GDP by 2050 (see Figure 2.2). Stern recognises that these costs are considerable, but this would still enable growth and development to occur. He highlights that unabated climate change would eventually pose significant threats to growth, anything from five to twenty times more costly (Stern, 2006). The conclusions of the report are particularly pertinent as they compromise the key argument of the US government, which is that they will not take any formal action to reduce their greenhouse gas emissions as it would adversely affect the US economy. The US government has not issued a statement responding to the publication of the Stern Review. Some economists questioned the British study's projections, saying they overestimated the impact of global warming on the world's economies, especially those of developed nations. At the same time, these critics said the report's assertion that it would cost only 1 percent annually of global GDP to curb climate change underestimated how much spending would be required (Mendelsohn, 2006).

The Stern Review states that not acting now will be a much more expensive option. The report also identifies very clear time periods for mitigation actions to start, before irrevocable damage will occur. It clearly establishes that what happens in the next 10 to 20 years will have profound effects on climate change in the second half of this century (Stern, 2006).

Whilst the Stern Review has not added to the scientific understanding of global warming and climate change, it has provided some room for optimism. If Governments, businesses and individuals begin to take appropriate mitigation action now, then the problem can be addressed. Taking earlier action is the least expensive and will provide a pro growth strategy in the long term. The next section examines climate change mitigation and adaptation.

There are two basic responses that can be taken to respond to climate change. The greenhouse gas levels in the atmosphere can be reduced, this is termed mitigation. In addition, or alternatively, changes can be made to adapt to the impacts of climate change, which is termed adaptation; both approaches are examined below.

The climate is already changing and the world has to adapt to the inevitable effects. “The ultimate objective .....is to achieve..... stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner” (UNFCCC, 2009:37). Global CO<sub>2</sub> emissions must be reduced and stabilised so that climate change can be limited to manageable levels. The Stern Review suggests that action needs to take place within the next two decades, to prevent irreversible climate change. The UNFCCC recommends that two broad responses are required, firstly to mitigate levels of greenhouse gases that exacerbate global warming and secondly, to adapt to the effects of climate change. The former means moving to low carbon energy increasing the use of renewable and other non-fossil fuel based energy and reducing demand and improving energy efficiency. The latest IPCC report (2007c) suggests there is high confidence that neither adaptation nor mitigation alone can avoid all climate change impacts. A combination of adaptation and mitigation can complement each other to provide a more effective response to climate change.

#### **2.4.1 Mitigation**

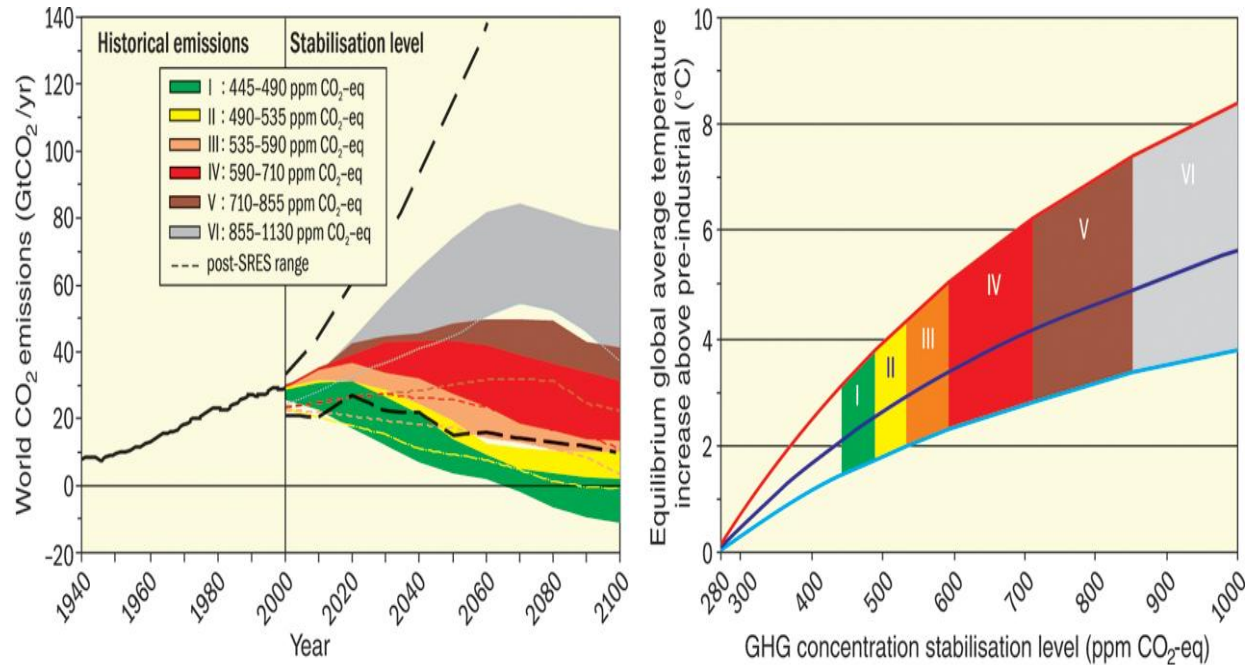
Unmitigated climate change would in the long term be likely to exceed the capacity of natural, managed and human systems to adapt (IPCC 2007a). Anthropogenic concentrations of GHGs need to be stabilised, then the rate at which the global temperature increases will slow down. Small increases in average global temperature could be expected for many centuries to come and sea level rises will continue due to thermal expansion of the oceans, but the rate will reduce over time.

Delay in addressing the reduction of greenhouse gases will erode effective opportunities to reach lower stabilisation levels and this in turn would result in the need for greater and more expensive adaptation. The IPCC (2007a) states that in order to



stabilise the concentration of greenhouse gases in the atmosphere, emissions would need to peak and decline thereafter. The lower and quicker the level of stabilisation is reached the better, as can be seen in Figure 2.15.

Figure 2.15 CO<sub>2</sub> emissions and equilibrium temperature increases for a range of stabilisation levels.



Global CO<sub>2</sub> emissions for 1940 to 2000 and emissions ranges for categories of stabilisation scenarios from 2000 to 2100 (left-hand panel); and the corresponding relationship between the stabilisation target and the likely equilibrium global average temperature increase above pre-industrial (right-hand panel). Approaching equilibrium can take several centuries, especially for scenarios with higher levels of stabilisation. Coloured shadings show stabilisation scenarios grouped according to different targets (stabilisation category I to VI). The right-hand panel shows ranges of global average temperature change above pre-industrial, using (i) 'best estimate' climate sensitivity of 3°C (black line in middle of shaded area), (ii) upper bound of likely range of climate sensitivity of 4.5°C (red line at top of shaded area) (iii) lower bound of likely range of climate sensitivity of 2°C (blue line at bottom of shaded area). Black dashed lines in the left panel give the emissions range of recent baseline scenarios published since the SRES (2000). Emissions ranges of the stabilisation scenarios comprise CO<sub>2</sub>-only and multigas scenarios and correspond to the 10<sup>th</sup> to 90<sup>th</sup> Percentile of the full scenario distribution. Note: CO<sub>2</sub> emissions in most models do not include emissions from decay of above ground biomass that remains after logging and deforestation, and from peat fires and drained peat soils.

Source: IPCC (2007a)

Mitigation efforts to reduce the GHG concentration levels in the atmosphere over the next two to three decades will have a large impact upon opportunities to achieve lower stabilisation levels, which is illustrated in Table 2.2.

Table 2.2 Characteristics of stabilisation scenarios and resulting long term equilibrium global average temperature and the sea level rise component from thermal expansion.

Category	CO <sub>2</sub> concentration at stabilisation (2005 = 379 ppm) <sup>b</sup>	CO <sub>2</sub> -equivalent concentration at stabilisation including GHGs and aerosols (2005 = 375 ppm) <sup>b</sup>	Peaking year for CO <sub>2</sub> emissions <sup>a,c</sup>	Change in global CO <sub>2</sub> emissions in 2050 (Percent of 2000 emissions) <sup>a,c</sup>	Global average temperature increase above pre-industrial at equilibrium, using 'best estimate' climate sensitivity <sup>d,e</sup>	Global average sea level rise above pre-industrial at equilibrium from thermal expansion only <sup>f</sup>	Number of assessed scenarios
	ppm	ppm	year	Percent	°C	metres	
I	350 – 400	445 – 490	2000 – 2015	-85 to -50	2.0 – 2.4	0.4 – 1.4	6
II	400 – 440	490 – 535	2000 – 2020	-60 to -30	2.4 – 2.8	0.5 – 1.7	18
III	440 – 485	535 – 590	2010 – 2030	-30 to +5	2.8 – 3.2	0.6 – 1.9	21
IV	485 – 570	590 – 710	2020 – 2060	+10 to +60	3.2 – 4.0	0.6 – 2.4	118
V	570 – 660	710 – 855	2050 – 2080	+25 to +85	4.0 – 4.9	0.8 – 2.9	9
VI	660 – 790	855 – 1130	2060 – 2090	+90 to +140	4.9 – 6.1	1.0 – 3.7	5

Notes:

- a) The emission reductions to meet a particular stabilisation level reported in the mitigation studies assessed here might be underestimated due to missing carbon cycle.
- b) Atmospheric CO<sub>2</sub> concentrations were 379ppm in 2005. The best estimate of total CO<sub>2</sub>-eq concentration in 2005 for all long-lived GHGs is about 455ppm, while the corresponding value including the net effect of all anthropogenic forcing agents is 375ppm CO<sub>2</sub>-eq.
- c) Ranges correspond to the 15th to 85th Per centile of the post-TAR scenario distribution. CO<sub>2</sub> emissions are shown so multi-gas scenarios can be compared with CO<sub>2</sub>-only scenarios.
- d) The best estimate of climate sensitivity is 3°C.
- e) Note that global average temperature at equilibrium is different from expected global average temperature at the time of stabilisation of GHG concentrations due to the inertia of the climate system. For the majority of scenarios assessed, stabilisation of GHG concentrations occurs between 2100 and 2150.
- f) Equilibrium sea level rise is for the contribution from ocean thermal expansion only and does not reach equilibrium for at least many centuries. These values have been estimated using relatively simple climate models (one low-resolution AOGCM and several EMICs based on the best estimate of 3°C climate sensitivity) and do not include contributions from melting ice sheets, glaciers and ice caps. Long-term thermal expansion is projected to result in 0.2 to 0.6m per degree Celsius of global average warming above pre-industrial. (AOGCM refers to Atmosphere-Ocean General Circulation Model and EMICs to Earth System Models of Intermediate Complexity).

Source: IPCC (2007a)

The Copenhagen Accord pledges that emissions will be kept below 2°C, so concentrations of CO<sub>2</sub> would need to be kept below 350 – 400ppm, which the IPCC (2007c) does not consider is achievable as feedbacks from the carbon cycle have not been built into the modelling for the production of these scenarios.

## **Carbon footprints**

One way of addressing green house gas emissions is through the use of a ‘carbon footprint’, which measures the total greenhouse gas emissions caused directly and indirectly by a person, organisation, event or product (Carbon Trust, 2011). Carbon footprints consider all six of the Kyoto Protocol greenhouse gases: Carbon dioxide (CO<sub>2</sub>), Methane (CH<sub>4</sub>), Nitrous oxide (N<sub>2</sub>O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Sulphur hexafluoride (SF<sub>6</sub>). These are combined to provide an equivalent measurement in tonnes of carbon dioxide. This then enables individuals, organisations and countries to gain an understanding of how their activities are contributing to greenhouse gas emissions and thus take mitigation actions to reduce their carbon footprint.

## **Alternative energy sources**

There is high confidence by IPCC (2007a) and lots of evidence that the stabilisation levels required and included in the scenarios in Figure 2.16 and Table 2.2 can be achieved through the deployment of new technologies and renewable energies. There are many alternative energy sources to fossil fuels available, such as hydroelectricity, nuclear power, tide; winds, waves, sunshine and growing energy crops. All of these alternatives have a wide range of impacts on the environment and need careful consideration before they are utilised. In the UK, two large scale non-carbon energy sources are already used to produce electricity; hydro power and nuclear power. The Royal Commission on Environmental Pollution (2000, p10) states that there is only limited potential for further large scale hydro schemes in the UK and says of nuclear power ‘We do not believe public opinion will permit the construction of new nuclear power stations unless they are part of a strategy which delivers radical improvements in energy efficiency and an equal opportunity for the deployment of other alternatives to fossil fuels which can compete in terms of cost and reduced environmental impacts’.

Controversially, the UK government seems to have had a change of direction as in the UK Energy Review it states (DTI, 2006, p162) ‘The Government believes that nuclear has a role to play in the future UK generating mix alongside other low carbon generating options. Evidence gathered during the Energy Review consultation supports this view.’ The situation of the UK is used in this section due to the familiarity of the reader. The UK has the largest potential for wind, wave and tidal energy in Europe, but currently generates only 3 percent of electricity from renewable sources (DTI, 2004), which lags behind other European countries such as Austria – 59 percent; Sweden – 43

Chapter Two

percent; Portugal – 42 percent; and Spain – 26 percent (Europa, 2006). Lord Oxborough from Shell highlighted one of the key difficulties: *“The problem is that for more than a hundred years the developed countries have been evolving against a background of low fossil fuel process – this means that for most of us, and for most of industry, fuel efficiency and fuel economy have had a pretty low priority”* (Anon, 2005, pii)

### **Cost of Mitigation**

How much mitigation will cost depends on how much energy usage can be reduced through low cost energy efficiency measures. The UK government considers this to be the safest and most cost-effective way to reduce energy demand. To this end, the Government has put in place the Climate Change Programme, (DEFRA, 2006) to drive an increase in energy efficiency across all sectors of the economy. The Climate Change Programme (launched in March 2006) sets out how energy efficiency will save 10.2 million tonnes of carbon (MtC) per year by 2010. These savings will be split between the business sector (5.1MtC); the household sector (4.8MtC); and the public sector (0.3MtC). In April 2006, Environment Secretary Margaret Beckett announced that the UK is unlikely to meet its target of reducing CO<sub>2</sub> emissions by 20 percent by 2010. Instead the expected cut will be more in the region of 15 – 18 percent, which still exceeds the 12.5 percent reduction that was the target in the Kyoto Protocol (BBC News 2006a). The UK government enshrined the reduction of GHG emissions in law in the Climate Change Act 2008, which was a radical move and not one adopted by many other countries. The act sets out ambitious targets for the UK to reduce emissions by at least 34 percent by 2020, and 80 percent by 2050, against 1990 levels. To hit those targets, the government's independent climate watchdog, the Committee on Climate Change, has set three "carbon budgets", for the periods 2008-2012, 2013-2017 and 2018-2022 (Guardian, 2011). The cost of renewable technologies needs to be considered; as experience grows in the manufacturing of renewable energies the price should fall, but the rate of product innovation and diffusion is hard to estimate.

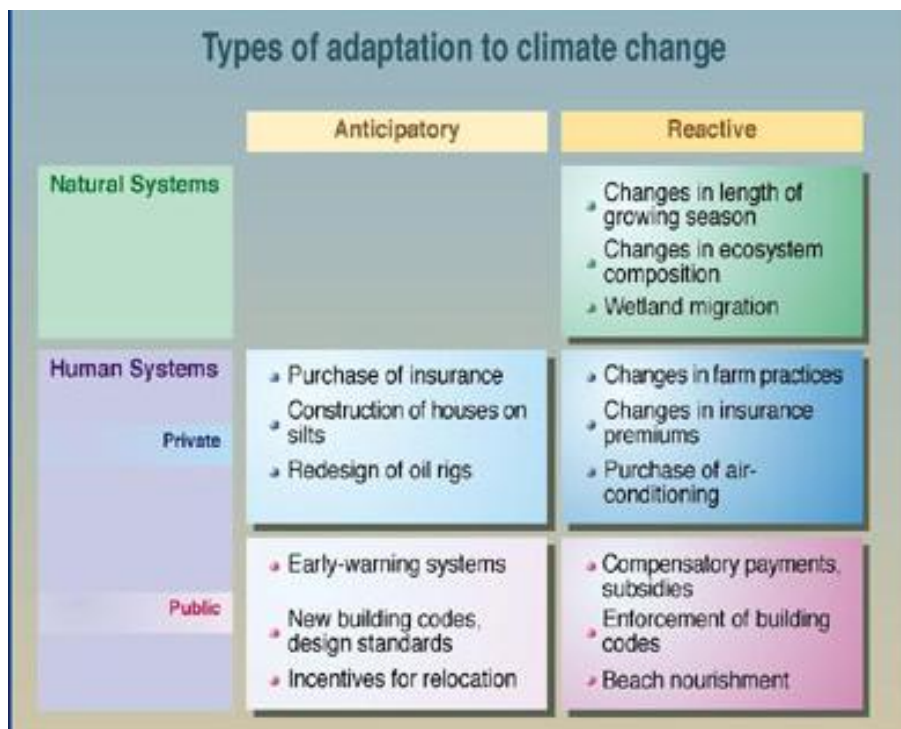
The final factor that needs consideration when calculating the cost of mitigation is how much progress will be made in reducing the amount of greenhouse gases in the atmosphere and over what period of time. Scientists and environmentalists state that imminent action is required, whilst economists consider the issue not to be as urgent as CO<sub>2</sub>, which stays in the atmosphere for up to 200 years. Some economists but not Stern advocate a process of gradual renewal of plant and equipment when products get to the end of their natural life cycle (Richels, 2004).

## 2.4.2 Adaptation

The previous section demonstrates that a great deal of the international debate tends to focus around mitigation of greenhouse gases. However, the predictions suggest that even if atmospheric greenhouse gas concentrations are stabilised immediately, we could still experience a changing climate and sea level rises for more than 1,000 years into the future due to past emissions (Met Office, 2002); so some adaptation to climate change must be planned. The IPCC (2007a) defines adaptation as having three possible objectives: to reduce exposure to the risk of damage; to develop the capacity to cope with unavoidable changes; and to take advantage of new opportunities. The IPCC observes that investment and planning decisions taken today should consider climate change, so that adaptation can be achieved at no or low costs to future generations (UNEP, 2003).

The Third IPCC Assessment Reports (2001) produced Figure 2.16 which demonstrates the types of adaptation that will be necessary for natural and social systems.

Figure 2.16: Types and examples of adaptation to climate change



Source: IPCC, 2001c:885

The IPCC (2001) classifies adaptation into either reactive or anticipatory, depending on the timing, goal and motive of its implementation. Reactive adaptation occurs after the

initial impacts of climate change become evident, such as increases to sea water levels causing encroachment of roads, so improvements to sea wall defences become necessary. Anticipatory adaptation occurs before the impacts are obvious. For example, hoteliers purchasing insurance cover to protect them against damage to buildings caused by increased storm intensity. Adaptation in a natural system is reactive by nature, while in a human system it can be both reactive as well as anticipatory. Recognition is given within the Third IPCC Assessment Report (2001) that both public and private sector organisations will need to take appropriate actions to adapt to climate change.

The ability of human systems to adapt to and cope with climate change depends on such factors as wealth, technology, education, information, skills, infrastructure, access to resources, and management capabilities. Those countries with the least resources have the least capacity to adapt. They tend to be developing countries, often with a high reliance upon tourism for economic development, such as Vietnam, the west coast of Africa, the Maldives, Polynesia and the Caribbean.

Populations and communities are highly variable in their endowments with these attributes, and the developing countries, particularly the least developed countries, are generally poorest in this regard. As a result, they have lesser capacity to adapt and are more vulnerable to climate change impacts, just as they are more vulnerable to other stresses (UNEP, 2002). This has already been seen in a number of events that have been linked to climate change such as the torrential 2005 monsoon rains in Mumbai that left over 1,000 people dead and thousands ill with water borne infections and an administration failing in its response to the crisis (BBC news 31<sup>st</sup> July, 2005).

The Royal Commission on Environmental Pollution (2010) produced a report for the UK government, 'Adapting Institutions to Climate Change', which identified a number of key challenges that institutions face when adapting to climate change: uncertainty, complexity, path dependency and equity and efficiency. The issue of uncertainty encompasses the unpredictability of human and social systems and the models around climate change. Complexity refers not only to the problem of climate change, but also to the complex institutional arrangements within which organisations operate. Path dependency is an over reliance upon the way that things have been done in the past and might make it difficult to respond in new ways. Finally, there was recognition of the importance of involving different stakeholder groups to ensure that issues of equity and efficiency were taken into account as the effects of climate change are not evenly distributed.

### **2.4.3 Factors contributing to limited progress on adaptation and mitigation.**

Developing this theme further, the section below identifies the key barriers to climate change mitigation and adaptation.

#### **The role and status of national governments**

Climate change is a global issue and therefore the response must be at a global level. National governments tend to focus on the demands of the national electorate to influence their chance of being re-elected. This may result in a short term outlook by governments, as they focus upon policies more suited to short election cycles whereas climate change is a long term problem.

#### **Failure to value the future**

There seems to be a dichotomy in that the governments of developed economies tend to focus on increasing their dominance as global players in both political and economic systems whilst those in the developing world are concerned about fulfilling their populations' basic needs of food, water and shelter. The irony is that the developed world use a higher proportion of the world's resources. A clear illustration of this is the US; with less than 5 percent of the population, the US consumes about 25 percent of the world's energy resources (US Energy Information Administration). This results in the key players being preoccupied with the here and now, but for very different reasons; developing countries are concerned about basic needs such as food, shelter and basic resources, whilst at the other extreme citizens of developed countries often focus on improving their lifestyles which is often linked to increased consumption.

#### **The state of science**

As can be seen in early sections of this Chapter a sizeable body of scientific consensus has emerged supporting the need for serious action to address global climate change. A considerable amount of research is just emerging due to recognition of the problem being relatively recent and much of the data needs to be collected in longitudinal studies. Some of the early research casts doubt on basic assertions held about climate change; whilst there is still debate about the basis of the science, generally this tends to focus upon the uncertainties rather than the certainties. Whilst the IPCC (2007a) states that there is unequivocal evidence that the

climate is changing, remaining uncertainties make it difficult for policy makers to take strong and effective action as the focus tends to be on the underpinning science (Reich *et al* 2006).








### **National sovereignty**

As climate change is a global issue, strategies for mitigation need to be both national and international. The European Union is a good example of this as although the individual member states enjoy economic benefits from the union they are resistant to releasing national sovereignty on certain policy issues, such as EU wide energy product tax (Gummer and Moreland, 2000). A number of countries do not seem to want to take international action as it reduces their autonomy within their own borders. For example, Brazil states it is up to them not the rest of the world to decide the extent to which greenhouse gas absorbing rainforests are preserved.

This section has provided an overview of the mitigation and adaptation options available to governments to address climate change. The targets set out are considered necessary to quickly stabilise atmospheric concentrations of GHGs at levels which limit the average global temperature rise to 2°C. However, there is no legally binding agreement for countries to set out GHG emission reduction targets to achieve these targets. Adaptation can be anticipatory or reactive in both natural and human systems and undertaken by both public and private sector stakeholders. There are a range of different adaptation and mitigation measures available dependent upon how the causes and impacts of climate change manifest within different countries, for example, sea defences or changes can be made to the design of buildings. The adoption of adaptation and mitigation measures appears to be relatively slow due to factors such as economic, technological and political limitations. Table 2.3 pulls together the key factors within this Chapter to provide a summary of the key effects of climate change in the world, international actions and barriers to action. The penultimate part of this Chapter introduces the connections between climate and tourism and reviews the development of the tourism and climate change literature.



Table 2.3 key effects of climate change in the world, international actions and barriers to action

Continent	Major impacts of climate change	International actions	Barriers to progress
	Decreases in annual rainfall in parts of north Africa and northern Sahara and in winter rainfall for south west Africa. Droughts will become more frequent and intense.	<ul style="list-style-type: none"> <li>• UNFCCC established</li> </ul>	
	Warming will be above the global average in central Asia. Longer, more intense heat waves in east Asia. More winter rainfall in northern and eastern Asia. In southern Asia the intensity of rainfall will increase.	<ul style="list-style-type: none"> <li>• IPCC established and have produced 4 major reports</li> </ul>	
	Temperatures will continue to increase causing further ice sheets to melt and raise sea levels by between 5-12 metres.	<ul style="list-style-type: none"> <li>• 196 countries have ratified the Kyoto Protocol.</li> </ul>	<ul style="list-style-type: none"> <li>• National governments focus on short term problems</li> </ul>
	Some islands in the Pacific Ocean will become totally submerged. Southern Australia will have frequent draughts. Daily temperatures will increase and there will be less cold extremes. New Zealand will have more rain.	<ul style="list-style-type: none"> <li>• USA and Australia have signed but not ratified the Kyoto Protocol.</li> </ul>	<ul style="list-style-type: none"> <li>• Current generation do not understand or adopt the sustainable development principle.</li> </ul>
	Most parts of southern America will experience greater warming, than the global average. Rainfall will decrease in southern America, but increase in eastern America	<ul style="list-style-type: none"> <li>• EU Emissions Trading Scheme, came into operation in 2005.</li> </ul>	<ul style="list-style-type: none"> <li>• Limitations of scientific research and scientific modeling.</li> </ul>
	In north America there will be above average temperature increases. More rain in northern territories. More extreme weather events.	<ul style="list-style-type: none"> <li>• Canada and Japan establish their own emissions trading scheme in 2008.</li> </ul>	<ul style="list-style-type: none"> <li>• Addressing climate change requires a comprehensive global participation whereas some countries prioritise national sovereignty.</li> </ul>
	In Europe there will be above average temperature increases. More rainfall in northern Europe and less in the south.	<ul style="list-style-type: none"> <li>• Stern Report 2006 provided an economic assessment of the cost of adaptation and mitigation to climate change.</li> <li>• Cancun 2010, develops the Green Climate fund that transfers money from developed to developing countries.</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of responsibility at both industry and consumer level</li> </ul>

Source: Researcher

Tourism has an integral reliance upon the climate; the climate is frequently the reason why tourists travel between a generating and destination region, an interrelationship to be explored in detail within Chapter Three. The climate is an essential resource exploited by the tourism industry, to draw tourists to a particular resort. It can be seen in the preceding section, significant climate changes are occurring and the tourism industry will need to respond to these changes at an international, national and local level, which may result in the modification of operations. Some of the solutions may require radical thinking. In Table 2.4 below, the Researcher briefly identifies the links between the impacts of climate change and the tourism industry.

Table 2.4 Illustration of climatic changes and the implications for tourism

Climatic changes	Implications for tourism
<b>Temperature</b>	Changes in temperature may change the tourism flows in the world. Increases of temperature may change the destination preferences of tourists; for example, people in the north of Europe may not feel the need to travel to the Mediterranean Basin to seek out the sun.
<b>Sea Levels</b>	Increases in sea levels may totally submerge some tourism destinations such as some of the Maldives and some Pacific islands. It will also provide flood risks for many popular tourist destinations and possibly destroy cultural artefacts that tourists travel to view, for example parts of Venice.
<b>Snow and Glaciers</b>	Destinations for snow tourism are likely to change due to there not being enough snow in traditional winter sports areas such as the Alps. Glacier retreat will reduce tourism generated around glacier observation in regions such as Peru, Ecuador and Bolivia. Increases in runoff might also contaminate fresh water supplies in tourist destinations.
<b>Precipitation</b>	The tourism industry is heavily reliant upon fresh water supplies. Decrease in precipitation in certain areas will mean there are less fresh water supplies available. This will be a particular problem for parts of Africa. Egypt already has to import water from Jordan to support its tourism industry.

Source: Researcher

The tourism industry is already experiencing some impacts as a result of changes to the climate system. Whilst these impacts will be examined in greater depth in Chapter Three, it is important to establish that the implications for the tourism industry are significant. The earlier sections of this Chapter have demonstrated that the science of climate change is complex both in terms of the evidence, projections and uniqueness to different geographic locations. The IPCC 4AR states “Warming of the climate system in unequivocal” (IPCC, 2007a:30) yet tourism academics have been slow to

recognise climate change and its impacts on the tourism industry. The next section provides an outline of the emergence of the tourism and climate change literature.

### **2.5.1 Emergence of tourism and climate change literature**

Literature on climate change and tourism seems to have lagged behind that of scientific articles upon climate change. Scott *et al* (2005) identify four distinct stages of the evolution of this body of literature. The formative phase took place during the period 1960-79 when the majority of these papers were produced by climatologists who applied their particular research focus, such as increases in precipitation, to different sectors including tourism and recreation. The journal articles and government reports tended to fall into two groups, focusing on either the influence of weather in local tourism activity, or the interaction between climate and tourism on a global level, which was predominately used to assess the suitability of tourism destinations. During this phase the research into climatic conditions did not recognise the issues of climate change as the climate was viewed as a static resource and global warming was not a dominant issue. Masterton (1980) suggested three key reasons for the lack of detailed studies into the relationship between tourism and climate change. Firstly, a lack of understanding of the dependence between tourism and climate change. Secondly, the complexity of the study of climate issues and thirdly, that detailed climatic data was not very easily available. Later critiques by de Freitas (1990) and Abegg *et al* (1998) identified that the limitation and availability of tourism data was also a barrier to more comprehensive research. As a result it is evident that the research conducted during the formative phase tended to be conducted by non-tourism specialists and tended to focus upon the climatic issue with an outsider's view of the implications for tourism.

The second phase was classified as the period of stagnation during the 1980s. Scott (2005) reports, that the climate scientists changed their research fields to pursue more lucrative funding sources and Researchers did not continue their research or produce publications in the tourism field, as it was not perceived as being a serious area of study. Also the concept of global warming was at an embryonic stage so application to particular industry sectors was yet to emerge. This pattern was mirrored in popular media articles based upon air pollution issues, such as acid rain and ozone depletion. Industry examination thus tended to be concerned with industries that caused high levels of atmospheric pollution, such as coal-fuelled power stations and steel production, and not tourism, which was viewed as a clean industry.

The third phase (Scott, 2005), was the emergence of Climate Change as a mainstream subject during the 1990s, evidenced by an increase in media stories on climate change. This coincides with the publication of the first report from the Intergovernmental Panel on Climate Change (1990) which did not consider the tourism industry. Wall (1998) observes that the report was a synthesis of existing knowledge within the field, which reflects the paucity of research during the stagnation phase. Scott *et al* (2005) concur and state that only five journal articles were written on climate and tourism and recreation during this period. Recognising the gap, Wall and Badke (1994) conducted research with National Tourism Organisations and National Meteorological Organisations examining tourism and climate change. They found there was very little understanding of the consequences of climate change within the National Tourism Organisations (NTOs) and limited consideration of the tourism industry by National Meteorological Organisations. Scott, Wall and McBoyle (2005) suggest that this research was seminal and provided a baseline regarding international concern and awareness of the implications of climate change for the tourism industry.

In the early 1990s a number of papers were developed that began to bring the issue of climate change and tourism into a more mainstream discussion. Smith (1990), Ewert (1991), Wall (1992) and Guoyu (1996) all began to examine the implications of global warming for the tourism sector. Wall and Badke (1994) were rather dismissive of these papers and refer to them as ‘somewhat speculative overviews’ that while useful in raising a general awareness of the issues needed to be followed up with appropriate research using suitable methodologies. Whilst acknowledging these papers could be viewed as taking a fairly superficial look at the relationships between climate change and tourism, the papers were published at a stage when the scientific community was only just developing reports that most non scientists could understand. The contribution of Smith (1990), Ewert (1991), Wall (1992) and Guoyu (1996) remains at a time when a reductionist approach was taken to the science of climate change. Forecasts tended to be based on continents rather than specific countries or indeed regions, which limited the effective integration into the tourism literature and as a result the content appeared superficial.

Wall (1998) conducted a review of the IPCC Second Assessment Report (1994) and found that it contained a more detailed focus upon tourism in different environments

such as mountains, oceans and coasts, small islands and aquatic ecosystems. The ski sector within tourism was given a lot of coverage, maybe because the impacts were fairly visible even in the late 1990s. The IPCC Report forecast that the US ski industry would lose US\$1.7 billion annually (IPCC, 1994), although this was later disputed (Scott *et al*, 2005).

During this stage tourism in small island states and coastal areas were identified as particularly vulnerable areas, especially those in developing countries where there is a high reliance upon tourism for economic development. Changes in aquatic ecosystems were also highlighted as being a key foundation of the tourism industry and changes in these delicate ecosystems could mean a significant reduction in marine populations with resulting ramifications for the associated recreational activities that occur.

Abegg *et al* (1998) produced a critique of tourism literature and climate change that supported the observations of Wall and Badke (1994) that research about tourism and climate change concentrated upon the impact of decreased snow cover and sea level rises, but did not move beyond a superficial analysis to provide a comprehensive coverage of the implications for the tourism industry. Abegg *et al* (1998) identified three key limitations in the methodological approaches of the literature up to this point. Firstly, at that time there were limited reliable climate scenarios on which to base research. Scott *et al* (2005) and Wall (1993) disagree with this and question the cognitive abilities of tourism Researchers to understand the complexities and sensitivities of climate scenarios. The second criticism is that the tourism sector is viewed as static and (as it will be seen in Chapter Three) the demand for tourism is very dynamic, with increased tourist arrivals and high expectations and requirements from tourists. This criticism was not isolated to within the tourism industry, but was also targeted at many other sectors in the economy. Whilst the IPCC reports (1990, 1994, 2001 and 2007) do provide a series of scenarios, the problem occurs when various sectors have to develop the unique consequences for a specific industry and / or geographic region. A number of academics have identified that more effective methodologies need to be developed to incorporate the socio-economic changes in future assessment (Berkhout and Hertin, 2000 and Lorenzoni *et al.*, 2000). The later Stern Review 2006 (section 2.4.3), is an example of how this could be addressed. The last criticism Abegg *et al* (1998) identified was the lack of consideration given to adaptation. This flows from the previous two points, as the tourism industry needs to

have an understanding of the risks of climate change, but also of the opportunities that will be created. The consequences will be great and both tour operators and travel agents on the supply side will need to develop new products, whilst on the demand side tourists are likely to have to reconsider their destinations, modal choice, patterns of holidays and recreational activities.

Scott's final phase of the development of the tourism climate change literature has been classified at the maturation stage (2000 – present). During this period, Scott *et al* (2005, p54) observe that the number of journal articles and conference papers has increased significantly. However, an area for concern was the subject areas of the journals in which the articles were published. They highlighted that of the majority of papers included in their analysis 40 percent, appeared in climatic-meteorological journals, 42 percent in geography and environmental journals and only 18 percent in tourism and recreation journals.

During the maturation phase the IPCC produced the Fourth Assessment Reports (2007), and the Copenhagen conference (Dec 2009) and Cancun conference (Dec 2010) were both trying to find a way forward from the Kyoto Protocol. The Copenhagen conference did not manage to gain agreement and, as discussed in section 2.5.3, the Copenhagen Accord is rather a weak framework and not legally binding. Scott and Becken (2010:291) comment, "It has become increasingly clear that organisations such as the UNWTO, WTTC, ICAO and IATO are firmly anchored in a neo-liberal view of the world, where on-going economic growth is paramount and largely without physical limits". The unqualified pursuit of continual economic growth is increasingly being questioned (Lloyd 2007). Emphasis on economic growth is thought to be a reason for the failure of the talks in Copenhagen and Cancun and this also highlights the disparities and responsibilities between the developed and developing world, the later often using tourism as a vector for growth (a subject returned to in section 3.3). Table 2.5 below provides a summary of the key stages of the emergence of tourism and climate change literature.

Table 2.5 Scott's stages (2005) of the emergence of tourism and climate change literature

Stage and time period	Characteristic
<b>Formative stage 1960-79</b>	Climatologists produce academic papers that make application to various industry sectors including tourism.
<b>Stagnation stage 1980-89</b>	Limited research conducted, few academic papers produced as climatologists follow funding opportunities that did not include the tourism field.
<b>Emergence of climate change 1990 - 1999</b>	Publication of the First Intergovernmental Panel on Climate Change. Tourism academics slowly begin to conduct research into tourism and climate change.
<b>Maturation stage 2000 - present</b>	Journal articles are published in the area of tourism and climate change but predominantly in the areas of climatic-meteorological, geography, and environmental journals.

Source: Researcher

The issues of tourism and climate change provide a complex field for tourism academics to study. They require an understanding of natural and social science, so relevant research is multidisciplinary in nature. The very nature of climate change has many uncertainties that relate to questions about magnitude, frequency and other features of climatic systems and processes. The literature regarding the sensitivity of tourism systems to the effects of climate change is a relatively new discipline and relatively few tourism academics have embraced this area of research, examples being Raksakulthai, 2003; Becken, 2005 and Perry, 2006. Hence the consequences of climate change to the tourism industry have not been examined in any great detail. The scarcity of tourism and climate change literature could be accounted for by its multidisciplinary nature, the limited opportunities for tourism academics to interface with climatic scientists and the late recognition of the scale of the problems of climate change to the tourism industry. The continually evolving science evidence and predictive nature of some of the research further exacerbate the difficulties in researching this complex area of tourism.

This section outlines the key phases in the development of tourism and climate change literature; it could be argued that Scott (2005) has pre-empted the final stage with a current phase being the proliferation of journal articles on tourism and climate change.

*This Chapter has shown that significant changes are occurring to the Earth's climate system. Whilst there is universal recognition that scientific modeling has inherent uncertainties, the scientific evidence is now overwhelming; climate change is a serious global threat and it demands an urgent global response. Global temperatures are continuing to rise with 11 of the 12 warmest years on record occurring since 1995. There is an extremely high probability that CO<sub>2</sub> levels are above the range of natural variation. It seems very likely that human activity has increased greenhouse gases since the Industrial Revolution. Unless some drastic international action occurs within the next decade some of the climatic changes are considered to be irreversible. All the regions of the world will be affected by climate change but those areas closer to the poles will experience more adverse impacts.*

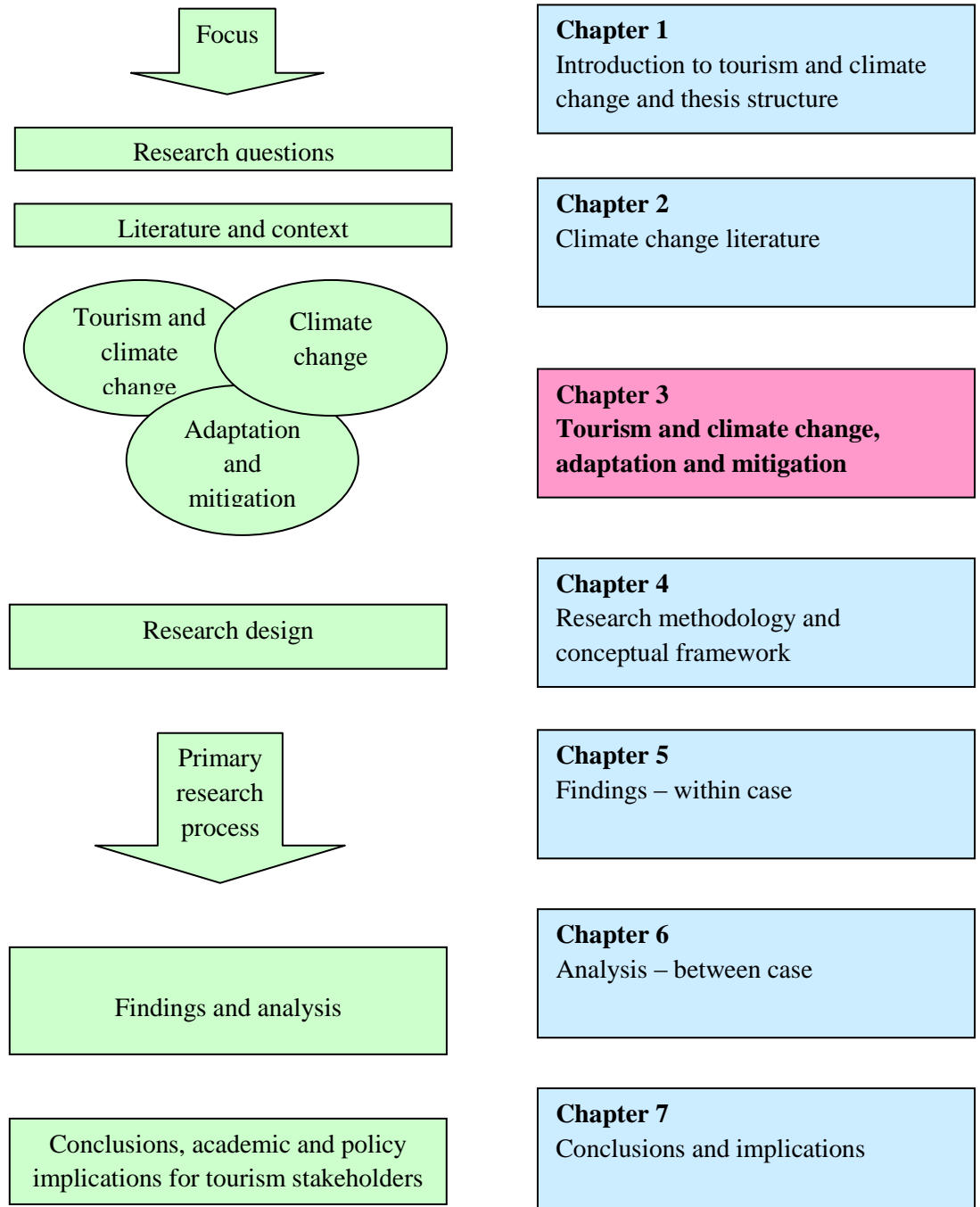
*Tourism is a global industry and will have to reconsider how it operates in the future to take into account the predicted effects of climate change; this will be examined in detail in the next chapter. There have been a number of international agreements to address the issue of climate change such as the Kyoto Protocol and the EU Emissions Trading Scheme. However, the reluctance of some developed countries such as the United States and some of the growing economies (Brazil, Russia, India and China) has limited the effectiveness of this framework and delayed a co-ordinated approach for mitigating future greenhouse gas emissions. The Copenhagen Accord (2009) possibly gives the opportunity for more optimism, although the framework is not legally binding and some developing countries do not support it. The Cancun conference (2010) acknowledged that GHG emissions need significant reductions and the establishment of the Green Climate Fund will provide much needed funds for developing countries to respond to the impacts of climate change. Economists have started to become involved in the debate, projecting the timescales and costs of mitigating greenhouse gases and adapting to climate change, probably best captured in the Stern Review, which has challenged some of the economic objections to actions used by the United States and other countries. Ultimately, there needs to be political will to develop a unilateral framework that is legally binding that will enable all countries to adapt and mitigate to climate change. The IPCC (2007a) suggests that there is a window of opportunity to start to stabilise CO<sub>2</sub> emissions over the next two*



*to three decades. The First IPCC Assessment Report was published in 1990, so it has taken two decades to gain an acceptance of the problem, and leaves less time to provide effective policies to address climate change.*

*Tourism academics have been relatively slow to begin to embrace the science of climate change and develop a robust literature, although now there appears to be a proliferation of articles on tourism and climate change. The tourism industry has an inherent reliance upon the climate system for key 'pull' factors to attract tourists. Many countries, especially island tourism destinations rely upon tourism for economic growth and this relationship will be examined in the next Chapter.*

# Chapter Three Tourism and Climate Change



*This Chapter provides a review of the knowledge of tourism and climate change. It commences with the presentation of the scope and scale of the global tourism industry, followed by definitions and conceptual understanding of the tourism system. Next an indication of tourism development and impact is provided, an important consideration for the sustainability of island tourism destinations and the roles of public and private sector stakeholders. Having explored these generic tourism issues the relationship between tourism and climate change is then reviewed. The patterns of where tourists currently travel are provided and then the predicted effects of climate change are factored in to establish how these patterns might be affected. The tourism sectors' reliance upon climate is examined and here the focus on coastal areas, specifically island tourism destination emerges. An understanding of the impacts of climate change on the tourism industry is then examined, before an indication of adaptation and mitigation strategies. Finally, the gaps in the literature are reiterated to provide an indication of the research questions.*

### 3.1

#### SIGNIFICANCE OF THE TOURISM INDUSTRY

This opening section examines the scale, scope and meaning of the global tourism industry. These measurements and concepts provide a background for the later examination of climate change and tourism.

#### 3.1.1

##### Scope of the tourism industry

Tourism has been a social phenomenon since the early 1900s, when the privileged aristocracy would conduct a tour of the cultural attractions in Europe, often lasting for years at a time. This tourism was seen as socially selective (Urry, 1990), being the preserve of a wealthy minority. Social and economic changes in the middle of the previous century, such as expansion of the railways and use of aeroplanes provided opportunities for most of the population in the developed world to travel and experience different countries and cultures (Holloway, 2002). Tourism is now an economic activity of immense significance, as will be seen in the next section.

However, one of the problems that impede the industry is the precise measurement of travel and tourism activities, as many economic activities connected with tourism are obscured and fragmented.

### **Definitions**

There are numerous definitions of tourism, reflecting the vast changes that have taken place within the industry and alternative perspectives on the scope and role of tourism. Definitions can either focus on the demand or supply side of the industry. Demand side definitions can be either ‘conceptual’ or ‘technical’ and endeavor to encapsulate the range of activities that tourists are involved in; typically including leisure, recreation, business or visiting friends and relatives.

The United Nations World Tourism Organisation’s (UNWTO) is an example of a technical definition that focuses on the demand side: “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. Tourism refers to all activities of visitors, including both ‘tourists’ (overnight visitors) and ‘same day visitors’” (UN, 2010). An important consideration with the UNWTO definition is that it does not have a restricting reference as to the purpose of the activity, so it includes business travel and the use of holiday homes too. It also recognises that tourism is an actual process that takes place between different places and is temporary in nature.

Supply side definitions try to link supply aspects of the tourism sector, such as accommodation, food and drink and visitor attractions. Lieper’s (1979:400) definition demonstrates this well: ‘the tourist industry consists of all those firms, organisations and facilities which are intended to serve the specific needs and wants of tourists’. The key limitation of supply side definitions is that there is no definitive record of what constitutes the tourism industry and most businesses serve local residents as well as tourists; for example, should aspects of transportation be included with the tourism industry? The World Tourism Organisation (WTO) published a ‘standard industrial classification of tourism activities’ (SICTA) in 2000, attempting to overcome the lack of an agreed definition. The World Travel and Tourism Council (WTTC) established in 1990 has also recognised the importance of measuring the economic benefits of tourism and has developed

tourism satellite accounts (TSAs) to assist in this process by providing more accurate data on the economic activity of the industry.

Both SICTA and TSAs are based on supply-side economic activity and have enabled economists to assess the economic activity of tourism as they would other industries. This identifies the total economic impact generated from all tourism activity rather than just the snapshot provided from tourism arrivals and expenditure. Theobald (2005) suggests that the adoption of the UNWTO definition and SICTA classification system could have overcome the previous problems of comparative statistical instability. As the UNWTO definition is now the accepted international definition of tourism and is used on both a national and international level to inform the development of TSAs and gain statistical data, it will be adopted as the definition of tourism within this thesis. The next section examines the economic scale of the tourism sector and utilizes data from the new system of measurement.

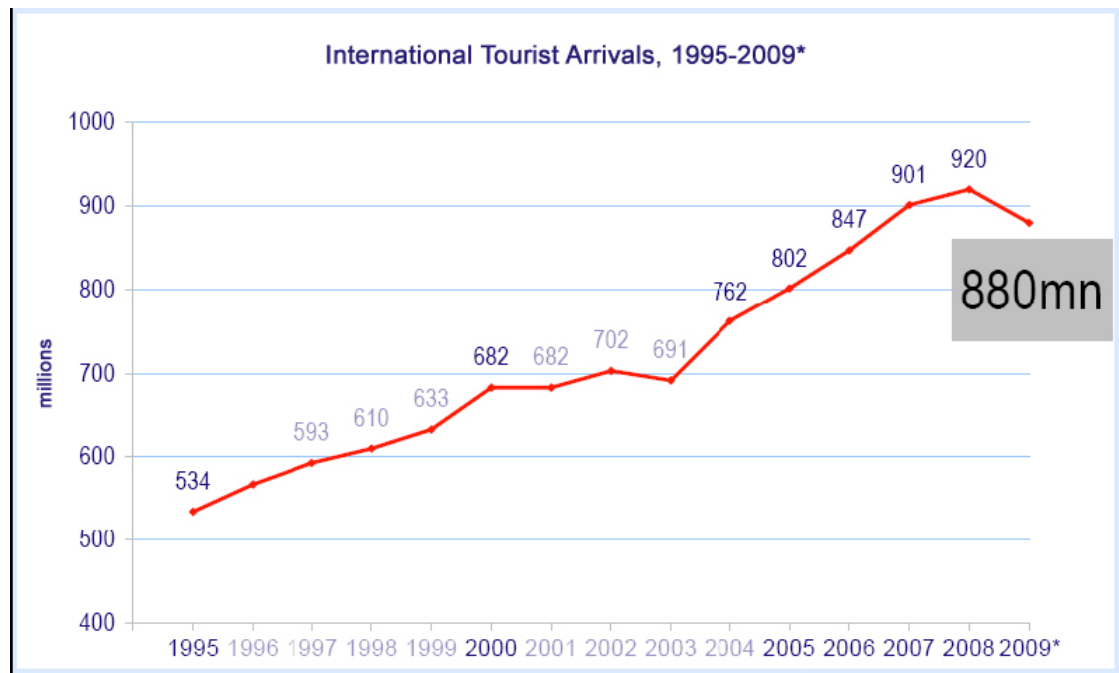
### **3.1.2 Scale of the tourism industry**

As established in the previous section international tourism has been transformed from a leisure activity for the privileged few into a major social and economic phenomenon, enjoyed by many people in the developed world within the twentieth century. According to the UNWTO (2010a) between the period 1950 to 2005, international tourism arrivals expanded at an annual rate of 6.5 percent, growing from 25 million to 806 million. The income generated by these arrivals grew at an even stronger rate reaching 11.2 percent during the same period, exceeding world economy growth rates to reach around US\$ 680 billion in 2005. While in 1950 the top 15 destinations absorbed 88 percent of international arrivals, in 1970 the proportion was 75 percent and decreased to 57 percent in 2005, reflecting the emergence of new destinations, many of them in developing countries.

However the world has been in an economic downturn since 2008 and this has affected growth within the tourism sector. Despite the current economic downturn travel and tourism is still expected to make a significant contribution to GDP with a rise of 9.2 percent (US\$5,751 bn) in 2010 to 9.6 percent

(US\$11,151 bn) by 2020 (WTTC, 2010a). Figure 3.1 shows that tourism arrivals have experienced a strong growth over the last fifteen years, but in 2009 that growth declined, contracting by -4.8 percent in 2009. But 2010 showed a 0.5 percent increase and expected to average 4.4 percent per annum over the coming 10 years (WTTC, 2010a).

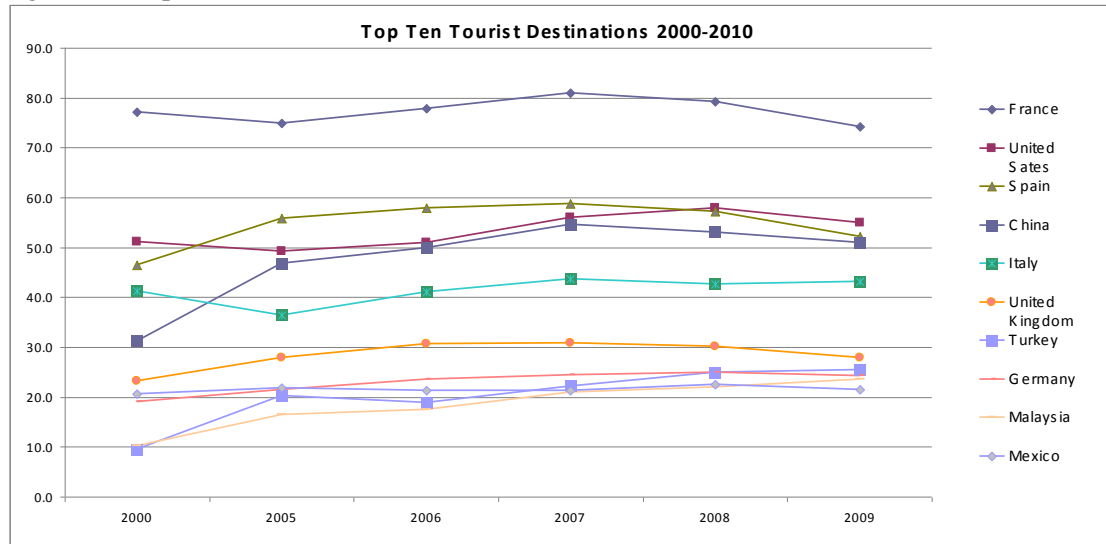
Figure 3.1 International tourist arrivals



Source: UNWTO, 2010

Tourism is a major source of employment and income. The World Travel and Tourism Council (2010a) states that the contribution of the travel and tourism economy to total global employment is expected to rise from 8.1 percent, (235,758,000 jobs or 1 in every 13.3 jobs in 2010), to 9.2 percent of total employment, (303,019,000 jobs, or 1 in every 10.9 jobs) by 2020. Not surprisingly, for many developed and developing countries tourism is viewed as an important and integral element of economic growth. However, the distribution of tourism is not spread evenly throughout the world. Figure 3.2 shows the top ten tourism destinations account for 45 percent of all the international tourism worldwide in terms of arrivals.

Figure 3.2 Top tourism destinations.



Source: UNWTO, 2010c

Regarding tourism receipts, these same ten destinations represent 47 percent of the world tourism receipts, which shows the unequal distribution of wealth within the tourism sector. The tourism receipts of the five countries listed at the bottom of the top 50 tourism destinations in 2008 only represent 0.024 percent of worldwide tourism receipts, so some countries do not achieve the economic growth from tourism that they desire. Having reviewed the scope and scale of the tourism industry, the next section examines some key tourism concepts that provide an understanding of the tourism destination.

### 3.1.3 The tourism system

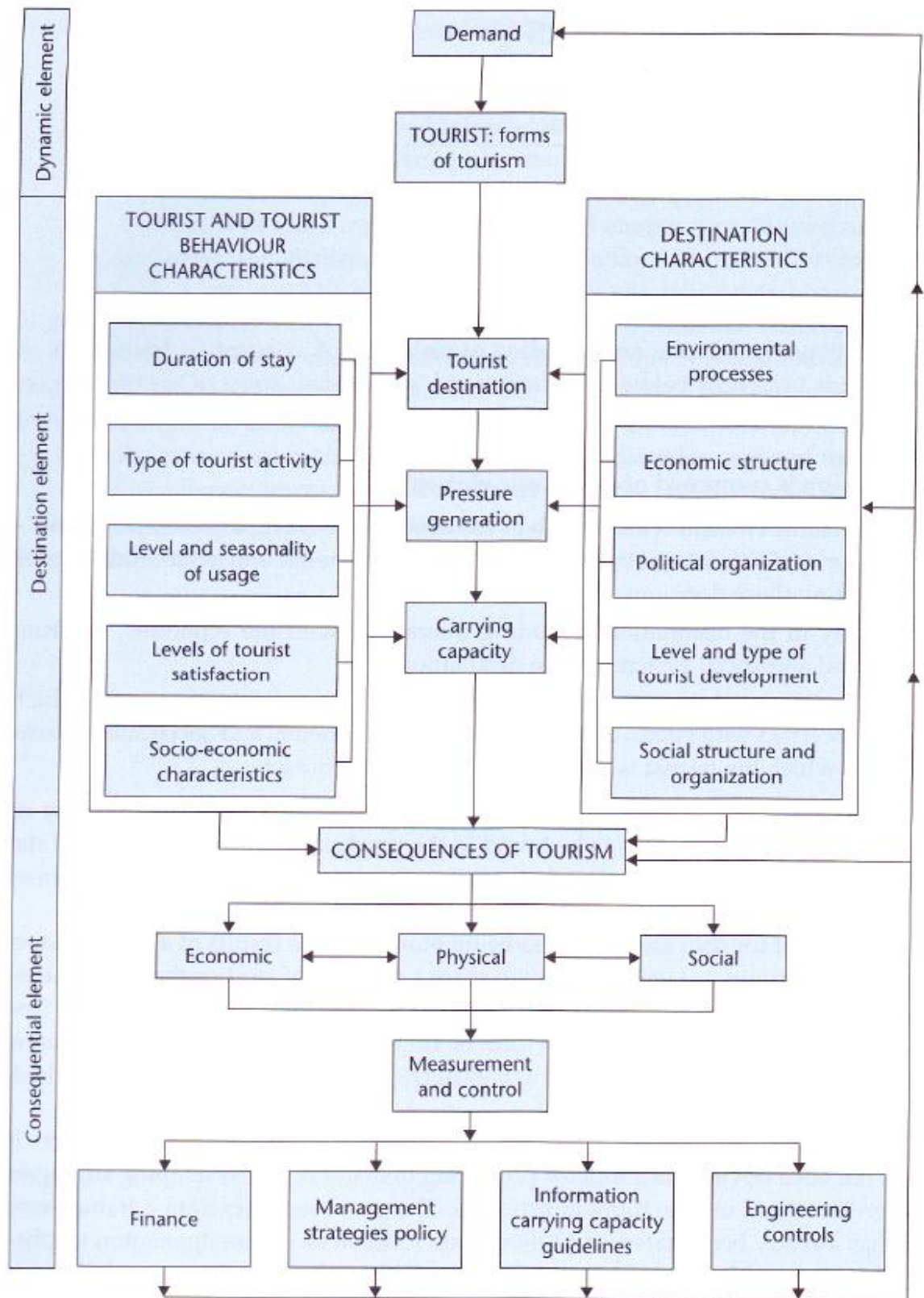
Having reviewed tourism definitions that focus upon the supply and the demand areas of tourism, this needs to be developed to consider where the two areas join together. Burns and Holden (1995:6) argued that it is important to recognise that tourism should not be looked upon merely as a business but should be considered in a holistic manner that also includes the ‘consequential aspect (i.e. the ‘cost’, in human and environmental terms) of the relationship between supply and demand. To illustrate their point they cite Nash and Smith (1991:14) in which tourism is defined as: “a pan-human touristic process that originates with the generation of tourists in some society and continues as these tourists travel to other places where they encounter hosts, and ending in the give-and-take of this encounter affecting the tourists, their hosts and their home cultures”. This provides a conceptual rather than a technical understanding of tourism which is

useful for tourism academics as it links together the supply and demand aspects and illustrates that the actions of tourists will have consequences for the local people.

This is reflected well in Mathieson and Wall's (1982) conceptual framework of tourism (Figure 3.3). It illustrates the demand aspect of tourism as being a dynamic element, the tourism encounter happening within the destination element and the positive and negative impacts of the tourism encounter within the consequential element.



Figure 3.3 A conceptual framework of tourism



Source: Mathieson and Wall 1982

There are three basic elements to the framework:

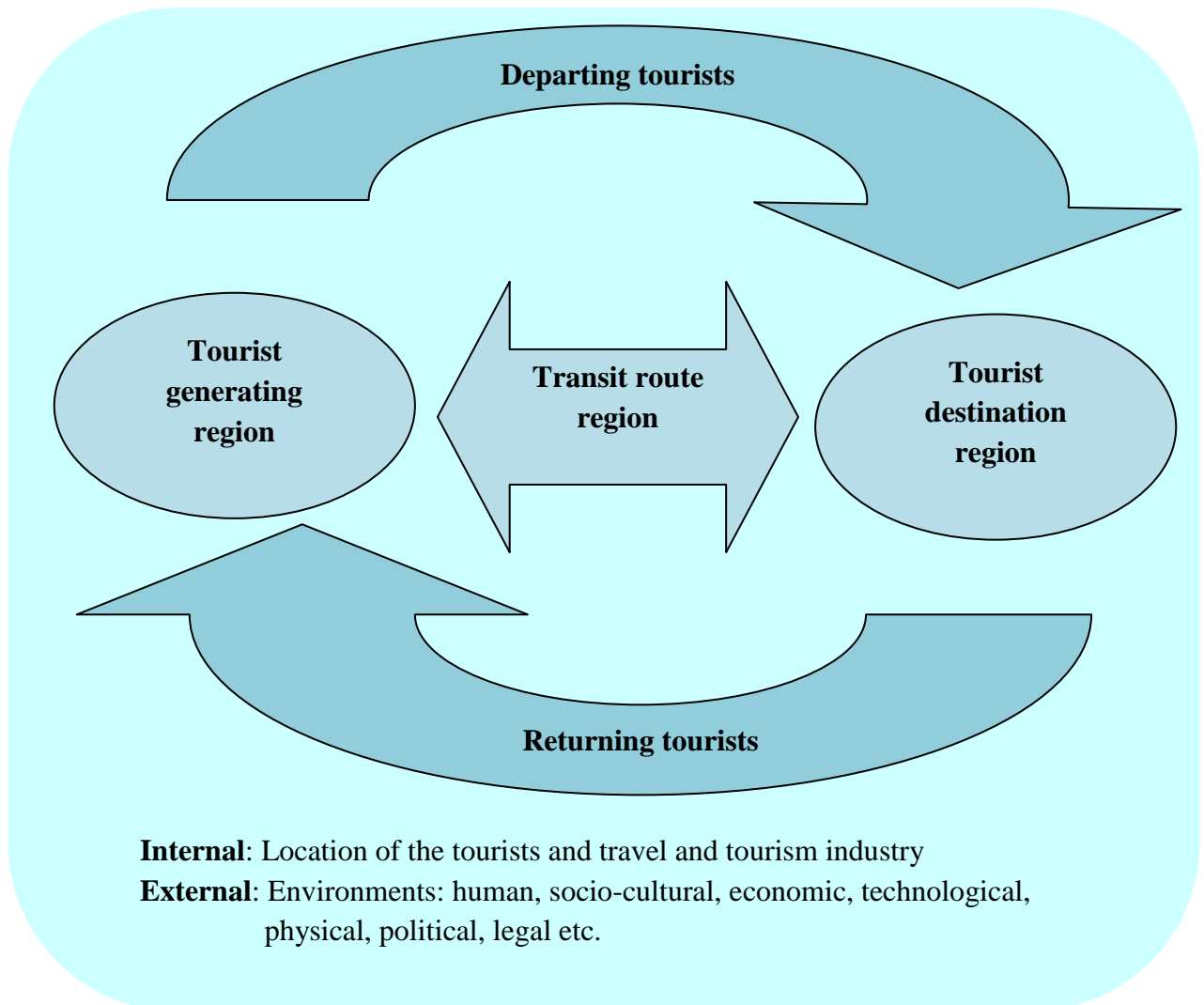
- i) the dynamic element, which involves the travel decisions made by the tourist to get to the destination; affected by social, economic and environmental factors. So, if tourists decide not to take flights due to global warming, or decided to offset their carbon footprint, this would be a dynamic element.
- ii) the static element, which involves the stay in a destination whose political, social, economic and state of development is going to influence the behaviour of tourists within the destination. An example, if bike hire is easy such as in Copenhagen tourists might be encouraged to cycle in the destination rather than use cars.
- iii) the consequential element, which builds upon the previous elements and is concerned with the economic, environmental and social impacts that occur as a result of the tourists' direct or indirect contact with the host population and the local environment. For example, tourists may learn about the endangered gorillas in Rwanda and as a result decide to give money to a linked charity.

Mathieson and Wall's (1982) conceptual framework for tourism is useful as it pulls together key phenomena and their interrelationships, but the model cannot be used as a predictive tool for tourism demand as it does not identify the key factors that influence a tourist in planning a trip. In addition it is not clear if Mathieson and Walls's (1982) model is an open or closed system. Carlsen (1999:322) recommended that "a systems approach would best be applied to problem solving in tourism research because it can accommodate social and environmental processes". This would then enable the tourism sector to respond to changes in the external environment including a range of factors, such as political or climatic changes. Nonetheless Mathieson and Wall's framework (Figure 3.3) depicts key aspects of the tourism encounter from both a tourist and destination perspective and provides a clear foundation for the Researcher to consider the implications of climate change upon tourism destinations and so was used in early stages of the research design.

Lieper (1979) adopted a systems approach when developing his model of the tourism system, see Figure 3.4. The model is a simple linear model that links three areas: the generating region, the transit route and the destination region. The three main elements of the system are developed from a geographic perspective; the tourists travel from

their homes to where the holiday is and return. It implicitly involves a human dimension comprising the tourists, the hosts and all those businesses that the tourists connects with on their journey. In addition, it identifies the external factors that interact with the other factors within the tourism system such as social and environmental factors and, in the context of this thesis, the role that climate change is having upon tourism destinations.

Figure 3.4 Lieper’s Tourism System



Source: Lieper 1979

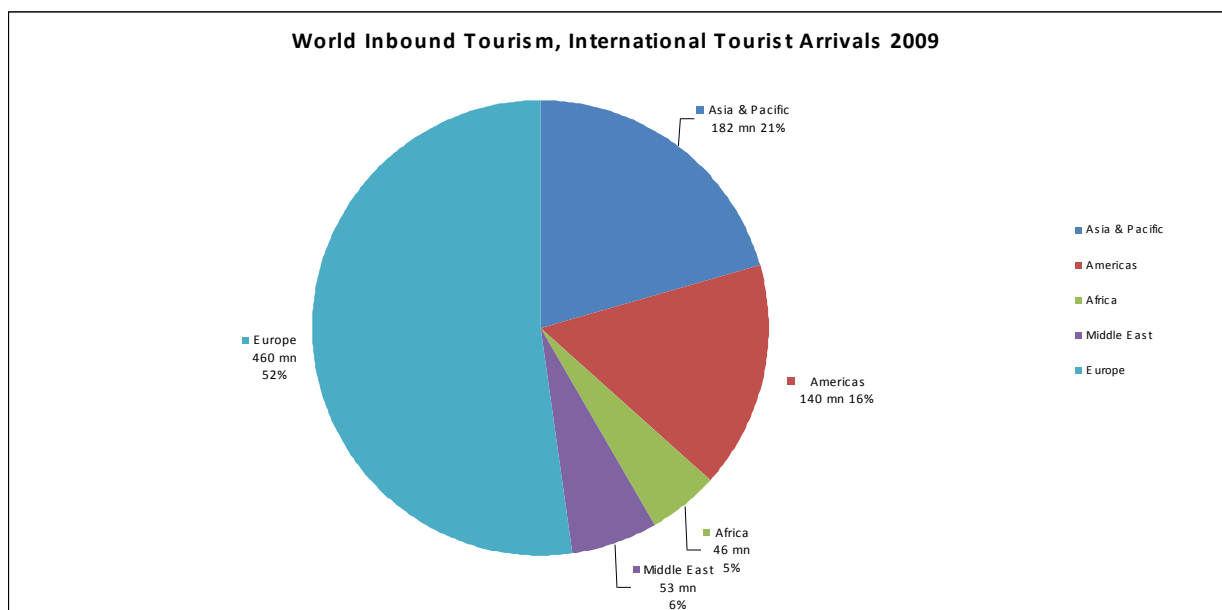
Some tourism academics have moved on from these simple tourism systems, such as Hall (2005) who suggests that the interaction between the players in the model needs greater consideration and that the external factors are more complex and inter-related than the model depicts. Another criticism of Lieper’s tourism system is that there is an assumption that the system is co-ordinated and controlled in a top-down approach

(McKercher, 1999). Models of tourism systems have now been extended to respond to these criticisms to reflect the dynamic and unpredictable nature of the various factors within the system (Farrell and Twining-Ward, 2005). However, there is still merit in the simplicity of Lieper’s linear model as it provides distinct areas and factors that can be examined in detail. This separation of three distinct regions is used later in this research in the conceptual framework to provide a particular focus upon the activities of stakeholders within the destination region. In addition the model also helps to establish that the transit region is not controlled or managed by either the generating or destination regions, which raises questions surrounding the greenhouse gas emissions that are generated during the transit phase of getting the tourists between the generating and destination regions.

### 3.2 TOURISM FLOWS

Tourist demand is concentrated in relatively few markets and destinations. The majority of tourism activity (in terms of volume) takes place in three key geographic areas: Europe, Asia (the North and South East) and North America (see Figure 3.5). Thus on a global basis tourism is unevenly distributed, with developed countries receiving and generating most tourism trips. This is a distinguishing factor for this research, as within the case studies selected the generating regions tend to be in the developed world and the destination regions are in the developing world.

Figure 3.5 Inbound international tourist arrivals for 2009



Source: UNWTO (2010)

The UNWTO (2008) suggest that the anticipated changes to travel patterns will have three important implications: proportionally more demand for temperate nations, less demand for warmer nations which are now highly frequented by tourists from temperate regions, and a net reduction on the total number of international tourists. Travel Research International (2003) produced Table 3.1 that identifies the likely impact of climate change on each of the origin and destination regions and the implications on the tourism industry. Key aspects are discussed in the section which follows the Table 3.1.

Table 3.1 Summary of climate changes and their probable impacts on major international tourist flows

Major Tourism Flow	Origin Market Climate Change	Destination Region Climate change	Implications for Destination Region	Possible Market Reactions
<b>Northern Europe to Mediterranean</b>	<ul style="list-style-type: none"> <li>- Much warmer, wetter winters</li> <li>- Warmer, drier summers</li> <li>- More “reliable” summers</li> </ul>	<ul style="list-style-type: none"> <li>- Warmer, wetter winters</li> <li>- Much warmer, drier summers</li> <li>- Changes more marked in Eastern - Mediterranean</li> <li>- Increased heat index</li> <li>- More days above 40°C</li> <li>- More arid landscape</li> <li>- Small tidal range means greater sea level rise impact</li> </ul>	<ul style="list-style-type: none"> <li>- Greater drought and fire risk</li> <li>- Increased water shortages</li> <li>- Greater personal heat stress</li> <li>- Beach degradation and habitat loss due to sea level rises</li> <li>- Vulnerability to more tropical diseases (e.g. malaria)</li> <li>- More flash floods</li> <li>- Poor urban air quality in cities</li> </ul>	<p><i>Overwhelmingly a leisure travel market</i></p> <ul style="list-style-type: none"> <li>- <b>Improvement of Northern European summers triggers more domestic holidays</b></li> <li>- <b>Decreased incentives for Mediterranean summer holidays</b></li> <li>- <b>Increased incentive for shoulder month Mediterranean holidays</b></li> <li>- <b>Increased incentive for southerners to go north</b></li> </ul>
<b>North America to Europe</b>	<ul style="list-style-type: none"> <li>- Warmer winters</li> <li>- Warmer summers</li> <li>- Slight rainfall increases</li> <li>- S.E. USA (Florida) at risk from beach erosion, greater storm risk</li> <li>- Pacific coast greater storm risk and higher rainfall</li> </ul>	<p><b>Northern Europe</b></p> <ul style="list-style-type: none"> <li>- Much warmer, wetter winters</li> <li>- Warmer, drier summers</li> <li>- More “reliable” summers</li> </ul> <p><b>Southern Europe</b></p> <ul style="list-style-type: none"> <li>- Warmer, wetter winters</li> <li>- Much warmer, drier summers</li> <li>- Changes more marked in Eastern - Mediterranean</li> <li>- Increased heat index</li> <li>- More days above 40°C</li> </ul>	<p><b>Northern Europe</b></p> <p>(80 percent of flow is to this sub region)</p> <ul style="list-style-type: none"> <li>- More attractive climate for summer holidays</li> <li>- Possible greater congestion at key sites and cities.</li> </ul> <p><b>Southern Europe</b></p> <p>(20 percent of flow is to this sub region)</p> <ul style="list-style-type: none"> <li>- Greater drought risk</li> <li>- Increased water shortages</li> <li>- Greater fire risk</li> <li>- More beach degradation due to sea level rises</li> </ul>	<p><i>Approx 70 percent leisure, 30 percent business</i></p> <ul style="list-style-type: none"> <li>- <b>Too hot for peak summer cultural visits to southern Europe;</b></li> <li>- <b>Shoulder months travel may increase</b></li> <li>- <b>Little change foreseen for travel to northern</b></li> </ul>
<b>Europe to North America</b>	<p><b>Northern Europe</b></p> <ul style="list-style-type: none"> <li>- Much warmer, wetter winters</li> <li>- Warmer, drier summers</li> <li>- More “reliable” summers</li> </ul> <p><b>Southern Europe</b></p> <ul style="list-style-type: none"> <li>- Warmer, wetter winters</li> <li>- Much warmer, drier summers</li> <li>- Changes more marked in Eastern -</li> </ul>	<ul style="list-style-type: none"> <li>- Warmer winters</li> <li>- Warmer summers</li> <li>- Slight rainfall increases</li> <li>- S.E. USA (Florida) at risk from beach erosion, greater storm risk</li> <li>- Pacific coast greater storm risk and higher rainfall</li> </ul>	<ul style="list-style-type: none"> <li>- Sea level rise damages Florida coast and Everglades</li> <li>- Risk of Pacific coastal damage</li> <li>- Geomorphic damage to south-eastern coast</li> <li>- Increased heat index</li> <li>- Coastal erosion and storm damage risk on east coast</li> <li>- Rising health costs as tropical disease risk</li> </ul>	<p><i>Biggest destinations are Florida, California and New York</i></p> <ul style="list-style-type: none"> <li>- <b>Florida may become less attractive at peak times</b></li> <li>- <b>Possibly greater attraction of Carolina coast?</b></li> <li>- <b>E. coast US and Canadian cities too hot in summer</b></li> <li>- <b>Stronger winter ski market due to</b></li> </ul>

<p><b>North East Asia to South East Asia</b></p>	<p>Mediterranean</p> <ul style="list-style-type: none"> <li>- Increased heat index</li> <li>- More days above 40°C</li> <li>- Warmer all year round</li> <li>- Smaller year round rainfall increase</li> </ul>	<ul style="list-style-type: none"> <li>- Little change in rainfall</li> <li>- Relatively little change in temperatures</li> <li>- Coastal areas vulnerable to sea level rises</li> </ul>	<p>rises</p> <ul style="list-style-type: none"> <li>- No dramatic climate change foreseen</li> <li>- Islands and tourist coasts vulnerable</li> <li>- Coral bleaching</li> </ul>	<p>reduced capacity in Europe.</p> <ul style="list-style-type: none"> <li>- Climatic factors unlikely to influence travel patterns greatly</li> <li>- Possible decline in dive and beach markets.</li> </ul>
<p><b>North East Asia to North America</b></p>	<ul style="list-style-type: none"> <li>- Warmer all year round</li> <li>- Smaller year round rainfall increase</li> </ul>	<ul style="list-style-type: none"> <li>- Warmer winters</li> <li>- Warmer summers</li> <li>- Slight rainfall increases</li> <li>- Pacific coast greater storm risk and higher rainfall</li> </ul>	<ul style="list-style-type: none"> <li>- Risk of Pacific coastal damage</li> <li>- Geomorphic damage to south-eastern coast</li> <li>- Increased heat index</li> <li>- Coastal erosion and storm damage risk on east coast</li> </ul>	<ul style="list-style-type: none"> <li>- E. coast US and Canadian cities too hot in summer</li> <li>- Sightseeing travel not likely to be greatly affected by climate change</li> </ul>
<p><b>North America to Caribbean</b></p>	<ul style="list-style-type: none"> <li>- Warmer winters</li> <li>- Warmer summers</li> <li>- Slight rainfall increases</li> </ul> <p>S.E. USA (Florida) at risk from beach erosion, greater storm risk</p> <ul style="list-style-type: none"> <li>- Pacific coast greater storm risk and higher rainfall</li> </ul>	<ul style="list-style-type: none"> <li>- Warmer winters</li> <li>- Warmer summers</li> <li>- Small decreases in rainfall</li> <li>- Sea level rises</li> </ul>	<ul style="list-style-type: none"> <li>- Particularly vulnerable to sea level rises</li> <li>- Increased beach erosion</li> <li>- Coral bleaching and reef damage</li> <li>- Stalination of aquifers</li> <li>- Higher energy costs for air conditioning</li> <li>- Greater need for sea defences and flood control</li> <li>- More tropical diseases (e.g. Malaria)</li> <li>- Increased pressure on natural resources and eco-systems</li> </ul>	<ul style="list-style-type: none"> <li>- Beach product offering becomes less attractive (heat index, beach erosion, sea and coral quality)</li> <li>- Less need to escape northern climate</li> <li>- Loss of confidence in destination health risk</li> </ul>

Source: Travel Research International, 2003

The next section is adapted from the information in Table 3.1 supplemented by more recent data from Hopkin (2005) to provide a perspective of how the global tourism industry could be affected by climate change in the future.

### **Northern Europe to the Mediterranean**

Broadly, this is a market with a single purpose. Tourists leave behind an unpredictable summer climate in northern Europe (possibly little sun, plenty of rain and cool temperatures) in search of warmth and sunshine. Altered weather patterns induced by climate change could mean that northern Europe becomes more attractive and reliable during the summer months, while the Mediterranean generally deteriorates in its appeal for the holidaymaker: the temperatures may become too hot, tropical diseases may become prevalent, there may be water shortages, the landscape may become arid, and freak events in the form of flash floods and forest fires may become more frequent. The coast may become eroded and low lying coastal amenities, such as resort complexes and golf courses may become inundated. As a result this mass movement of tourists could gradually slow, with northern Europeans holidaying either domestically or at least increasingly within northern Europe. Equally, southern Europeans may travel north to escape uncomfortable summer conditions at home, such as the extreme heat waves that struck Europe in 2003 and caused wildfires, loss of crops and a rise in summer deaths (Mather *et al*, 2005).

### **North America to Europe**

The North American market to Europe is more cosmopolitan with 70 percent travelling for leisure purposes and 30 percent on business (Hopkin, 2005). The business travel component generally is unlikely to be much affected by the climatic changes. Leisure travel also is likely to be relatively unaffected since culture and sightseeing are the prime motivations for an American trip to Europe. However, cities such as Rome and Florence could become too hot during the summer peak and therefore for southern Europe there could be a greater shift to extend the season that tourists travel. Equally, more favourable summer weather conditions in northern Europe could mean greater congestion in cities such as London, Paris and Brussels, during the summer peak and again travel from North America could see a greater spread into the shoulder months.



### **Europe to North America**

The significant business component within this market is unlikely to be greatly affected by climatic changes. The leisure sector contains a number of sub-sections, the largest of which are travel to Florida, California and New York in the USA and to the West Coast in Canada. As climate change begins to have an impact, it is likely that European travel patterns to Florida, which is largely based on organised tourism from the UK will decline. The seasonality or location of holidays to Florida may change if the region suffers from coastal degradation. There would be an increasing likelihood of tropical diseases (already malaria prevention costs are rising) and it becoming uncomfortably hot during the peak summer season (Mather *et al*, 2005). Equally, travel to the Pacific coast, though not dependent on the "sun, sea and sand" market to the same extent as Florida, may be impacted by the increasing risk of unpredictable weather. Summer travel to East Coast cities such as New York, and to California's Los Angeles and San Francisco is likely to shift to Spring and Autumn as a result of increasing temperatures (Hopkin, 2005). Warmer winters and summers in the Rockies will decrease the effective length of the skiing season, increase avalanche risk and also affect lower lying ski resorts, although summer activity holidays are likely to benefit (Becken and Hay, 2007).

### **North East Asia to South East Asia**

Climate changes in both origin and destination region are predicted to be small relative to other regions and as a result this large flow is likely to be relatively unaffected within the current century. Sea level rises and warming sea temperatures will, however, have an impact on the region's islands and coasts, which attract considerable numbers of visitors from countries such as Japan and Taiwan (Travel Research International, 2003). The severity of monsoon rains is expected to increase, which may result in more flooding for inhabitants of low lying states. In east Asia regions, such as Indonesia and the Pacific Rim they are expected to receive less rain as El Nino events become more frequent and divert warm waters towards South America (Hopkin, 2005).

### **North East Asia to North America**

Arrivals in North America from North East Asia are predominantly from Japan, South Korea and Taiwan. The large market travelling for business purposes will remain

relatively unaffected, as will the sizeable visiting friends and relatives (VFR) component (Becken and Hay, 2007). The leisure market is predominantly visiting the USA and Canada for sightseeing purposes; again, climate change is unlikely to have a major impact. Greater storm frequency on the Pacific coast and excessive heat in cities such as New York, Los Angeles and San Francisco may well instigate seasonal alteration to travel (Hopkin, 2005).

### **North America to Caribbean**

As one of the world's main sun, sea and sand playgrounds, the Caribbean's tourism offering is totally dependent on its climate and beach product. Its main market, North America, is on the one hand escaping from its own cold and grey winter climate, while on the other moving to warmth, sunshine and coastal pursuits (Hopkin, 2005). As a result, Caribbean tourism is especially vulnerable to climate change since both factors may change - parts of the USA may become warmer, thus obviating the desire to escape, while rising sea levels make the islands especially vulnerable, damaging beaches and causing infrastructural damage to the predominantly low lying coastal regions. In addition, rainfall decreases and an increased need for air conditioning will put additional pressure on the islands' water and energy resources (Travel Research International, 2003).

Tourists have the greatest adaptive capacity (depending on three key resources: money, knowledge and time) to the impacts of climate change by avoiding destinations that have been adversely affected by the impacts of climate change. For example, avoiding destinations where ambient temperatures are potentially too great to be comfortable or the ecosystem has suffered a decline in the wildlife species that the tourist hoped to observe. In addition, tourists could change the times that they visit particular destinations to avoid increased rainfall or excessive heat.

Whilst the section above has used historical tourism flows and an interpretive perspective as to the consequences of the predicted impacts of climate change, Berritella *et al* (2006) provided a more positivist perspective through the use of general equilibrium analysis to examine the climate change impacts on 206 tourist destinations (Table 3.2). They used the contribution of tourism to the economy to establish the economy-wide impact of international tourism induced by climate change. The net losers were Western Europe and

the ‘Rest of the World’ which comprises of tropical countries (Caribbean and countries in the Indian Ocean), which would become too hot to be pleasant under global warming. The Mediterranean (the World’s most popular tourist destination) would become less attractive as it becomes hotter. The climate in the generating region that tourists live will also be an influence upon the destinations that they decide to select.

**Table 3.2 Regional changes in international departures and arrivals in 2050**

<b>Region</b>	<b>Arrivals</b>	<b>Departures</b>	<b>Macro-economic impact</b>
United States of America	Decline (-)	Decline (+ +)	Increase (+)
European Union	Decline (- -)	Decline (+ +)	Decline (-)
Eastern Europe and Former Soviet Union	Increase (+)	Decline (+ +)	Increase (+ +)
Japan	Decline (-)	Decline (+)	Increase (+)
Rest of Annex 1 Nations – developed nations	Increase (+ +)	Decline (+ +)	Increase (+ +)
Energy Exporters	Decline (- -)	Increase (- -)	Decline (- -)
China and India	Decline (- -)	Decline (+)	Increase (+)
Rest of World – developing nations	Decline (- -)	Increase (- -)	Decline (- -)

Source: Berrittella, *et al.* (2006)

Eugenio-Martin and Campos-Soria (2010) conducted modelling research that showed that the climate in the region of residence is a strong determining factor of holiday destination, with tourists that already live in warmer climates more likely to travel domestically. So tourist flows could change quite significantly in the future as global warming changes climatic conditions throughout the world. Both the interpretive (as Travel Research International and UNWTO) and computer modelling approaches (Berrittella and Eugenio-Martin and Campos-Soria) establish that low lying coastal regions throughout the world will be particularly vulnerable to the impacts of climate change. The Indian Ocean islands are not specially identified in this section; this is because they are not included in the geographic flows of tourism produced by Travel Research International (2003). However, UNWTO (2008) identified tourism islands in the Indian Ocean such as Mauritius, the Maldives and Madagascar as hotspots for climate change (section 2.2.1). They are all to varying degrees dependent upon tourism for economic activity and as it will be established in later sections are extremely vulnerable to the impacts of climate change and so provide an important area to study.

All tourism destinations need to be aware of their natural and cultural resources and manage these effectively to maximise the economic benefits that can be gained for the public and private sector stakeholders. Given the predictions of climate change (which will be examined in section 3.5.3), which are likely to include a reduction in environmental quality and detrimental changes to weather patterns in some areas, destinations may become less attractive to tourists, thus their management, planning and development needs careful consideration, as the anticipated life cycle of the destination may be curtailed. The section which follows examines how tourism develops and the role that stakeholders can take in the development process.

### **3.3 TOURISM DEVELOPMENT**

Tourism is widely regarded as a means of achieving economic development in destination areas (Sharpley and Telfer, 2002). In many countries, travel and tourism is a critical sector impacting national prosperity and economic growth. A cross-country analysis of the drivers of competitiveness in travel and tourism has been produced by the World Economic Forum (WEF). Review of the index tentatively shows that industrialised countries still maintain a dominant position in the use of tourism development. The countries at the top of the rankings are: Switzerland, Austria and Germany, Hong Kong and Singapore, which demonstrates that effective tourism requires regulatory frameworks, strong transport infrastructure and the fostering of human resources as being important in developing an attractive environment for travel and tourism. The patterns described here are clearly illustrated by the data presented on tourism flows (in section 3.2). Tourism is still perceived as a great opportunity for the poorer countries, which appear at the bottom of the index, such as Nigeria, Benin, Mozambique and Chad, to exploit their potential, but they need to be mindful of the problems that can also occur (WEF, 2007). The UNWTO, in endorsing the report, recognised the developmental role of tourism in developing countries and this fits with the targets of the United Nations Millennium Goals<sup>5</sup>. However, the issue of climatic change has not been included in the development goals and generally developing countries will be some of the first to observe the impacts, so this will create new dilemmas.

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<sup>5</sup> The UN Summit on the Millennium Development Goals concluded with the adoption of a global action plan to achieve the eight anti-poverty goals by their 2015 target date and the announcement of major new commitments for women's and children's health and other initiatives against poverty, hunger and disease.

Tourism is viewed as a good vehicle for development as it is a relatively easy source of foreign earnings and creates employment opportunities (Britton, 1982), as can be seen by the statistics presented in section 3.1. Tourism development requires relatively limited expensive infrastructure investment. Sharpley and Tefler (2002) suggest that the Gambia is a good illustration of this. With its fine Atlantic beaches and virtually continuous sunshine throughout the winter, it looked to tourism to drive growth and it now represents 11 percent of GDP and provides 7000 jobs (Thompson *et al*, 1995). However, whilst countries may decide to pursue tourism for economic benefits, they can become reliant upon the income and employment benefits; yet the tourism market is extremely fickle and a fashionable destination one year may be out of vogue the next year. Tourism Concern (2010) conducted research in the Gambia looking at the economics of ‘all inclusive’ holidays upon local communities. The results indicated that very little economic benefit flowed through to local communities’ and as a result the Gambian government banned these types of holidays.

The prosperity of international tourism is very closely linked to the general economic and political stability in the world. An economic downturn such as the current one coupled with the strong interconnections in the global financial markets can have a significant impact on the short term evolution of tourism, not only in individual destinations, but also for regions or even the world as a whole. Again, this is seen in Figure 3.1 with a reduction of tourist arrivals from 920 million in 2008 to 880 million in 2009.

Tourism is also very reliant upon the economic conditions in generating regions. When economic conditions are strong, then disposable income is high and tourism flourishes. Conversely, when economic conditions are tough, this tends to result in a decrease of tourism spending, which emphasizes that tourists have high adaptive capacity.

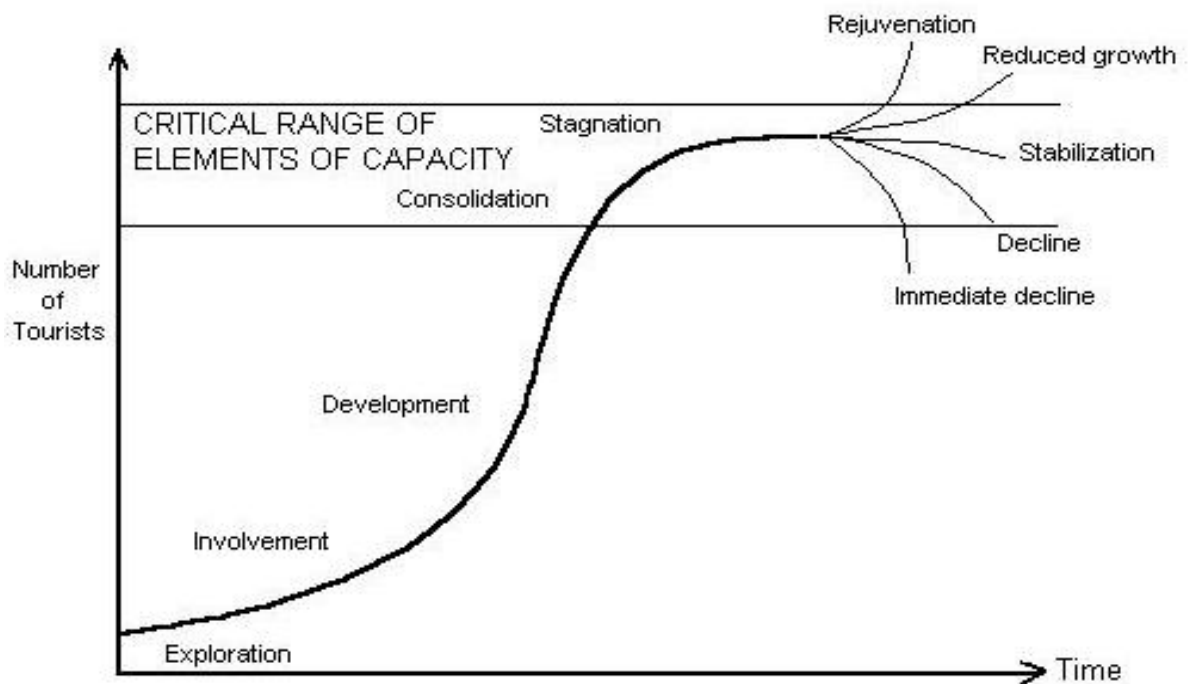
### **3.3.1 Destination life cycle**

The concept of the tourism area lifecycle (TALC) was developed by Butler (1980) and provides an insight into how destinations become popular, develop and then struggle to survive as a tourism destination. The types of tourists that are attracted to the destinations and possible social, economic and environmental impacts are also aligned to the cycle’s various stages. The tourism area lifecycle suggests that development in holiday

destinations progresses through five distinct stages (exploration, involvement, development, consolidation and either decline or rejuvenation). The way in which the destination is managed can culminate in one of five possible outcomes as illustrated on Figure 3.6.

Butler took Christallers's (1963) idea that tourism areas consistently evolve and adapted it to the traditional marketing model that of the product lifecycle. He suggested that the key factors to consider along with the number of visitors are the types of visitors, their length of stay, the ownership of the tourism businesses, the architecture and environment, and residents' attitudes and involvement, as they will provide an indication of the changes that are evolving. These factors, whilst difficult for participants in the tourism industry to observe in a dispassionate way, can act as indicators for the types of policies that should be pursued at a local level.

Figure 3.6 Tourism area life cycle



Source: Butler, (1980)

In the initial stages of tourism development a small number of allocentric tourists explore and establish the unique features of the destination. There will be very few changes to the fabric of the destination and the economic, environmental and social impacts would be

minimal to the local residents. At the involvement stage, as the number of visitors increases, local people will provide facilities such as guest houses and restaurants. This results in greater contact between tourists and the hosts and as a result some economic, environmental and social impacts are felt. On the positive side this might be economic gain for business and local people; on the negative side, it could result in some exploitation of cultural or natural resources. This is often the catalyst for local and national government to become involved in the protection of these resources and improved facilitation of tourism infrastructure, usually through a tourism development plan rather than the ad hoc opportunistic development that has previously occurred via local entrepreneurs. By the time the destination reaches the development stage, the control within the destination has been passed from local stakeholders to national or even international stakeholders, such as large hotel chains and tour operators. This can lead to the commoditisation of the destination in the generating markets, which is quite suited to the requirements of mid-centric tourists, who are the dominant visitors. Unless tourism development is very clearly planned and controlled the positive economic, environmental and social impacts for local people tend to diminish in this stage, as stakeholders with less involvement in the consequences of planning hold greater power than the local and regional stakeholders. Visitor numbers often grow to exceed the local residents and pressure groups emerge to provide a voice for discontent about the deterioration of the area. At the consolidation stage the number of visitors reaches a peak and they tend to be mostly psychocentric in nature. Public and private sector stakeholder groups need to channel a great deal of resources into the marketing of the destination to ensure good occupancy rates are maintained. The tourism infrastructure now begins to look dated and often destinations are reliant upon their previous reputation, development is halted, as income streams slow down and visitor numbers decline. Local residents not involved in the tourism sector often become vocal about the problems. The destination then passes into the stagnation phase, where the incumbent social, economic and environmental problems are very apparent with less tourists wanting to visit the destination as it is no longer fashionable. At this point the stakeholder groups need to decide whether to encourage rejuvenation, or allow the destination to go into decline.

A key limitation of this model is that it does not give an indication of time scale and whether the development process is continuous or staged. Many Researchers have

attempted to track the development of destinations using the model (see Agarwal, 1995 and Rodriguez, 2008) and indeed provide an update it. However, it must be remembered that all destinations are unique and need individual examination to gain an insight into how tourism is developing. Butler's tourism area life cycle provides a framework for tourism academics and practitioners to understand the various stages of a tourism development within destinations and it would be too simplistic to suggest that a 'one size fits all' solution is available. The model is useful in that it enables a more strategic perspective to be used by stakeholder groups to ensure that appropriate management and planning is being undertaken at the various stages of the lifecycle to avoid an excess in carrying capacity that can create the negative economic, environmental and social impacts. These are referred to in Mathieson and Wall's (1982) conceptualisation of tourism outlined below.

### **3.3.2 Carrying capacity**

The impacts on the physical environment of a destination can be examined through the carrying capacity of the destination. Carrying capacity is defined as the maximum number of tourists that a site can accommodate without unacceptable impacts on the physical, socio-cultural and economic environment and diminishing the tourist's satisfaction with the experience. There is an extensive literature in this area, for example, Mitchell (1979), Getz, (1983) O'Reilly (1986) and McCool and Lime (2001). Whilst the concept is seemingly attractive and a useable basis for research, in reality great difficulties have been experienced in its practical application due to tourism being complex and dynamic in nature. Hall (1974) found that each capacity type will vary for different destinations depending on the physical characteristics, the types of use and the goals they are expected to satisfy. So each destination will have an individual threshold beyond which tourism activity is perceived as predominantly negative, below this threshold, tourism is normally perceived as positive. Ritchie and Crouch (2003) suggest that it is the enhanced benefit to the local community that is the success for a competitive destination and this may require limiting the number of tourists that visit.

The tourism area life cycle is a pertinent model within this research as it permits the Researcher to gain an insight into the stage of development of each destination and the roles of the public and private sector stakeholder groups within these stages. Some of the



impacts of climate change manifest in negative environmental impacts, such as damage to coral reefs through increased sea water temperature. However, these consequences are not as a direct result of the number of tourists visiting the particular area, so stakeholders are having to respond to factors outside of their direct control. These could also accelerate the rate at which the destination passes through each of the TALC as the consequences of climate change reduce the attractiveness of the destination to potential tourists.

#### **3.4 STAKEHOLDER INVOLVEMENT IN TOURISM PLANNING**

In tourism destinations there are numerous stakeholders including the industry, special interest groups, residents and even the tourists. Each of these stakeholder groups has different views, expectations and needs relating to the development of the destination. Wray (2009) proposes that a prerequisite for collaborative engagement between stakeholders in tourism destinations is democratic freedom. A functioning democracy would ensure that different stakeholder groups are able to represent their ideas without fear of reprisals from the authority and this would be essential in the engagement and collaboration of different stakeholder groups with tourism policy. Inevitably, as stakeholders are drawn from all sections of society and all have their own aims and objectives, there will be conflicts between the groups, which can be detrimental to the success of the destination. Usually it is one of the roles of the National Tourism Organisation (NTO) to manage the process of stakeholder engagement to ensure that all stakeholder groups feel listened to and a consensus reached, or where there is conflict between the different perspectives, an effective resolution reached.

The stakeholder concept was used in public planning literature in the early 1980s. Freeman (1984) stated there needed to be an organisation or management context that included an individual or group who could affect the organisations objectives or performance. Fifteen years later, Frooman, (1999) proposes that stakeholder theory could be used to answer three general questions: i) Who or what are the stakeholders (in this research of the destination)? ii) What do they want? iii) How are they going to get there? These questions could be useful in the tourism sector as they provide an insight into the key players, their motivations resources and interest groups. It may be particularly useful when the sector is made up of so many diverse groups for example, from small dive operators and hoteliers to large tour operators. Within stakeholder theory there is a distinction between strategic

stakeholders, being those with a management role that can use power to achieve the aims of the firm; and moral stakeholders who balance the needs of the different stakeholder groups (Goodpaster, 1991).

Ryan (2002) argued that tourist destinations are ‘bundles of resources’ rather like organisations. However, destinations are more complex than a closed organisation; they are made up of multiple suppliers and agencies with competing needs (Pavlovich, 2003) such as a hotel and a destination management organisation (DMO), who may disagree on which market segment to target or on the carrying capacity of a particular attraction. Stakeholder theory has had limited impact on mainstream tourism literature and articles that do refer to it tend to be related to sustainable tourism research. An illustration of this is Lane (1994), who suggested that when a destination adopts a sustainable tourism philosophy<sup>6</sup>, it is using a stakeholder approach, as all the groups can affect or be affected by the tourism development.

Getz and Temur (2005) suggest that within sustainable tourism there are three main stakeholder groups in destinations. Firstly, the tourism industry has the common goal of economic and resource sustainability. Secondly, the environmental supporters have the common goal of resource protection and finally, the community and local authorities who have the common goal of sustainability. The inference is that all the stakeholders have the common goal of sustainability, but often local businesses are there to maximise profit, whilst the local government is there as more of a moral stakeholder in balancing social and environmental protection with economic gain.

A distinction is frequently made between tourism business and local government when examining the management of destinations. For the purpose of this research a distinction will be made between the public sector and private sector stakeholder groups. Public sector stakeholders are those representatives of government at either a national, regional or local level. As the public sector has regulatory power and responsibility for economic, social and ecological impacts in the development and planning of tourism it has important roles (Page, 1995). This is not to undermine the role of private sector stakeholders who are

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<sup>6</sup> Sustainable tourism can be defined as: “forms of tourism which meet the needs of tourists, the tourist industry, and the host communities today without compromising the ability of future generations to meet their own needs” (Swarbrooke, 2002:13)

from tourism businesses large and small that operate to maximise profit. The private sector is essential for providing much needed investment into tourism destinations through the provision of accommodation resorts, food and drink establishments and visitor attractions. It is the effective galvanisation of these diverse groups that leads to effective destination management.

Wray (2009) has conducted research into policy communities in tourism destinations and states that Researchers need to see beyond a single issue or sector and develop an appreciation of the multi-layered, cross-sectorial issues that characterise tourism. To facilitate the process of engagement between the public and private sector, Gunn (1988) identified ‘knowledgeable individuals’, who might have specific training or special access to more information than the ordinary members of the community and hence they can use this knowledge and experience to provide particular insights into issues that are affecting the community (Twining-Ward and Butler, 2002). As climate change is such a significant issue for island tourism destinations it is important that stakeholders are involved in shaping a coherent tourism strategy and creating a clear direction for future development. The mechanisms for balancing these views are far more complex than they appear. As a result, all stakeholders should be perceived as having relative power irrespective of their size and a legitimate voice should be given to all, which the Researcher will ensure when conducting research. Wesley and Pforr (2010), highlighted that the lack of appropriate forms of governance coupled with power relationships between stakeholder groups impeded participation in the development, management and planning within coastal tourism destinations.

The next section identifies the roles of the WTTC (private sector) and the UNWTO (public sector) and the progress that each group has made in connection to climate change.

### **World Travel and Tourism Council**

The World Travel and Tourism Council is the forum for the Chairmen, Presidents and CEOs of one hundred of the world's foremost Travel and Tourism companies (WTTC, 2010b). The WTTC represents the large global private sector organisations within the industry, which includes hotels, tour operators and airlines. It has gradually become more involved in the tourism and climate change debate stating it: “believes that

governments continue to mistakenly disparage the industry over greenhouse gas emissions. And yet have made little attempt to consult with it in drawing up climate change policies” (WTTC, 2010c:27). They set out their position in a policy paper, *'Climate Change: A Joint Approach to Addressing the Challenge'* highlighting the need for a policy framework conducive to the sustainable development of the industry while decoupling growth from increased greenhouse gas emissions. The recommendations outline the need for:

- Industry dialogue and increased private public partnerships to develop cost-effective mitigation and adaptation strategies
- A level playing field free from restrictions on trade and intellectual property rights' infringements - essential for green investments to be valued positively and deployed effectively
- Policies which harness the power of the market and its agents to drive innovation in climate change mitigation and adaptation measures
- Financing and investment in measures to encourage low-carbon Travel and Tourism operations
- Clear messages to consumers communicating the scale of the global threat while at the same time empowering citizens to effect change.

### **World Tourism Organisation**

The World Tourism Organisation (UNWTO) was formed in 1946 and is a specialized agency of the United Nations and the leading international organisation in the field of tourism. It serves as a global forum for tourism policy issues and a practical source of tourism know-how. Its membership includes 154 countries, 7 territories and over 400 Affiliate Members representing the private sector, educational institutions, tourism associations and local tourism authorities (UNWTO, 2010b). The UNWTO has had a longer engagement with climate change than the WTTC. Since 2003 they have hosted three conferences and produced a number of policy documents on the issue. As the World Tourism Organisation (WTO) is an umbrella organisation of the United Nations (UN), the UNWTO adopts the UN stance in its position. The United Nations has been tasked with developing a global response to the challenge of climate change, coherent with the Millennium Development Goals. As a result, the United Nations has for many years been developing a framework designed to establish a long-term post-Kyoto

roadmap, which includes targeted milestones. The tourism and travel sector, given its hugely important economic and social value, its role in sustainable development and its relationship with climate, has a significant role to play in the UN's overall framework on climate change (UNWTO, 2009c). UNWTO has been studying the issue for many years as part of its contribution to sustainable development and the Millennium Development Goals (see Footnote 5). UNWTO is actively working to raise awareness on climate change issues in the tourism sector and on integrating tourism into the United Nations and other international policy processes on climate change.

The UNWTO commenced work on tourism and climate change approximately a decade before the WTTC. The first international conference on climate change and tourism in 2003 took place in Djerba, Tunisia. The key aim of the conference was to draw the attention of tourism stakeholders to the issue of climate change and to encourage them to start to take the issue seriously. Delegates from 45 countries signed the Djerba declaration on climate change (Appendix 2). The conference drew attention to climate change impacts that were already being observed in some tourism destinations and that more dramatic impacts would occur over the next century. There was recognition that the tourism industry needed to reduce greenhouse gas emissions as aviation was the area of fastest growth of emissions. One of the most important aspects of the conference was a request for further research to be carried out by the tourism industry, so they could be proactive in their response to climate change and not compromise the interests of the various stakeholder groups.

The UNWTO organised the second conference on tourism and climate change in Davos, Switzerland in 2007 (which was attended by the Researcher). The key stakeholders of the industry were brought together to review international processes and discuss adaptation and mitigation. The conference culminated in the Davos Declaration (Appendix 3).

The main aims in the Declaration are to:

- Mitigate greenhouse gas emissions from the tourism sector (especially from transport and accommodation activities)
- Adapt tourism businesses and destinations to changing climate conditions
- Apply existing and new technologies to improve energy efficiency
- Secure financial resources to assist poorer regions and countries.

This section has established that tourism destinations are complex bundles of resources that involve both public and private sector stakeholders in their management and development. The tourism sector has been slow to adopt the concept of stakeholder theory, but there are important lessons that can be learnt, such as understanding the different perspectives and working together to overcome inevitable conflicts. These ideas could prove useful in the development of adaptation and mitigation strategies to climate change, as these stakeholders plan and deliver the tourism product and have the ability to make alterations to aspects of the product in light of the challenges of climate change. The international organisations UNWTO and WTTC, which represent the public and private sectors have both responded to the issue of climate change, but from different perspectives. The UNWTO is concerned about the implications of climate change that it might impede the ability of nations, particularly developing ones, to use tourism as a means of providing stable economic growth. The WTTC is vociferous in the defence of the rights of tourism businesses to operate without government or international regulation as this would impede economic growth and place unnecessary burdens on the private sector. The next section examines further the reliance of the tourism industry upon the natural environment.

### **3.5 INTERRELATIONSHIPS BETWEEN TOURISM AND CLIMATE CHANGE**

The natural environment and climatic conditions are important prerequisites for tourism. Holiday makers will frequently use these factors to determine the destination of their holidays; this is illustrated by the flow of tourists from northern to southern Mediterranean. Geographers have been aware of this and have conducted research into the interrelationship over a few decades (see Paul, 1972; Adams, 1973; Mieczkowski, 1985; Harrison *et al.*, 1986; Ewert, 1991; Halfinger, 1991, Smith, 1993; Perry, 1997; de Freitas, 2003). However, this knowledge has not been transferred into the literature on tourism destination choice. Crouch (1995) and Witt and Witt (1995) suggest this is because the climate is deemed beyond the control of managers, or because the climate was seen as a constant with no major changes to the patterns.

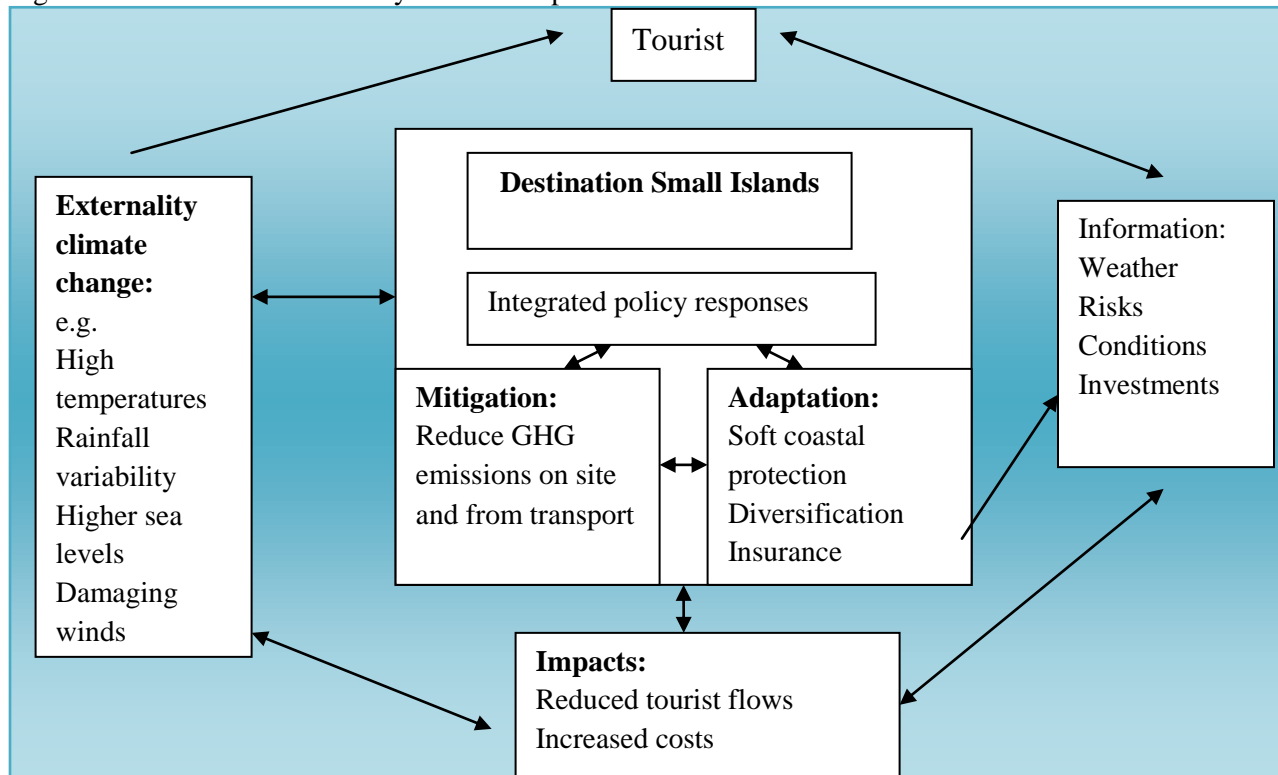
The geographic and climatic features of countries are often the reasons why tourists visit. Geographic features such as elevations and coral reefs or granite outcrops provide recreational opportunities for skiing, scuba diving, snorkelling and swimming etc. The

climatic conditions of a destination have often been taken for granted, with tourists travelling south to the Mediterranean seeking the warmth of the sun, or to the Alps for snowy conditions. The climate is also a principal driver of the seasonality of the tourism industry and stimulates supply and demand and thus becomes a component of the price of a holiday. Therefore changes to climatic conditions could have enormous ramifications for the profitability of the industry (UNWTO, 2007). This aspect has already been examined in section 3.3 when considering Butler's tourism area life cycle, a key reason for the development of a destination is a natural environmental feature such as the Great Barrier Reef; whilst it is the management by stakeholder groups that can lead to economic gain or loss.

There are two types of geographic areas often focused on in the tourism and climate change literature these are mountainous regions and small islands. Both these locations are frequently used as tourist destinations, such as the Rocky Mountains and Caribbean islands. Some areas could gain as their climate improves, such as the south of England, which is predicted to become warmer and so more attractive to tourists (Giles and Perry, 1998). Conversely some areas will lose out in terms of tourism, particularly ski and small islands destinations that are considered to be most at risk. Numerous studies have been conducted on the potential effects of climate change on tourism and outdoor recreation, in particular in snow destinations (Giles and Perry, 1998; Mendelsohn and Markowski, 1999; Fukushima *et al.*, 2002; Scott *et al.*, 2002; Hamilton *et al.*, 2005; Dawson *et al.*, 2010; Eijgelaar *et al.*, 2010). Climate change is not homogenous in its impacts and by its nature will affect different areas of the world in different ways.

Both geographic areas have been identified by the IPCC (2007a) as seeing the consequences of climatic changes, which could disrupt the ability of these destinations to attract tourists in the future (Scott *et al.*, 2004, Amelung and Viner, 2006 and Amelung *et al.* 2007). Becken and Hay 2007 produced to show a model of the tourism-climate system in a small island setting (see Figure 3.7).

Figure 3.7 The tourism-climate system with a particular focus on Small Islands.



Source: Becken and Hay 2007

As the whole world is affected by climate change, so too are all tourist destinations, but there will be some winners and some losers (Mendelsohn and Markowski, 1999). The IPCC (2007:337) identifies key hotspots of societal vulnerability in coastal zones and one specific sub group is coastal areas with tourism based economies where major adverse effects of tourism are likely, such as the Caribbean, Mediterranean, Florida, Thailand and Maldives. Tropical island states have been highlighted as a particular type of destination that will be adversely affected by climate change, but unlike skiing destinations there has been very limited research on island tourism. This research contributes to knowledge in the under-researched area of island tourism destinations. Referring back to section 3.2 on the major tourism flows, tropical island destinations were not specifically identified in Table 3.1, so a summary of the predictions is included below in Table 3.3.



**Table 3.3 Summary of climate changes and their probable impact on Tropical Island States**

Climate Change Predictions	Implications / Consequences for Tourism Industry
- Relatively small temperature rises	<b>Beach erosion and coastal flooding</b>
- Relatively small rainfall changes	<b>Possible submergence</b>
- Sea level rises critical	<b>Salinisation of aquifers</b>
- Storm frequency and intensity increases	<b>Reef damage and erosion</b>
- Coral bleaching	<b>Increasingly untenable beach resorts</b>
	<b>Ingress of new tropical disease</b>
	<b>Increased energy cost for air conditioning</b>
	<b>Reduced demand for holidays to worst affected islands</b>
	<b>Reduced demand for dive holidays</b>

Source: Travel Research International (2003)

There has been recognition that whilst many nations will experience adverse effects small island states may face the most dire and immediate consequences (Burns, 2000; Lal *et al* 2002 and Hall, 2005). Hence, this study will focus upon island tourism destinations.

### **3.5.1 Coastal tourism**

This section provides a brief overview of the coastal tourism literature and quickly focuses on island destinations. Hall (2002:602) identifies coastal tourism as “embracing the full range of tourism, leisure and recreationally orientated activities that take place in the coastal zone and the offshore coastal waters. These include coastal tourism development (accommodation, restaurants, food industry, and second homes) and the infrastructure supporting coastal development (e.g. retail businesses, marinas, and activity suppliers)”. As it was seen in Figure 3.7 international tourism flows are heavily reliant upon good quality beaches and sunny weather and Leidner (2004) reports that 60 percent of trips within Europe with a minimum of four nights stay take place at the seaside. Coastal areas present excellent opportunities for tourism as they are an amalgamation of ecological, socio-cultural and economic values that are of interest to people, processes and industries (Clarke, 1998). Wesley and Pforr (2010) argue that coastal tourism is now seen as a dynamic, fast growing and economically attractive form of contemporary tourism, encompassing a range of tourism, leisure and recreationally orientated infrastructure and

activities. Given that coastal resorts are still the main tourist destinations for many leisure tourists, it is surprising that there has been limited coverage of these destinations within the tourism and climate change literature and that the tourism research that has been conducted predominantly has been based in Northern and Southern Europe (Shaw and Agarwal, 2007).

### **3.5.2 Small Island Developing States**

The United Nations has been recognizing the particular problems of Small Island Developing States (SIDS) since 1994. However, the UN never established an official criteria for SIDS; the term is simply associated with islands that are perceived as being at a greater risk of marginalization from the global economy than many other developing countries. This essentially results from the combined adverse consequences of their:

- small size,
- remoteness from large markets (a factor of high transport costs), and
- high economic vulnerability to economic and natural shocks beyond domestic control.

With their fragile ecosystems, SIDS are also highly vulnerable to domestic pollution factors and globally induced phenomena such as sea level rise (UNCTAD, 2010).

The major emphasis of the literature on SIDS focuses upon concerns about the environmental fragility of the islands and the economic reliance of these states on tourism, with concentration on the Caribbean and Pacific areas (Campling and Rosalie, 2006). There tends to be a number of inbuilt vulnerabilities with SIDS, in that they have small populations, so in turn have small domestic markets and this tends to isolate the islands from major trade markets. As a result they are often reliant upon international trade (Briguglio *et al.*, 1996; Milne, 1997). SIDS also have a predisposition to be geographically isolated and have limited transport links to major markets. In addition, Harrison (2007) suggests there tends to be a lack of appropriate skills and inadequate amounts of local capital, which means these countries tend to be vulnerable to external shocks, such as natural disasters, political instability and terrorism (Hoti *et al.*, 2005). For example, Briguglio (1996) reported the main environmental susceptibility of SIDS to be the threat of sea level rise and the location of these small islands to phenomena such as cyclones,

hurricanes and tsunamis. The vulnerability of SIDS was further supported by McElroy and Albuquerque (2002), who testified that construction related to tourism frequently created beach erosion, siltation of lagoons and reef damage. In addition to the concern about the physical environment, tourists also place additional demand and pressure on fresh water supplies, energy sources and waste disposal within SIDS (Thomas-Hope, 1998) which can make the management of tourism destinations extremely challenging.

Belle and Bramwell (2010) conclude that the importance of tourism in such countries and the tendency for tourism to be concentrated around the coast, make these countries particularly vulnerable to climate change. In addition the impacts of climate change on SIDS will exacerbate these problems and create new issues for practitioners and policy makers to factor into their decision making within these destinations. Scheyvens and Momsen (2008:494) take up this point when examining the vulnerability and strengths of SIDS. They suggest that some of these countries reject the support offered by outside agencies and endeavour to lead self-determined sustainable futures, whilst others “actively play upon their vulnerabilities while negotiating aid or concessions from western countries, regional organisations, international development organisations and the like. In particular, countries like Samoa and the Maldives that have ‘Least Developed Country’ status are not always keen to graduate from this status”. This illustrates that sometimes a dependency culture can be adopted, which in the longer run could compromise the sustainability of these nations and their ability to respond effectively to climate change, as they tend to wait for outside intervention rather than proactively develop suitable solutions. Scheyvens and Momsen (2008) argue that narratives about islands that refer to the local people as vulnerable and lacking skills can undermine their pride and stifle their initiatives, and suggest more empowering language should be adopted. Thus it can be seen that SIDS do have complex economic, environmental and social considerations.

### **3.5.3 The projected effects of climate change on island tourism destinations**

This section uses the UNWTO (2008) categories of how projected climate change impacts could affect tourism destinations’ competitiveness and sustainability. Four classifications are used namely: direct climatic impacts, indirect environmental change impacts, impacts of mitigation policies on tourist mobility, and indirect societal change impacts. Each will be examined in turn and related to island tourism destinations.

## **Direct climatic impacts**

In Chapter Two (section 2.2) the predicted effects of climate change were outlined according to the IPCC (2007) as being:

- Current climate models predict a global warming of about 1.4 – 5.8°C between 1900 and 2100
- The average sea level is predicted to rise by 18 to 59cm by 2100
- Regional and seasonal warming predictions are much more uncertain
- Inland regions are projected to warm faster than oceans and coastal zones
- Regionally both increases and decreases in precipitation are projected typically of 5 to 20 percent
- The frequency and intensity of extreme weather events are likely to change.

The UNWTO (2008) has taken these predictions and applied them to SIDS and identified the direct impacts of climate change as being:

1. Sea level rises (IPCC, 2007a) which will cause beach erosion and at worst the loss of some low lying resorts. The water rises will create problems of salinating ground water supplies and changes in the natural defences and eco systems of coastal areas, such as the loss of mangroves and flood plains.
2. Increases in the temperature of the sea (IPCC, 2007a) will create problems of coral bleaching. There only has to be an increase in temperature of 1°C to create coral bleaching and the recovery period of the coral varies according to the increase in temperature and the length of time over which the increase has occurred. Mather Viner and Todd (2005) suggest that this is likely to occur in South East Asia first and by 2020 this will be a regular occurrence each year.
3. Changes in storm frequency and intensity (IPCC, 2007a), are likely to exacerbate the problems above, especially as the natural defences, such as, mangroves are likely to have been damaged. These changes are also likely to cause damage to coral reefs. These impacts could also increase the costs of tourism destinations as they will require additional emergency preparedness, and higher operating costs

such as increased insurance and expensive energy back-up systems (UNWTO, 2008).

The direct impacts of sea level rise, increased temperature and change in storm patterns will have a direct effect on the seasonality of some island destinations as the key tourism season changes. For example, the busiest tourism period in the Maldives is Christmas; but the temperature might become too hot for tourists in the future, so this could have a direct effect upon demand and global tourism flows that have been identified in section 3.2. The direct impacts of climate change will have consequential effects to the environment and create indirect environmental change impacts that will be explored below.

### **Indirect environmental change impacts**

As the tourism industry is so sensitive to environmental conditions, changes to the environment will present the tourism industry with indirect effects at a destination and regional level. Changes to water supplies, biodiversity loss, altered agricultural production, increased natural hazards, coastal erosion, damage to infrastructure, increased vector-borne diseases will all impact on tourism destinations to varying degrees (UNWTO, 2008). For example, UNESCO (2007) has identified a number of World Heritage Sites that will be detrimentally affected by climate change, such as Great Barrier Reef and Venice, and often these resources are critical for tourism destinations. Small islands are particularly vulnerable to beach erosion, which could deter tourists from visiting. These indirect changes will combine with the direct impacts and potentially make the destination less attractive for tourism. This could have the potential to accelerate the tourism destination into the decline stage of the tourism area life cycle prematurely and have enormous ramifications for those destinations heavily reliant upon tourism as an economic income stream. It is important to recognise that the impacts of climate change are not only felt in the tourism destination, although this is where the impacts are of most significance, but also in the generating region where tourists make their decisions where and when to go on holiday. This is examined below.

### **Impacts of mitigation policies on tourist mobility**

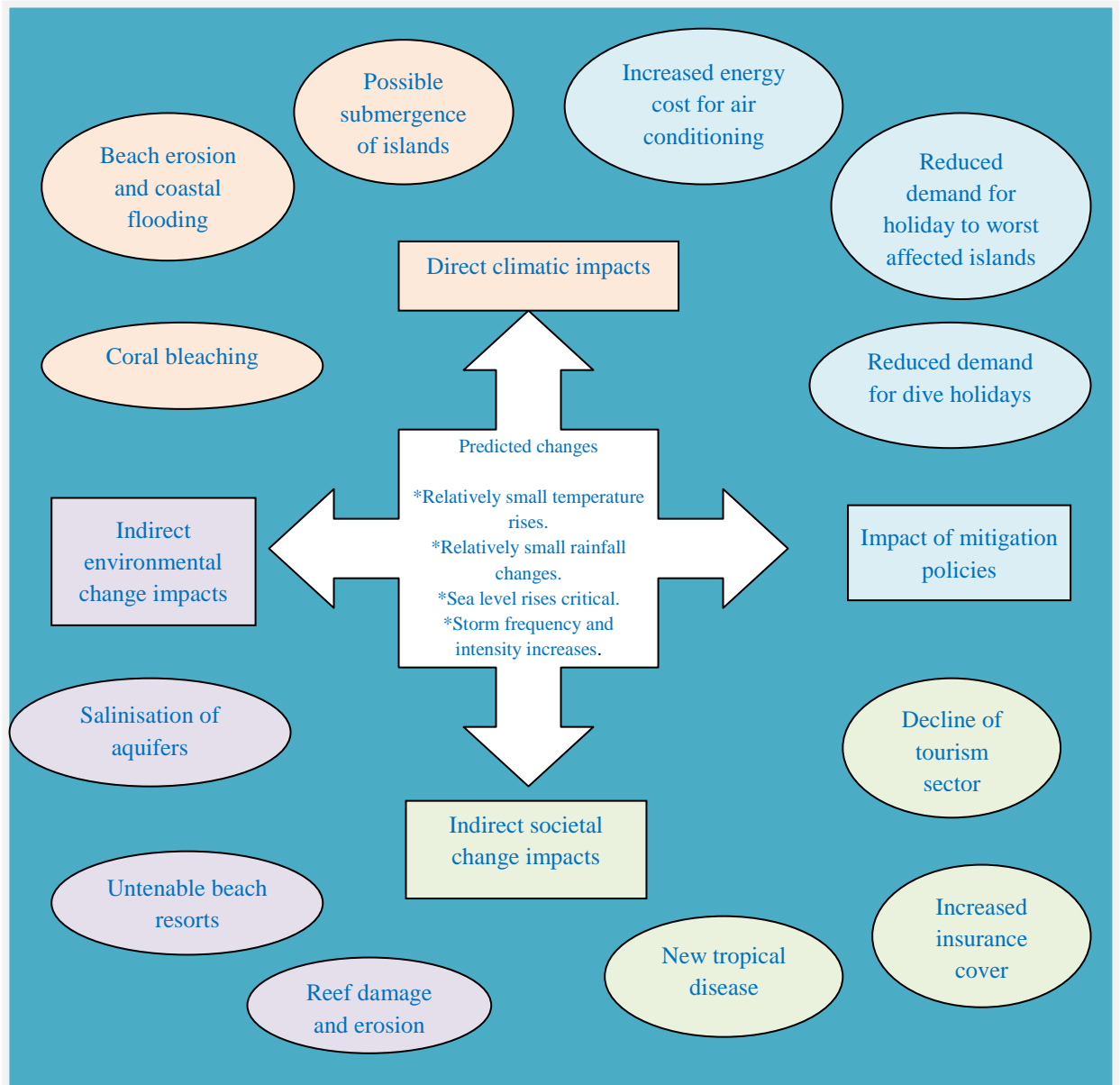
Mitigation policies seek to reduce GHG emissions into the atmosphere and both international and national policies, such as the Kyoto Protocol and the Copenhagen Accord

(outlined in Chapter Two) could have an impact on tourism flows. There are three key concerns regarding mitigation measures. Firstly, these policies could make transportation between the generating and destination region more expensive for tourists through the use of taxation on fossil fuels used for transport. This coupled with increased oil prices expected over the medium to long term could make the cost of air travel for the majority of tourists prohibitive. The second concern is that tourists might adjust their attitude to different transport modes (due to their relative contributions to GHG emissions) and this might result in changing travel patterns. For example, tourists may only decide to only do one long haul flight every five years, or decide to take the train instead of an aeroplane. Long-haul destinations such as South East Asia, Australia and the Caribbean have registered their concerns about this (Bartlett, 2007; Boyd, 2007; Caribbean Hotels Association and Caribbean Tourism Organisation, 2007). Thirdly, often by their geographic positions islands are often reliant upon air travel to transport tourists to their destinations. The combination of the direct and indirect impact of climate change and mitigation policies could mean a change in tourist flows, which would have detrimental effects to some tourism island economies and this is expanded upon below, in the last of the impacts identified by the UNWTO.

### **Indirect societal change impacts.**

Climate change is thought to pose a threat to future economic growth (Stern, 2006, see section 2.3.3). The Stern Report concluded that whilst a 1°C change to global temperatures might improve GDP, further changes would reduce GDP and this might lead to a reduction in consumption per capita of 20 percent. The knock on effect for the tourism industry would be to reduce tourism demand as fewer people would be able to afford to travel. This would result in reduced economic performance within tourism destinations, which would have a direct effect upon the well-being of the resident people within tourism island destinations. Figure 3.8 pulls these impacts together and illustrate some of the implications for tourism stakeholders in island destinations.

Figure 3.8 Impacts of climate change on island tourism destinations

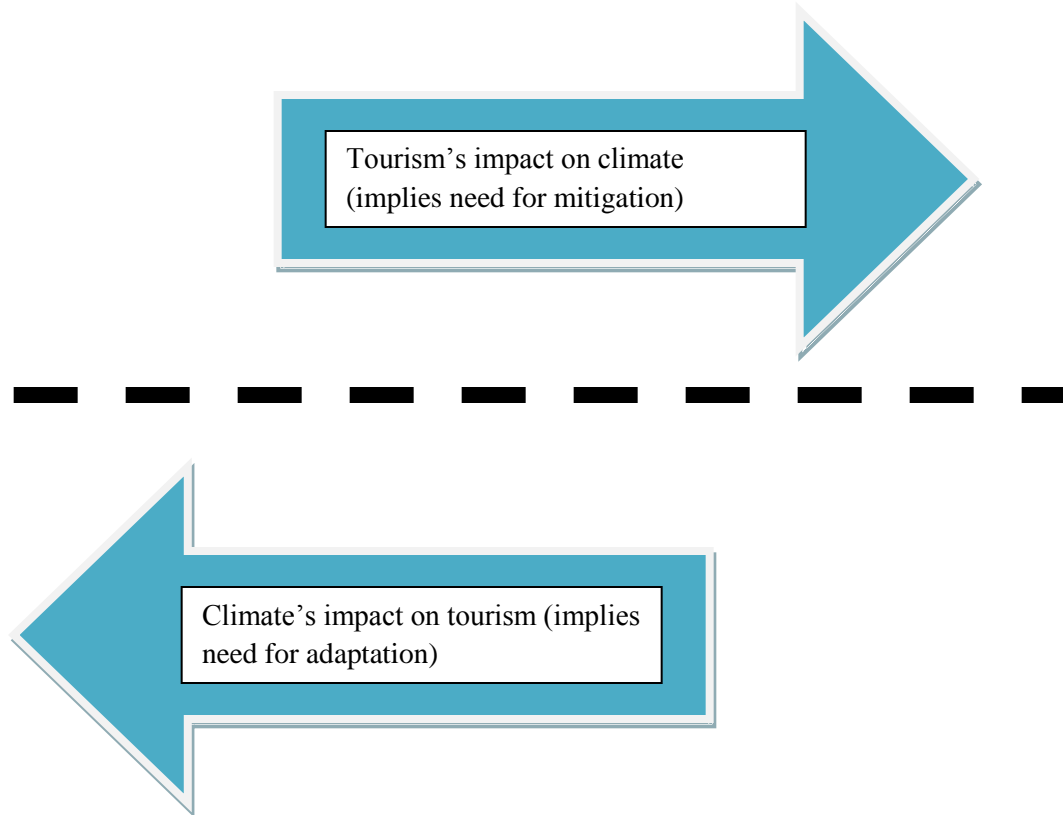


Source: Researcher

Given the predictions outlined in Chapter Two, section 2.2, the seriousness of the situation for island tourism destinations is beginning to emerge. Unless the stakeholders that are involved in the planning and management of these destinations begin to produce suitable policies to address these impacts and their consequences, then the future for tourism island destinations looks rather bleak. Policies need to be developed at both an inter-sectorial level, such as developing suitable coastal defences and the integrated management of coastal zones (involving both the tourism and fishing industries), and also for the sustainable development of tourism within these destinations.

In the previous section of this Chapter it has been established that climate change will have direct and indirect consequences which are likely to effect the competitiveness of tourism businesses. The tourism industry is able to respond to climate change through adaptation and mitigation, this relationship is illustrated in Figure 3.9.

Figure 3.9 The tourism-climate change system as a ‘two-way street’.



Source: Patterson, Bastianoni and Simpson (2006)

The next section of this Chapter examines the impacts of climate change and adaptation and mitigation options in more detail. It examines what actions tourism stakeholders can take to respond to the challenge of climate change.

### 3.6 ADAPTATION – ACTIONS IN CURRENT RESORTS AND FUTURE OPPORTUNITIES

As a result of climatic change, destinations will need to make adjustments to their operations to respond to the impacts of climate change. Islands and coastal areas will be some of the most vulnerable tourism destinations to climate change. The main changes are expected to be: increased intensity and frequency of extreme events, sea level rise, changes



in ocean circulation and changes in the natural ecosystems (Becken and Hay, 2005; IPCC, 2007b). Each of these changes will be taken in turn to examine the adaptations that destinations can make to respond to changes in the climate.

### **Extreme events**

There is high confidence<sup>7</sup> that the most significant impact of climate change is that there will be more extreme events (e.g. flooding, tropical cyclones, storm surges, heat waves) and more variability in the climate (e.g. droughts, prevailing winds and increased coastal erosion) (IPCC, 2007b). These predictions mean that most island tourism destinations will need to make significant adjustments to their infrastructure and products. For example, if destinations are going to have to deal with storm surges, then buildings are going to have to be built further away from the high water level to allow for dispersion of high water and or flooding. In addition, if stronger winds are expected the structure of the buildings needs to be enhanced to reduce the likelihood of damage from stronger winds. Both of these examples require changes to the planning processes to ensure that future buildings and infrastructure are developed with the ability to cope with these predicted changes.

### **Sea level rises**

Sea level rise would be a major concern for coastal tourism destinations. IPCC, 2007, suggests that sea level rises could range from 31 to 65cm by 2100. This would result in some islands becoming submerged, beach erosion and land encroachment, all of which would be detrimental to the tourism sector. The implications of this are significant. As already identified, a key focus of sun seekers is the use of the beach and if this does not exist or becomes too financial prohibitive for the resort owner to maintain, then a core determining element that would have attracted tourists previously may be diminished. The extreme illustration of this is that island tourism destinations could be submerged and the product no longer exist. Two destinations identified as being particularly vulnerable due to their low lying geography are the Maldives and Tuvalu.

### **Ocean circulation**

Modelling techniques have been developed to project how global winds and ocean currents will change dependent upon many variable factors such as rainfall and tropical

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<sup>7</sup> high confidence, about 8 out of 10 (IPCC, 2007)

cyclones (this was covered in Chapter Two, section 2.2). El Niño Southern Oscillation (ENSO) manifests in a reduction of rainfall in Australia. As it develops it results in anomalous weather and climate conditions worldwide, such as a decrease in tropical storms in the Atlantic Ocean, droughts in the Caribbean and central America, an increase in tropical storms in the eastern Pacific and wetter conditions in the USA and eastern Africa (UNWTO, 2008). The increased tropical storms and wetter conditions are predicted to be of particular concern to the tourism island destinations in the Indian Ocean (Charabi, 2010) and may result in changes to the patterns that tourists visit destinations. These two impacts would again compromise the tourism product as ‘sun seekers’ tend to travel to destinations for constant sunny weather. The tropical storms could also be severe enough to be a risk to the infrastructure within destinations, thus making insurance premiums higher which could compromise the economic viability of some destinations. There are limited feasible adaptations that destinations could take to address this, other than maximising occupancy at times of the year when there is less likelihood of tropical storms.

### **Ecosystems**

Each of the preceding climate impacts has the potential to adversely effect coastal and marine ecosystems that the tourism sector is reliant upon. Tropical storms can destroy mangroves and coral reefs and changes to ocean circulation can increase beach erosion. A study conducted by Hoegh-Guldberg and Hoegh-Guldberg (2004) established that most of the tourists in the Great Barrier Reef region were there to see the reef and this contributed approximately 70 percent of the total tourism expenditure in the region, highlighting the value of ecosystems to the tourism sector. The Indian Ocean has ecotourism hotspots such as Madagascar and the Seychelles, so if these ecosystems on which tourism is dependent were damaged, it could result in the indirect societal change impact (reduction of the tourism sector) identified in section 3.5. There is limited adaptation that could occur if the ecosystem that tourists came to see was damaged. Possibly destinations could change their product offering to focus in ‘sun and sand’ holidays rather than dive tourism.

Just one climate change impact could be detrimental to the future of tourism in a destination. But if the predictions are correct, the combination and related consequences could be particularly extreme such that some island tourism destinations are not sustainable. The UNWTO produced two sets of recommendations for adaptation by the

tourism sector. The first set is general to the tourism sector and the second set is specifically for SIDS.

Following the Djerba conference on tourism and climate change the UNWTO (2003) suggest the following adaptation measures for the tourism industry in general:

- Traditional designs may have to be encouraged to deal with alternative methods of cooling buildings in increasingly hot climates to counteract rising energy costs, but there is a limit to how this can be achieved to the satisfaction of tourists in extreme temperatures. Also this does not recognise that the use of non-renewable energy resources to power the air conditioning may actually be contributing to increases in greenhouse gas emissions.
- Physical planning issues will require building lines to be moved back from the eroding coasts but there is a strong preference for tourists to be able to see the ocean just outside their bedroom windows, especially on small islands, as this tends to be a factor that increases the tourist's satisfaction with their holiday.
- Coastal infrastructure, such as drainage, waste disposal, electricity, water supply, railways and roads may also have to be moved back from eroding coastal areas.
- Increased insurance costs will have to be factored into resort profitability.

In addition, the UNWTO (2003) recommended the following to SIDS to help them to develop effective strategies to respond to the impacts of climate change:

- The building of sea wall defences and breakwaters to protect the coast and its hinterland. This has been the traditional response, and may be the only practical option, but it has sometimes been found to create as many problems as it solves and can ultimately destroy a location's natural beauty.
- Enhancement and preservation of natural defences (such as the replanting of mangrove swamps or raising the land level of low lying islands).

- Adapting to changed conditions by building tourism infrastructure and resorts further back from the coast.
- Importing sand to the beaches in order to maintain the amenity. Beach re-nourishment may be costly and temporary and may damage the sea area from which the sand has been drawn.
- Impose new building regulations to introduce other types of building materials.
- When dealing with coral bleaching and the death of reefs, alternative man-made protection is unlikely to succeed; ultimately, abandonment may be the only option.

The UNWTO does offer sound recommendations both to the tourism sector and SIDS but many are complex and in practice may prove counterproductive. Also the majority of tourism businesses tend to be small operations with limited capital to fund these adaptive techniques. In addition, the UNWTO do not help tourism firms to deal with the risk of uncertainty that is a concern for tourism planning. At the moment even larger tourism business are feeling squeezed as a result of the economic recession and are reluctant to take such measures, especially when there are no guarantees that such actions will work. As it can be seen from Chapter Two section 2.2.1, the IPCC suggests that small island states have a low capacity to adapt, due to the small physical size of the country and limitations in capital and resources, technological ability and the skills base of the population. As a result it will be very difficult for some small island states to be able to adapt on their own. This is also acknowledged by the international community, which is why the Green Climate Fund was established at the Copenhagen Accord (section 2.3.3). One suggestion is that countries could pool resources together within regions, but this may lead to conflicts over the use of those resources and is likely to be beyond the scope and capabilities of the tourism sector to coordinate this effectively.

In the preceding section it can be seen that the UNWTO recommendations are rather broad and, more aimed at national governments. Subsequently Becken and Hay (2007) have developed some recommendations that enhance the UNWTO suggestions by highlighting the barriers to implementation and the measures that should be taken by public and private sector stakeholders within the destinations (see Table 3.4). However, although slightly more developed than the UNWTO recommendations they still appear to be fairly superficial and difficult for individual tourism stakeholders to execute.

Table 3.4 Possible adaptation measures for tourism in small island countries and barriers to implementation

<b>Adaptation measures</b>	<b>Relevance to tourism</b>	<b>Barriers to implementation</b>	<b>Measure to remove barriers</b>
<b>Soft coastal protection</b>	Many valuable tourism assets at growing risk from coastal erosion	Lack of credible options that have been demonstrated and accepted	<b>Demonstration of protection for tourism assets and communities</b>
<b>Enhanced design, siting standards and planning guidelines</b>	Many valuable tourism assets at growing risk from climate extreme	Lack of information needed to strengthen design and siting standards	<b>Provide and ensure utilisation of targeted information</b>
<b>Improved insurance cover</b>	Growing likelihood that tourist and operators will make insurance claims	Lack of access to affordable insurance and lack of finance	<b>Ensure insurance sector is aware of actual risk levels and adjusts premiums</b>
<b>Shade provision and crop diversification</b>	Additional shade increases tourist comfort	Lack of awareness of growing heat stress for people and crops	<b>Identify, evaluate and implement measures to reduce heat stress</b>
<b>Reduce tourism pressures on coral</b>	Reefs area a major tourist attraction	Reducing pressure without degrading tourist experience	<b>Improve off-island tourism waste management</b>
<b>Desalination, rainwater storage</b>	Tourist resorts are major consumers of fresh water	Lack of information on future security of fresh water supplies	<b>Provide and ensure utilisation of targeted information</b>
<b>Tourism activity / product diversification</b>	Need to reduce dependency of tourism on ‘sea, sun and sand	Lack of credible alternatives that have been demonstrated and accepted	<b>Identify and evaluate alternative activities and demonstrate their feasibility</b>
<b>Education / awareness raising</b>	<b>Need to motivate tourism staff and also tourists</b>	<b>Lack of education and resources that support behavioural change</b>	<b>Undertake education / awareness programmes.</b>

Source: Becken and Hay, 2007

In a more recent publication the UNWTO (2008:92) states, that “information is critical in facilitating adaptation to climate change by the tourism sectors of small island state destinations”. It recommends that meteorological experts provide seasonal forecasts to tourism businesses to enable them to prepare effectively, such as by assessing water

requirements for the season – dependent upon drought or flooding, and the removal of trees near buildings if there are likely to be tropical storms. The NTO in tourism island destination could play a key role in the facilitation of information between the national experts and the individual tourism businesses.

One of the biggest concerns for tourism destinations is that tourists have the greatest adaptive power in that they can simply decide not to visit a destination that has been adversely effected by climate change. Local suppliers of tourism services at the destination have a reasonable amount of adaptive power, as they could diversify into new product areas. Large global tour operators, who do not own much infrastructure within destinations, are able to adapt to a large degree as they can direct tourists to other destinations that have not been adversely effected, or alternatively, to new destinations that have arisen out of the opportunities that climate change will bring. However, this option is not available to SMEs who Erkilli (2004) identifies are the lifeblood of the travel and tourism industries in many developing countries. Stakeholders in the destinations that have large levels of investment in fixed assets, such as hotels, visitor attractions, restaurant owners etc have the least adaptive ability and yet economically have the most to lose. Moreno and Becken (2009) affirm that climate change will threaten the sustainability of tourism activities and that the knowledge given to stakeholders about the vulnerability of the destination to climate change will play a pivotal role.

The former UNWTO Secretary-General, Francesco Frangialli (2007) was obviously concerned when he stated, “It is vital for tourism destinations to anticipate the coming changes and to draw their consequences, starting now. Adaptation is a long term project that must be anticipated and carefully prepared beforehand; it is not easy to see this through successfully, because it entails, all at the same time, modifying economic circuits, introducing new technologies, carrying out intensive training, investing in the creation of new products [...] changing the minds of public authorities, entrepreneurs, host communities and tourists”. This illustrates the enormity of the task in hand. The UNWTO (2007) implies that the tourism sector has been adapting its operations to climate conditions for many years, but it also highlights that adaptation is an area that has figured less prominently in the research on tourism and climate change than in some other sectors,

such as agriculture and this is reflected in this section on adaptation by the tourism sector as there is little evidence of adaptations in the literature.

### 3.7 MITIGATION – AVIATION, CARBON OFF SET SCHEMES, RENEWABLE ENERGY OPTIONS

This section examines the energy usage of the tourism sector and how stakeholders seek to adjust their practices to ameliorate their contribution to greenhouse gases. In section 3.1 the projections for growth in the tourism industry were established and illustrated that the industry has ambitious targets that will result in increased long-distance travel. Against this backcloth there is an increased understanding that global warming is as a result of anthropogenic greenhouse gas emissions (see section 2.1.3) and tourism has been identified as being fossil fuel dependent and a large emitter of greenhouse gases (Peeters, 2003). Indeed tourism has been identified as an important contributor to greenhouse gas emissions, accounting for approximately 5 percent of global emissions of carbon dioxide (CO<sub>2</sub>) (UNWTO, 2008) at the current time.

Beckon and Simmons (2005) suggested the energy use of tourism can be separated out into the following four areas:

1. travel to the destination,
2. travel at the destination,
3. accommodation
4. activities and attractions

These categories will be used to examine energy usage within the tourism industry, although Patterson and McDonald (2004) suggest it is not fully comprehensive as it does not include all aspects of tourism such as the restaurants that tourists may use when on day trips or the retail outlets that they might visit. In addition, the data is difficult for Researchers to collect and in many instances is not comparable<sup>8</sup>. Gössling (2002b) conducted a study which estimates that the global CO<sub>2</sub> emissions from tourism transport are broken down into the followings areas: 90 percent, accommodation 6 percent and only 4 percent from other activities, but no other academics have replicated the study to corroborate his findings.

In the next section each of the four areas identified by Beckon and Simmons (2005) will be taken in turn and examined in more detail.

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<sup>8</sup> To try to overcome this inherent problem data from the UNWTO has been utilised within this section  
Chapter Four

### 3.7.1 Energy usage in transportation

The UNWTO (2008) has produced an approximation of tourist volumes based on their definition for tourism<sup>9</sup> identified in section 3.1.1.

Table 3.5 Approximate tourist volumes for 2005

Billions	Total	of which:		of which:	
		Domestic	International	Intraregional	Interregional
Total trips	9.75	8.00	1.75		
Same-day	5.0	4.00	1.00	1.00	
Overland / water	5.0	4.00	0.99	0.99	
By air	0.05	0.04	0.01	0.01	
By air percent	1	1	1	1	
Tourist					
Arrivals	4.80	4.00	0.80	0.65	0.15
Trips (a)	4.75	4.00	0.75	0.61	0.13
Overland / water	3.93	3.52	0.41	0.40	0.01
By air	0.82	0.48	0.34	0.22	0.12
By air percent	17	12	46	35	92

Key: Olive green: based on estimated volume from UNWTO data or other sources

Yellow: approximate volumes (as only a little data available)

(a) Trip volumes are derived from available data as one trip can produce more than one arrival

Source: UNWTO, 2008:123

Table 3.5 provides an overview of tourist numbers and whether they travel over land, water or by air for 2005. It illustrates that of all tourist trips only 18 percent of trips use air transport (1 percent same day trips and 17 percent tourist trips), which is relatively small as a comparison of total trips. However, the exception is in the interregional travel i.e. trips between Europe, Middle East, the Americas, Asia and the Pacific and Africa, which account for 92 percent of all interregional tourist trips (these will be long haul flights) and it is these trips that are particularly expected to grow.

<sup>9</sup> ‘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. Tourism refers to all activities of visitors, including both ‘tourists’ (overnight visitors) and ‘same day visitors’ (UN, 2010).



There have been a number of studies that have attempted to examine the greenhouse gas emissions of transportation within the tourism sector (Gössling, 2002a; Dubois and Ceron, 2006; Peeters *et al*, 2007a) and it is usually a contentious and problematic area. The most detailed study of aviation and the impacts on the global atmosphere was conducted by the IPCC (1999) in a special report on the issue (Pennerr *et al*, 1999). The report estimates that aviation accounts for 2 percent to 3 percent of the world's total use of fossil fuels and up to 3.5 percent of the anthropogenic greenhouse effect. More than 80 percent of this is due to civil aviation. The professional bodies that represent the aviation industry contest the results and say that the results over estimate the contribution of civil aviation to greenhouse gases. A smaller study carried out by Peeters *et al* (2007b) used computer modelling to gain an understanding of CO<sub>2</sub> emissions from European Union tourism transport<sup>10</sup>. Five modes of transport were used: air, rail, ferry, coach and car. Although air accounted for 20 percent of the trips, it accounted for 55 percent of all CO<sub>2</sub> emissions. If the UNWTO (2008) growth projections<sup>11</sup> for the tourism industry come to fruition, the study estimates that the number of trips by air will amount to 29 percent, which means that the proportion of total transport CO<sub>2</sub> emissions from air transport would increase to 72 percent in 2020. This is even with efficiencies through technological and managerial progress factored into the equation. The emissions from global tourism are anticipated to increase by 150 percent by 2035 (compared to 2005), which demonstrates that the tourism industry will become under increasing pressure to adopt mitigation strategies.

### **3.7.2 Energy usage in accommodation**

There is little definitive research about the average energy usage of accommodation usage within tourism. The UNWTO (2008) has produced an estimation which, is provided in Table 3.6.

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<sup>10</sup> Data sets included the EU 25 and Norway and Switzerland and included international and domestic travel

<sup>11</sup> UNWTO (1995) Tourism 2020 Vision forecasts tourism arrivals of 1.6 billion by 2020, an increase of nearly 100% over 2005 (803 million).

Table 3.6 Average energy usage<sup>12</sup> by accommodation type

Type of accommodation	Energy use per guest night (MJ)	Emissions per guest night (Kg CO <sub>2</sub> )
Hotels	130	20.6
Campsites	50	7.9
Pensions	25	4.0
Self-catering	120	19.0
Holiday villages	90	14.3
Vacation homes	100	15.9
<b>Estimated average</b>	<b>98</b>	<b>15.6</b>

Source: UNWTO, 2008:130

There are many different types of accommodation available to tourists. Table 3.6 simply uses six categories; it does provide a clear indication that tourists that use hotels tend to use more energy than those in other accommodation types. This is corroborated by Warnken *et al* (2005) who established that the more up-market the accommodation, the greater the energy usage. Whilst this is not surprising it does enable mitigation activities to be targeted at more ‘up market’ type of establishments. Trung and Kumar (2004) found that in hot holiday destinations the main energy usage was for air conditioning (see Table 3.7), as often it is left on in unoccupied rooms and this would be of particular concern for private sector stakeholders in island tourism destinations.

Table 3.7 Electricity usage in Vietnamese hotels

Electricity consumption	4 star	3 star	2 star	Resort
Air conditioning and ventilation ( percent)	53	47	46	48
Lighting ( percent)	26	13	17	23
Water heating ( percent)	17	27	25	12
Other (lifts, pumps, refrigeration etc) ( percent)	4	13	12	17

Source: Trung and Kumar (2004)

Clearly, the energy usage of tourists in holiday accommodation is significant. This raises two pertinent issues, firstly is there an opportunity for the use of renewable energy sources in hotels. Secondly, from a guest perspective what are their expectations regarding facilities available in the hotel and could effective education of guests make a difference to

<sup>12</sup> Energy usage includes: heating/cooling, cooking, illumination, cleaning and, in tropical or arid regions the desalination of seawater.

future energy usage? Some tourism destinations are now exploring the possibilities and implications of becoming a carbon neutral destination, for example in Costa Rica and the Seychelles. Gössling and Schumacher (2010) conducted a study that identified the tourists 'willingness to pay' or make a contribution to offset carbon. They found that tourists to the Seychelles stated they were prepared to do this, although there is always a concern when asking people about their prediction of future behaviour, rather than using current or past behaviour as an indicator.

### **3.7.3 Energy usage in attractions and activities**

Little research has been conducted into the energy use of tourism attractions and recreation activities. The data on the uptake of activities and use of visitor attractions is so fragmented it is difficult to provide a reliable overview. More organisations such as museums, dive operators and ski resorts are starting to collect data and report on their energy use, but this is not co-ordinated at present. The UNWTO (2008) has attempted to predict the CO<sub>2</sub> emissions of these categories, shown in Table 3.8, and it estimates that the 'other activities' category is approximately 4 percent of tourism contributions.

Table 3.8 Estimated CO<sub>2</sub> Emissions (a) from global tourism (including same-day visitors), 2005

	CO <sub>2</sub>		Contribution to RF <sup>13</sup> (W/m <sup>2</sup> ) <sup>c</sup>	
	Mt	Share in tourism ( percent)	Excluding cirrus <sup>14</sup>	Including maximum cirrus impact
Air transport	515	40	0.0395	0.0979
Car	420	32	0.0176	0.01973
Other transport	45	3	0.0021	0.0021
Accommodation	274	21	0.0116	0.0116
Other activities	48	4	0.0020	0.0020
Total Tourism	1,302	100	0.0734	0.1318
Total World (d)	<b>26,400</b>	-	<b>1.6</b>	<b>1.7(e)</b>
Share of total tourism in total world ( percent)	4.9	-	4.6	7.8

(a) Estimates include international and domestic trips as well as same-day visitor base.

(b) Colours represent the degree of certainty with respect to the data and underlying assumptions. Green represents a degree of uncertainty of +/- 10 percent, blue +/- 25 percent and red +100 percent/- 50 percent.

(c) The share of tourism in total radiative forcing is lower than in CO<sub>2</sub> emissions alone because the global CO<sub>2</sub> emissions account just for the year 2005, while radiative forcing gives the impact of all CO<sub>2</sub> emissions accumulated in the atmosphere since the industrial revolution. The contribution for aviation and tourism started to become significant only after 1945, and thus accumulated over a much shorter time span.

(d) Annual fossil carbon dioxide emissions (including those from cement production), according to IPCC (2007a).

(e) This value is higher to account for the impact of cirrus.

Source: UNWTO, 2008:132

### Carbon footprints

Gössling *et al* (2002) used the Seychelles as a case study to calculate the carbon footprint of tourism. As the Seychelles attracts most of their tourists (80 percent) from Europe, mainly from France, Italy, Germany and the UK, the vast majority of tourists arrive by air, so a methodology was used<sup>15</sup> to establish that the average visitor to the Seychelles utilised 25.5GJ for air transport, 1.2GJ for other transport (from airport to destination and around the destination during stay) and 0.6 GJ for accommodation. Gössling *et al* established that the majority of the environmental impact was caused through travelling to the destination; as a result destinations can only directly contribute very marginally to the sustainability of

<sup>13</sup> Radiative forcing (RF) is a concept used for quantitative comparisons of the strength of different human and natural agents in causing climate change. IPCC, 2007c

<sup>14</sup> Cirrus clouds are formed through aviation contrails and are thought to affect climate by blocking sunlight and radiation possibly exacerbating global warming.

<sup>15</sup> Estimating the flight distance \*an energy intensity of 2MJ per passenger-kilometre.

tourism trips to the Seychelles. The Peeters and Schoulton (2006) study concurs with the Gössling study when estimating the carbon footprint of travelling to Amsterdam they found approximately 70 percent of the footprint was as a result of travelling to the destination, against 21 percent resulting from environmental pressure at the accommodation, with other leisure activities 8 percent and local transportation 1 percent. These studies have serious ramifications for tourism island destinations that are reliant upon long haul flights, because if, as has been suggested earlier in this chapter, if tourists decide to take responsibility for their GHG emissions from their activities, limiting long haul flights has more impact than choosing a low carbon destination and there would be little the destination can do to respond to this adaptive action taken by tourists.

As the travel to the destination appears to be a significant component of the tourists contribution to greenhouse gases the response of the aviation sector should be reviewed. The International Civil Aviation Organisation (ICAO) and The International Air Transport Association (IATO) represent the views of civil aviation and are keen to see the sector grow. They have joined together to produce a four pillar strategy to enable civil aviation to respond to the serious issue of climate change. The four areas of response are:

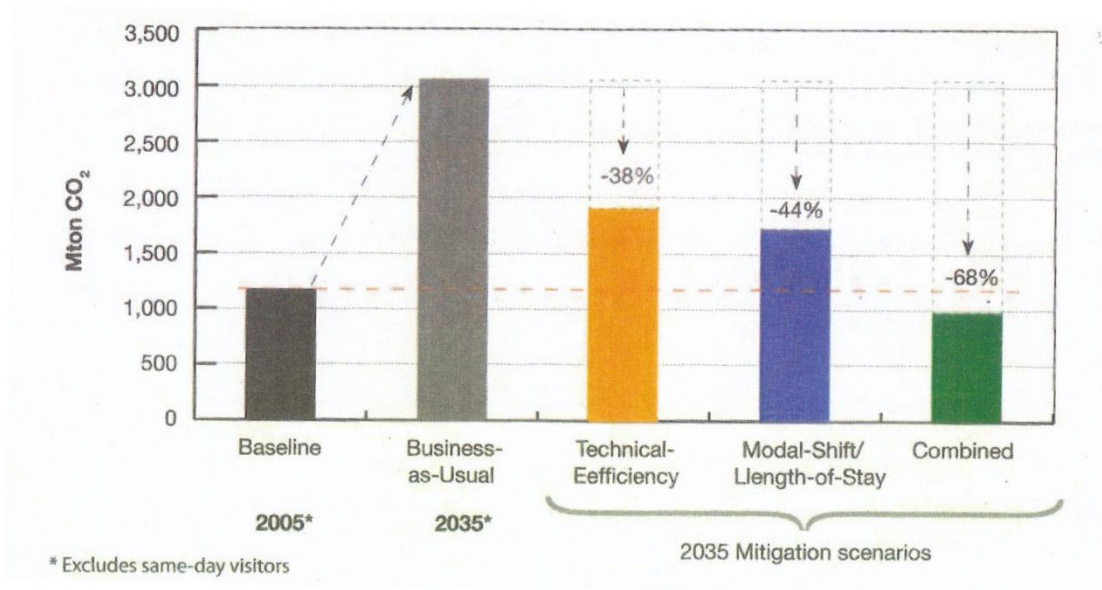
1. Improving technological development to take advantage of alternative technologies and to enable radically new technologies and aircraft designs.
2. Improving operational efficiency to save fuel and reduce emissions
3. Improving the infrastructure through airspace and airport efficiencies
4. Economic measures – they do not want punitive taxation, instead they suggest that tax credits should be allocated for suitable research to support measures 1 and 3. (IATO, 2011)

The response of the UNWTO and the WTTC varies in approach. UNWTO (2007a) suggested that it would be possible to reduce greenhouse gas emissions from air transport without affecting the socio-economic benefits tourism provides. However, the WTTC (2010c:3) is not as optimistic and suggests that “misconceived regulation as well as misperceptions about the extent to which Travel and Tourism is a vector of climate change represent significant threats to the industry’s continued well-being and contribution to the global economy”.

Becken and Hay (2007) suggest there are many opportunities to both reduce energy usage and improve energy efficiency within tourism, namely: reducing energy usage; improving energy efficiency; increasing the use of renewable or carbon neutral energy and sequestering CO<sub>2</sub> through carbon sinks. Each of these will be taken in turn. Firstly, reducing energy usage, there are many opportunities for tourism businesses to improve the energy efficiency of their operations. Hoteliers could use energy management systems, tourists could be encouraged to use less energy intensive modes of transport, or travel less. Secondly, improving energy efficiency usually comes about through technological improvement. The aviation sector is particularly looking at this option as seen in the preceding section, through the development of more efficient engines and improved air traffic management. Thirdly, increasing the use of renewable or carbon neutral energy is something that most tourism businesses would be able to adopt, such as wind, hydro, biomass and solar sources. Finally, the sequestering of CO<sub>2</sub> through carbon sinks, for example, where CO<sub>2</sub> could be stored in biomass (through afforestation) or in oceans. This would require collective co-operation as it would be expensive and resource intensive. Although there are mitigation strategies that are available to the tourism sector there is a similar picture to that of the adaptation strategies, namely little evidence of adoption of mitigation strategies either in the public sector or in the private sector in SIDS.

There now seems compelling evidence from the IPCC that regardless of what mitigation strategies are implemented, the point of no return has passed and there will have to be some adaption to the impacts of climate change. Figure 3.10 illustrates that if the tourism sector meets the projected growth levels and does not take appropriate mitigation actions that the greenhouse gas emissions of the sector will more than double by 2035. This means the problems identified in this Chapter will be accelerated and exacerbated, especially for island tourism destinations. However, there is a wealth of information on suitable actions that can be taken by both tourism sector stakeholders and as Figure 3.10 shows if suitable mitigation actions are taken early greenhouse gas emissions can remain within the current levels, so the impacts may not be as extreme. The big challenge is how tourism destinations can adapt to climate change in order to reduce the associated risks in an economically, socially and environmentally considerate manner to ensure the sustainability of their destinations.

Figure 3.10 Forecasts of Greenhouse gas emissions for the tourism sector factoring in different mitigation strategies.



Technical-efficiency scenario reduced CO<sub>2</sub> emissions by 38 percent and RF by 40 percent versus the ‘business-as-usual scenario in 2035. This scenario did not achieve absolute reductions in emission nor in RF versus the 2005 baseline, largely because of the large growth in the number of trips over this timeframe. Emissions of CO<sub>2</sub> were 44 percent lower in the ‘Modal Shift’ – increased ‘length of stay’ scenario than the ‘Business as Usual’ scenario for 2035, but also did not achieve absolute reductions in 2005 baseline emissions. However, this scenario does achieve an absolute reduction of RF by 5 percent with respect to RF in 2005. Notably, when the two scenarios were combined, CO<sub>2</sub> emissions were reduced 68 percent (equal to 16 percent below the 2005 baseline and RF reduced by 85 percent.

Source: UNWTO, 2008:227

### 3.8 EMERGING THEMES

In the last decade, a number of unexpected events have occurred, such as Severe Acute Respiratory Syndrome (SARS) outbreak and the Indian Ocean Tsunami in 2004, which illustrate the dynamic unpredictable nature of the tourism industry. There is currently a great deal of information available about the future effects that climate change may have upon different parts of the world and on the tourism sector. A considerable amount of this information is produced by the scientific community and may not be in an appropriate form for transfer through to the tourism industry. There appears to be a gap between the scientific information produced and the information that is being transferred to private sector stakeholders. Key information on climate change issues needs to be highlighted so that tourism businesses are provided with relevant information that enables them to take suitable adaptation and mitigation measures to safeguard their operations in the future. It would seem that this is an urgent task for the public sector to address.

Very slowly, climate change is becoming an issue that is being considered by the tourism industry. The increase in concern of tourism stakeholders may be as a result of other sectors, such as the insurance industry forcing tourism businesses to consider climate change as premiums rise to take account of new insurance loss adjustment criteria. National governments are highlighting that their countries are particularly vulnerable to climate change, such as the Maldives government holding a Cabinet meeting under the sea to draw attention to the changes that they are experiencing as a result of climate change. These issues are picked up in a disjointed fashion, some by mainstream media, and others in tourism journals, but there is not a cohesive picture emerging. The literature provides very few examples of projects with stakeholder groups. Most of the articles are making predictions about the impacts of climate change. Few actually assess what actions are being taken by tourism stakeholders to mitigate and adapt to climate change, despite being a research area suggested by the UNWTO in 2003. Given that the effects of climate change are currently at the initial stages, it could be suggested that the impacts might not yet be clearly evident to tourism stakeholders. The UNWTO (2007:9) warns that “the incorporation of adaptation to climate change into the collective minds of the private and public sector tourism decision makers (‘mainstreaming’) remains several steps away”. This is reinforced three years on by Turton *et al* (2010) who conducted a study to establish the propensity of tourism stakeholders to adaptation strategies. They found that the tourism sector is not yet ready to invest in climate change adaptation because of the perceived uncertainty around the issue. Thus this research aims to address some of the current limits of the tourism literature by establishing the current levels of knowledge of climate change by tourism stakeholders in island tourism destinations in the Indian Ocean and establish what actions are being taken to adapt and mitigate to climate change by public and private sector stakeholders in these locations.

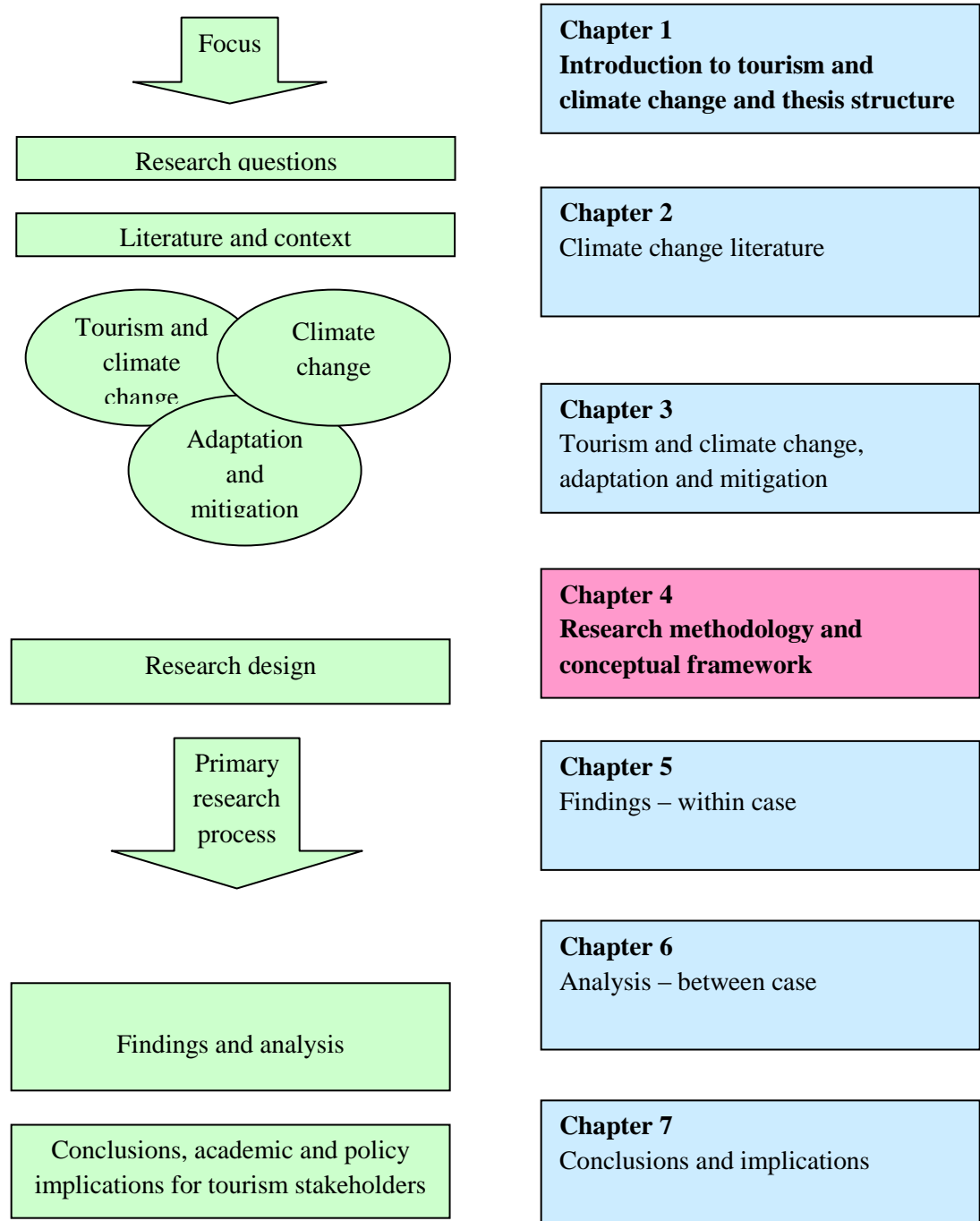


*This Chapter has established that many nations have used tourism as a vector for growth; even given the current recession the economic prospects for the industry are strong. Demand for tourism has grown at a phenomenal rate since the 1950s. Accelerated by the introduction of the aeroplane, tourism has become a mainstream social activity for many particularly in developing countries. Key tourism concepts have been used to illustrate the fact that tourism has the ability to create many social, economic and environmental impacts both positive and negative. As destinations develop it becomes more significant for the managers of destinations to have an insight into the factors that influence the demand, such as pristine beaches. Tourism stakeholders need to be aware of how they can effectively manage these factors to maximise the positive impacts. Climate change will affect the management of tourism destinations and this is an issue that has not been thoroughly considered by tourism academics or practitioners; only now is it entering into mainstream debate. The impacts of climate change will affect all tourism destinations, some will gain and some will lose, as was illustrated by the predicted changes to tourism flows. Tourism island destinations in the Indian Ocean are expected to be some of the first countries to experience the direct impacts of climate change and these countries often have a high economic reliance upon tourism coupled with a low adaptive capacity<sup>16</sup> making them particularly vulnerable. An irony of the situation is that whilst these destinations rely upon tourists, the very journey that transfers them from the generating region to the destination region is a major contributor to the greenhouse gases that create the problem of global warming, and if projected growth targets are taken into account this will become a greater problem in the future. So destinations need to consider what actions they can take to adapt and mitigate to the impact of climate change. At present there has been little research conducted in this area to establish what responses are being taken by tourism public and private sector stakeholders and this research aims to plug the gap.*

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<sup>16</sup> Adaptive capacity - ability of a human or natural system to: adapt, i.e., to adjust to climate change, including to climate variability and extremes; prevent or moderate potential damages; take advantage of opportunities; or cope with the consequences. The adaptive capacity inherent in a human system represents the set of resources available for adaptation (information, technology, economic resources, institutions and so on), as well as the ability or capacity of that system to use the resources effectively in pursuit of adaptation (World Bank, 2011).

# Chapter Four Research Methodology



## **4.0 INTRODUCTION TO THE CHAPTER**

*This Chapter examines issues associated with research methodology and design. It commences with a reiteration of the research aims and the conceptual foundations that has been developed from the previous chapters. Key features of the social constructionist methodology and their influences on this investigation are explored. The research design is then presented. This entails the use of a triangulation of data collection methods, namely in-depth interviews, fieldwork notes and photographs and supplementary interviews with key informants. The process of data analysis is explained and finally a reflection is provided of the research process.*

### **4.1 RESEARCH PHILOSOPHY AND STRATEGY**

This section introduces the development of the research aims and objectives, the research process and the conceptual framework.

#### **4.1.1 Preliminary thinking**

The issue of climate change has risen in prominence within the media and yet this has not been reflected in the tourism literature and trade journal to date; there was almost no coverage of the issue which potentially may have enormous ramifications in most parts of the world for the tourism industry.

Reading the Intergovernmental Panel on Climate Change (IPCC) reports and associated literature the Researcher built an awareness of the current state of global warming and climate change and the potential impacts. What was interesting was that the tourism industry, as it was structured at that moment, was identified within the reports, as likely to be adversely affected. Yet at the time this was not reflected in academic publications or the tourism trade journals. The two broad areas of study within the literature were identified as concerns about the life cycle of ski resorts and small island developing states (SIDS).

At the time of these initial literature searches the United National World Tourism Organisation (UNWTO) sent the Researcher an invitation to the Davos conference in 2007; Climate Change and Tourism: Responding to the Challenges. Attending this conference enabled the Researcher to consider the research design and to identify suitable case study destinations. It became apparent early on that studying a large number of destinations would provide a large volume of data, but would not result in an adequate understanding of the complex situations that these destinations are facing. Thus instead of conducting a broad study, a selective in-depth study would provide greater insight into the complex issues that these destinations are having to address. Whilst this restricts the generalisability of the findings, which is explored later in the chapter, it will also provide a richer picture of what is happening within certain destinations, an area that was overlooked in the academic literature.

The Davos conference emphasized the stark differences of the potential impacts of climate change between the developing and the developed world. Key sections of the proceedings examined the potential impacts on the developed and developing world and actions that were causing these impacts. There were also very different attitudes, to the point of conflict, between the public and private sector. As a result the research aims evolved.

#### **4.1.2 Research aims**

To reiterate, *this research seeks to examine how Indian Ocean island tourism destinations are being affected by climate change and what they are doing in relation to adapting to the effects of climate change and mitigating its causes of climate change.* More specifically, the research objectives are as follows:

***Research objective 1:*** *to investigate the relationship between climate change and the tourism industry, in particular the predicted effects that climate change will have upon Indian Ocean island tourism destinations.*

***Research objective 2:*** *To establish both the public and private sectors' levels of awareness of climate change within Indian Ocean Island tourism destinations.*

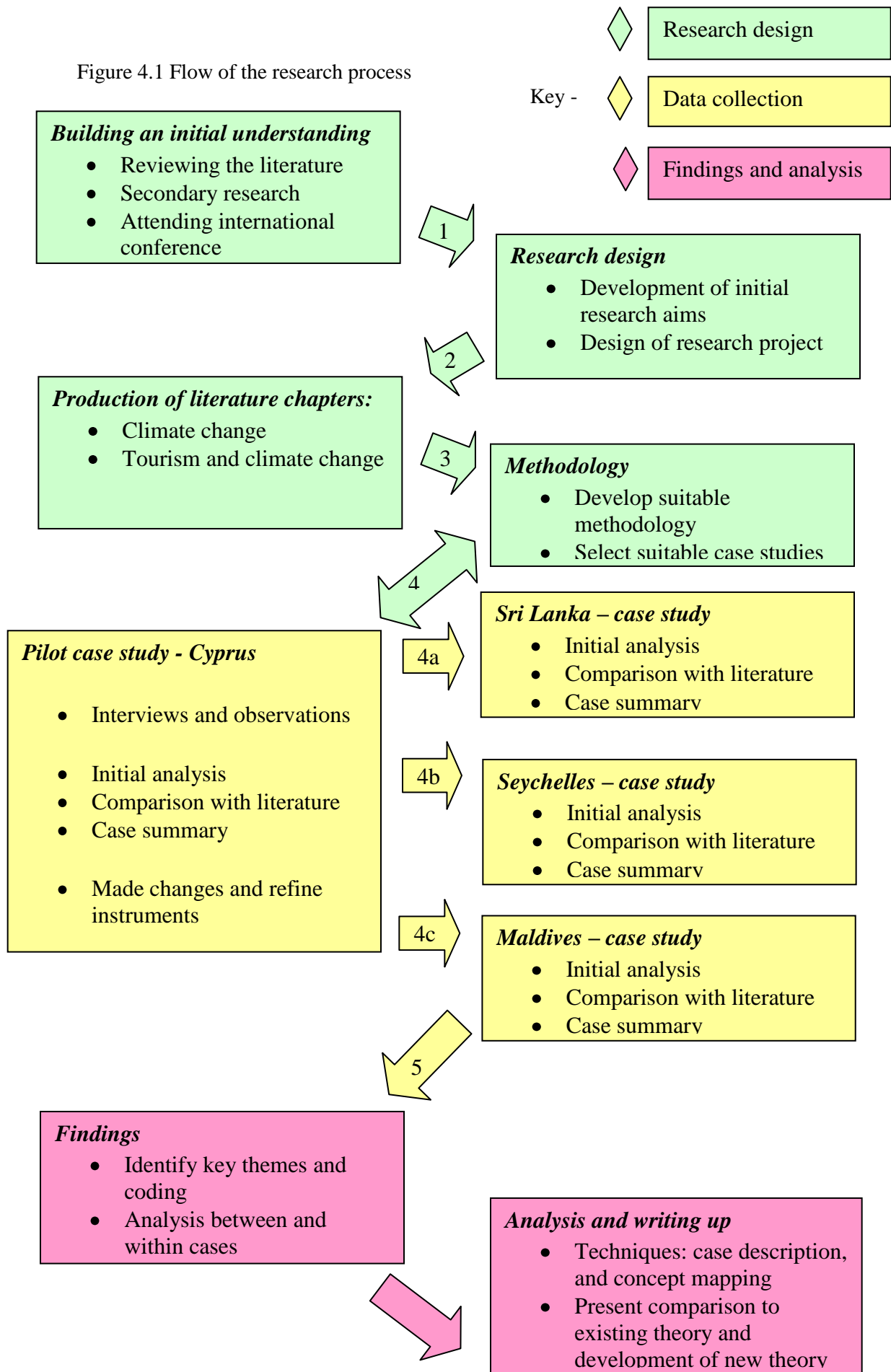
***Research objective 3:** To examine what actions are being taken to relation to adapting to the effects of climate change and mitigating the causes of climate change by key private and public sector stakeholders in Indian Ocean Island tourism destinations.*

To fulfil the first research aim and inform the primary research an extensive review of the literature was undertaken around the areas of climate change and tourism. This review enabled the Researcher to have a clear understanding of the issues and set the foundations for conducting research in this area. The second and third aims were fulfilled through the use of a social constructionist methodology. This methodology is particularly helpful for generating understanding and shared meanings in relation to tourism and climate change, as may be evident both within and across the tourism destinations. As previously mentioned when the study commenced this was an area not covered within the academic tourism literature. The research has led to the development of an in-depth picture of a small number of tourism destinations that were used as case studies, where face to face interviews and observational fieldwork took place. The emphasis here was to examine the meanings that the stakeholders gave to their observations and this is a central tenant in the 'interpretive approach' (Bredo and Feinberg, 1982; Rabinow and Sullivan, 1979).

#### **4.1.3 Overview of the research process**

Research took the form of three exploratory case studies which were developed and interpreted using social constructionist ideas. The research was designed to provide a snapshot of the current situation and will provide an insight and understanding of the issues of tourism and climate change. This could offer the basis for conducting a longitudinal study in the future, but in the first instance this would have been prohibitive from an economic stance. Initially a pilot study was undertaken to test the methodology, gain experience of fieldwork and ensure that suitable data would ensue. To undertake the fieldwork the Researcher spent approximately two weeks in each of the three destinations during the spring and summer of 2008, immersing herself in the tourism destinations and collecting a variety of data through participant observation, which included conducting 44 interviews. In addition, the research has been informed by attendance at three key international conferences. Figure 4.1 provides an overview of the research process.

Figure 4.1 Flow of the research process



#### **4.1.4 Conceptual foundations**

A review of the relevant literature was conducted and presented in the previous two Chapters. This provided the basis for an initial conceptual framework. Brotherton (2008:78) suggests the conceptual framework is “the structure that seeks to identify and present, in a logical format, the key factors relating to the phenomena under investigation”. The purpose of the conceptual framework is to provide a loose identification of concepts that are relevant to the study and a means of illustrating the relationships between the factors. By linking the specific research questions to larger theoretical constructs such as the supply and demand of tourism products and to national policy issues around climate change, it shows that the particulars of the study serve to illuminate larger issues, and therefore are of significance (Marshall and Rossman, 1995). However, the conceptual framework does not provide a definitive model or boundary to the collection or evaluation of relevant data. By the nature of inductive research it is difficult to capture the evolution and fluidity of the relationships between the key concepts, but it is hoped that the conceptual framework goes some way to doing this.

#### **4.1.5 The conceptual framework**

The conceptual framework is outlined in Figure 4.1.8. and has developed from the literature in chapters 2 and 3. Leipers’s (1979) tourism system identifies three defined aspects of the tourism system: the generating region, the transition area and the destination region. For the purpose of this research, the generating and transition areas are secondary factors and the destination region encompasses the primary factors. Tourists start to consider the destination of their holiday in the generating region. Some tourists will have considerable knowledge of climate change issues and consciously make a decision to go or not go to a particular destination and become involved in a particular activity such as diving or skiing due to these convictions. The tourist then has to decide how to get to the chosen destination; this normally involves travelling by car, train or aeroplane. The tourist’s environmental conviction may influence this aspect of the journey as they may be aware of their carbon footprint and make a positive decision not to fly or use a car.

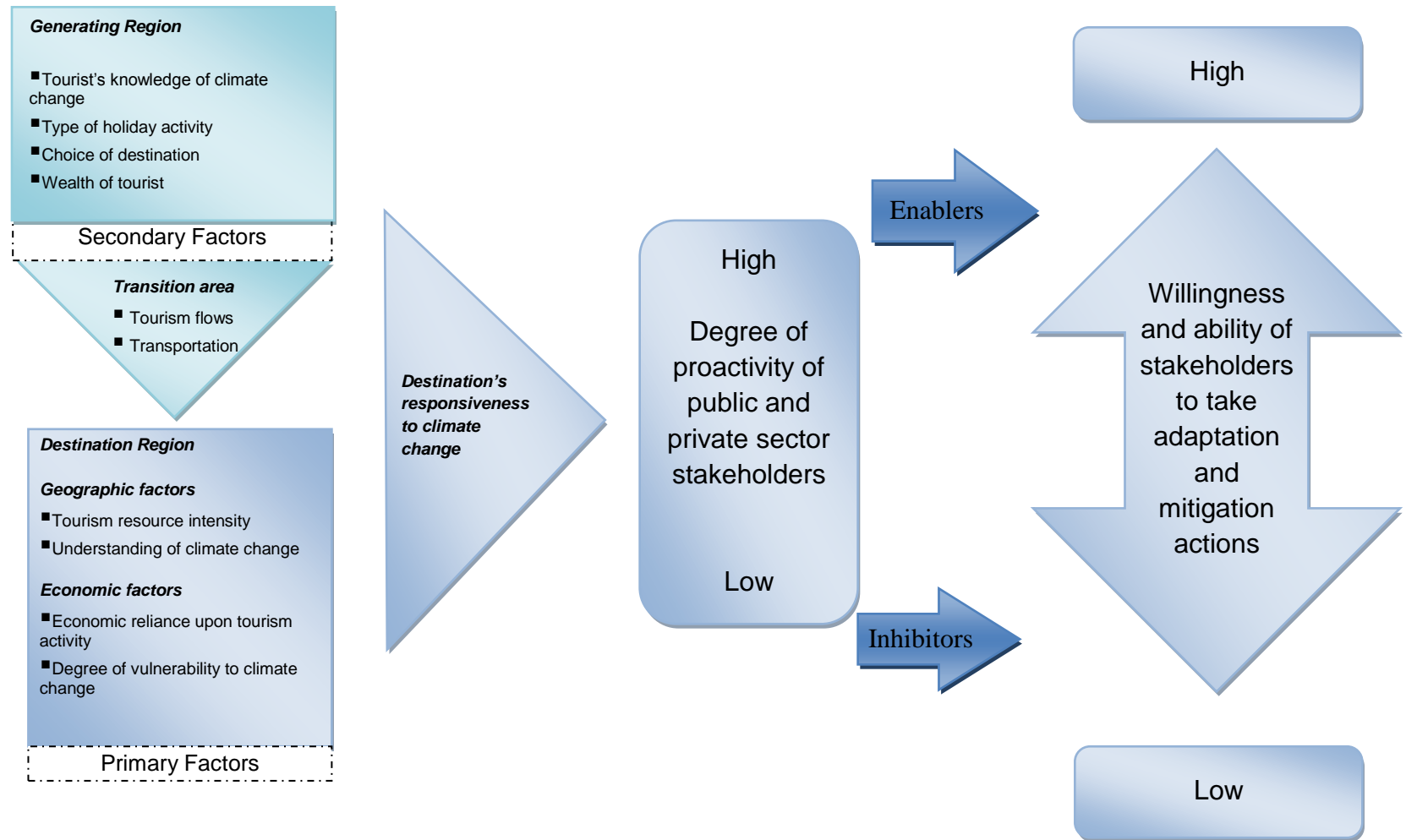
The generating region and the transition area are not directly controlled by the public and private sector stakeholders in the destination, although they do try to influence the motivations and decisions that potential tourists make to encourage them to select their

particular destination. In the context of climate change it is the journey between the generating and destination region that incurs the greatest addition to a tourist's carbon footprint.

Island tourism destinations tend to have a strong economic reliance upon tourism and they are among the first destinations to observe some of the effects of climate change, as a result they find themselves in a quandary; do they do nothing, or take actions that respond to the impacts of climate change, or take actions to try to reduce the effects of climate change; or indeed a combination of these options? An assessment of the levels of knowledge and the observations of the impacts of climate change within the destinations, of both the public and private stakeholders has been conducted, to establish if the observations and knowledge levels are similar between the sectors or if there is a disparity and why that might be. The results of this provided an initial understanding of the reactivity and / or pro-activity of both the private and public sector in relation to climate change within the destination. This will lead to insight into the vulnerability of the tourism sector and the enabling and inhibiting factors that will influence the tourism destination's preparedness for the effects of climate change.



Figure 4.2 Conceptualisation



Source: Researcher

#### 4.1.6 Research approach

There are a number of different approaches that can be adopted to research within social sciences. The key distinctions between a positivist and an interpretive approach is a primary dichotomy in sociological traditions (Veal, 1997). Jupp and Norris (1993) suggest that the positivist approach aims to follow the principles of natural scientific research and proceeds by the formulation and testing of hypotheses with a view to making inferences about the causal connections between two or more social phenomena or ‘facts’. At the other end of the spectrum there is the interpretive approach that puts greater emphasis on the people being studied to provide their own explanation of their situation or behaviour (Patton, 1991). The distinctions between these two approaches can be seen in Table 4.1 below that has been adapted from Easterby-Smith *et al* (1997) The world scientific community, collated through the IPCC have used the traditional positivist approach, normally used in natural science to establish what is occurring with global warming and climate change. Indeed the IPCC is undertaking regular research in the Maldives to assess and monitor change in sea levels, sea temperature and climatic changes. In contrast this research will adopt an interpretist approach to understand what is happening in particular tourism destinations regarding climate change and how engaged the public and private sectors are in their understanding and responsiveness to the phenomena. This will enhance the knowledge of policy holders and could be used to inform the future direction of tourism policy within the destinations.

Table 4.1 Key features of Positivist and Interpretist Research Paradigms

	Positivist paradigm	Phenomenological paradigm
<b>Basic beliefs:</b>	<ul style="list-style-type: none"> <li>More in line with IPCC research</li> <li>- The world is external and objective</li> <li>- Observer is independent</li> <li>- Science is value-free</li> </ul>	<p><b>The approach taken within this study.</b></p> <ul style="list-style-type: none"> <li>- The world is socially constructed and subjective</li> <li>- Observer is part of what observed</li> <li>- Science is driven by human interests</li> </ul>
<b>Researcher should:</b>	<ul style="list-style-type: none"> <li>- Focus on facts</li> <li>- Look for causality and fundamental laws</li> <li>- Reduce phenomena to simplest elements</li> <li>- Formulate hypothesis and then test them.</li> </ul>	<ul style="list-style-type: none"> <li>- Focus on meanings</li> <li>- Try to understand what is happening</li> <li>- Look at the totality of each situation</li> <li>- Develop ideas through induction from data</li> </ul>
<b>Preferred methods include:</b>	<ul style="list-style-type: none"> <li>- Operationalising concepts so that they can be measured</li> <li>- Taking large samples</li> </ul>	<ul style="list-style-type: none"> <li>- Using multiple methods to establish different views of phenomena</li> <li>- Small samples investigated in depth or overtime</li> </ul>

Adapted from Easterby- Smith *et al* (1997:27)

This interpretist research will gather observations and data that can then be used to develop a deeper understanding of the issues, from the specific perspectives of the public and private sector stakeholders in each destination. As the issues being examined are complex and inter-related an inductive approach is adopted to gain a full understanding of the how the respondents view the impacts of climate change and how the public and private sector are interacting with, and responding to tourism policies in the tourism destinations. In a study like this, it is impossible to separate out the holistic nature of the economic, environmental and social impacts of such rapid change induced by tourism (Hall and Page, 2000). As a result, it is particularly important to develop a more interpretist approach when trying to understand the relationships that exist between the public and private sector and their evolving roles in tourism development in the destinations. As is the case in this study, there are a number of social, economic and environmental factors that need to be taken into consideration within the destination. This means that inferences will be made by participants in the research process (Haywood, 1986) and these will influence the respondent's perceptions, but that too of readers and the Researcher. This issue is examined further in the next section. This study will provide an initial exploration (Blaike, 1993) and could prove useful to other tourism destinations and Researchers as a basis for further research.

#### **4.1.7 Social Constructionist Methodology**

Social constructionism provides a multidisciplinary approach to research that draws on influences such as philosophy, sociology and linguistics. It provides a useful basis in researching and understanding tourism destinations, as tourism destinations are a bundle of experiences and knowledge formed via stakeholders that are influenced, by their history, culture, language and political systems.

There is no single accepted definition of social constructionism. Shotter and Gergen (1994:i) offer a helpful understanding:

#### **Definition**

“[Social Constructionism which] has given voice to a range of new topics, such as the social construction of personal identities: the role of power in the social making of

meanings; rhetoric and narrative in established sciences; the centrality of everyday activities; remembering and forgetting as socially constituted activities; reflexivity in method and theorizing. The common thread underlying all these topics is a concern with the processes by which human activities; experiences, commonsense and scientific knowledge are both produced in, and reproduce, human communities”.

The issue of climate change is a relatively new area of study within the discipline of tourism and it will be illuminating to assess the public and private sector stakeholders’ knowledge and understanding of the issues, from their cultural and historic perspective. A key aspect of the research is to gain an insight into the proactively of the public and private sector stakeholders and the social constructionist methodology will provide an insight into the planning and development of tourism within the destinations from the various actors’ perspectives.

Burr (2003), suggests there is a ‘family resemblance’ between people with shared experiences, sharing in some characteristics and differing in others and this methodology should highlight the differences and similarities between the public and private sector stakeholders. Gergen (1985), supports this, and suggests that the approach can have one or more of the following assumptions at its foundations: a critical stance towards knowledge; historical and cultural specificity; the role of social processes and the relationship between knowledge and social action. These foundations are reviewed in the next sections.

### **A critical stance towards knowledge**

The traditional positivist perspective develops an understanding by utilizing objective, unbiased observation of the world. The social constructionist view invites Researchers to take a critical stance towards “our taken for granted ways of understanding the world” (Burr 2003:2). This is a useful methodological stance within this study as the Researcher will be able to develop new understandings of the issue of climate change and tourism destinations within the developing world. The Researcher will become aware of the assumptions that are used and taken for granted by the respondents and where necessary question them.

### **Historical and cultural specificity**

Individuals' formative years are very influential in nurturing and understanding the world in which they live; as people emerge from very specific historic and cultural perspectives. This means that all ways of understanding are relative to the social context. The Researcher lives in the developed world and the research is being conducted in the developing world, so these differences need to be borne in mind in both conducting and analysing the research. Gergen (1999:105) illustrates this well: "the taken-for-granted world of today echoes the voices of previous generations – often far removed". A consequence of this is that no explanation is 'better or more truthful' than another; they are simply different interpretations that are time bound.

Gergen (1999:107) further notes "that explorations of the past can be used to draw us into deliberations on our present – helping us to assay our inheritance, consider its sustainability, and give us purchase on creating new futures". This is particularly important when exploring the issue of climate change in the developing world. One should not underestimate the challenges of cultural specific factors, as they are dependent upon the particular social and economic arrangements prevailing in the culture at the time (Burr, 1995). By way of example two of the case studies are predominately Muslim countries and the third has a strong Catholic religious following, so these specific cultural influences need to be recognised and respected by the Researcher.

### **The role of social processes**

Within the ideas of social constructionism, social processes are derived from the social interactions that occur between people in the course of their life. There will be enormous differences in the social processes that the Researcher from the developed world will be researching in the developing world in the SIDS. Derrida (1981) proposes that in the Western tradition there are many binaries for which there is a strong tendency to privilege or value one side over the other. As the research was conducted in the developing world and the Researcher came from the developed world it is important to understand these differences. Gergen (1999:27) points out that in Western cultures "we generally prize the rational over the emotional, mind over body, order over disorder and leaders over followers". To illustrate the role of social processes, mitigation of emissions that contribute towards climate change seems a rational option for many in the developed

world, but due to different priorities (influenced by social processes) in the developing world this might seem like a luxury.

### **The relationship between knowledge and social action**

Having examined the previous three factors of social constructionism it can be seen that common understandings take many different forms and emerge within very specific cultural, historic and time bound parameters. These different views of the world bring along with them ‘different kinds of action from human beings’ (Burr, 1995:5). The public and private sector stakeholders in the case study destinations will all have their own constructions of the world and be influenced by the interactions and power relationships within the destinations. However, the IPCC, an international organisation, provides the scientific knowledge about climate change. This study will examine the knowledge and social action of the stakeholders together to explore the implications of climate change, how it is perceived by the varying stakeholders and their response with regard to this phenomenon.

A fundamental challenge within this study is that due to the social construction of knowledge, the assumptions and beliefs will be different between the Researcher and the respondents, “as social constructionism would regard objectivity as an impossibility, since each of us must encounter the world from some perspective or other” (Burr, 2003:152). The respondents will use their own cultural and historic reference points and language to represent their own thoughts, feelings and behaviour (Potter and Wetherell, 1987; Burr, 1995). An awareness and acknowledgement of these factors and differences will be at the forefront of the Researcher’s mind whilst conducting the research, analyzing the data and writing up these interpretations.

#### **4.1.8 Research Strategy**

Yin (1984) proposes three questions to determine a sound research strategy. Firstly, does the research aim to describe the phenomena, or does it want to explain the occurrence? Secondly, does the research require control over behaviour, or seek to describe naturally occurring events; and finally is the study contemporary or historical? The answers to these

questions tend to suggest the research strategy that should be adopted and the table below, developed by Marshall and Rossman (1995), helps with this process.

Table 4.2: Matching Research Questions with Strategy

Purpose of the study	Research question	Research Strategy	Data Collection Techniques
<b>EXPLORATORY</b> - To investigate little understood phenomena - To identify / discover important variables -To generate hypotheses for further research	- What is happening in this social programme? - What are the salient themes, patterns, categories in participants' meaning structures? - How are these patterns linked with one another?	Case study	<b>Participant observation</b>
		Field study	<b>In-depth interviewing</b>
			<b>Elite interviewing</b>
<b>EXPLANATORY</b> - To explain the forces causing the phenomena in question - To identify plausible causal networks shaping the phenomenon	- What events, beliefs, attitudes, policies are shaping this phenomenon? - How do these forces interact to results in the phenomenon?	Multi site case study	<b>Participant observation</b>
		History	<b>In-depth interviewing</b>
		Field study ethnography	<b>Survey questionnaire</b>
			<b>Document analysis</b>
<b>DESCRIPTIVE</b> - To document the phenomenon of interest	- What are the salient behaviours, events, beliefs, attitudes, structures, processes occurring in this phenomenon?	Field study	<b>Participant observation</b> <b>In-depth interviewing</b>
		Case study ethnography	<b>Document analysis</b> <b>Unobtrusive measures</b> <b>Survey questionnaire</b>
<b>PREDICTIVE</b> - To predict the outcomes of the phenomenon - To forecast the events and behaviours resulting from the phenomenon	- What will occur as a result of this phenomenon? - Who will be affected? - In what ways?	<b>Experiment</b>	<b>Survey questionnaire (large sample)</b>
		<b>Quasi-experiment</b>	<b>Kinesics / proxemics</b>  <b>content analysis.</b>

Marshall and Rossman (1995:41)

In this instance, the research is exploratory and aims to explore the impacts that climate change is having on island tourism destinations in the Indian Ocean and how the public and private sector are responding. It does not aim to control these contemporary events.

#### **4.1.9 Research Design**

This section provides the detail of how the investigation was undertaken and how the data was collected. The sampling process is explained and the multiple research methods are examined in turn.

Brotherton, (1999) and Marshall and Rossman (1995), both state that case studies are a most appropriate design for initial, exploratory research. Within this study an explorative approach has been selected to conduct the research. The fundamental question is to examine what the tourism stakeholders are doing with regards to the impending threat of climate change in tourism destinations. As a result the research strategy uses case studies and conducts fieldwork to carry out in-depth interviews and participant observation to collect reliable data to provide an insight into the issue. Tourism destinations were selected as the key strategy for the research, as the background and context of each tourism destination is unique, due to the culture, geography, history and the period of time that the development has occurred. Again, Brotherton (2008:123) bestows the advantages of using case studies in tourism studies, as boundaries between the factors being studied are not clear, “there is a need to study particular phenomena within a situational context because they are interrelated and inseparable”. For these reasons the use of case studies is fairly common in tourism studies. Due to time and economic limitations, a cross sectional approach rather than a longitudinal approach has been taken and all the fieldwork was conducted in the same year.

#### **Case studies and sampling**

Many different forms of case study research exist. Yin (2003) identifies single-case study (focusing on the single case) and multiple-case studies (use two or more studies within the same area); these can take the form of exploratory case studies (that define the questions for subsequent research); descriptive case studies (present a description of the phenomena in a particular context) or explanatory case studies (presents data on cause and effect relationships – to explain how events happen). An explorative case approach using collective case studies (Stake 1995) has been adopted to enable the investigation of the general state of play between climate change and tourism and to provide a basis for future research. As Charmaz (2000:519) suggests, this sampling strategy can provide “precise information to shed light on emerging theory”. Case studies are useful when the



boundaries between phenomenon and context are not very evident (Yin 2003); climate change and tourism fall into this category as there is an under-researched but complex dependant relationship between tourism and the environment which involves both cause and effect.

### **The Practice of case selection**

The selection of the case studies involved the identification of a broad population of suitable case studies from the literature. The case studies needed to be islands, with a developing economy and in an area of the world where the impacts of climate change are already being observed, or were according to the IPCC report likely to be affected. This list was then narrowed down to the chosen sample following in depth discussions with key informants at the United Nations World Tourism Organisation (UNWTO) conferences. The Researcher also took into account the advice of Denzin and Lincoln (1994, p 202) “Many qualitative Researchers employ ... purposive, and not random, sampling methods. They seek out groups, settings and individuals where ... the process being studied is most likely to occur”, so the case selections were made to ensure a range of different types of island tourism destinations in the Indian Ocean.

A total of twenty developing islands were identified and profiled in terms of popularity as a tourist destination, geographic location, language, the amount the economy was reliant upon tourism GDP and the degree to which the islands were vulnerable to climate change. The full table of the profiled islands considered for the sample can be found in Appendix 4. This process (Appendix 4) helped to eliminate countries that had relatively low levels of tourism or limited economic reliance upon tourism. A focused geographic approach was selected using islands within the Indian Ocean, rather than a scatter gun approach taking one from the Pacific and another from the Caribbean, as countries with closer geographic proximity are more likely to have to deal with similar contextual factors which would provide some similarity and a boundary to the study.

The sample was also influenced by meeting delegates at the UNWTO conferences, so there was some convenience sampling involved. This led to the identification of three case studies which would provide the settings and access to relevant individuals where the processes being studied are most likely to occur (Denzin and Lincoln, 2000). The case for the pilot test was Cyprus the main study uses the Maldives, Sri Lanka and the Seychelles.

Factors informing this choice included their being popular lucrative tourist destinations with a high economic reliance upon tourism for the national gross domestic product and observations of climate change impacts having been reported. Following on from initial introductions at the Davos conference, a letter was then sent to the National Tourism Organisation (Appendix 5) requesting their support for the research.

### **Case study limitations**

The limitations of case study research are well recorded and have been well summarised by Hamel *et al* (1993:23). Firstly, they have a lack of representativeness as the focus is upon the phenomenon in that particular case study. This criticism is very relevant in single case studies (Stake, 1994). To a certain degree the use of multiple case studies goes a little way to address this concern. Mason (1996:6) supports this: “I do not think that qualitative Researchers should be satisfied with producing explanations which are idiosyncratic or particular to the limited empirical parameters of their study..... Qualitative research should [therefore] produce explanations which are generalizable in some way, or have a wider resonance”. Thus the use of multiple cases in this research seeks to ensure the wider relevance of findings.

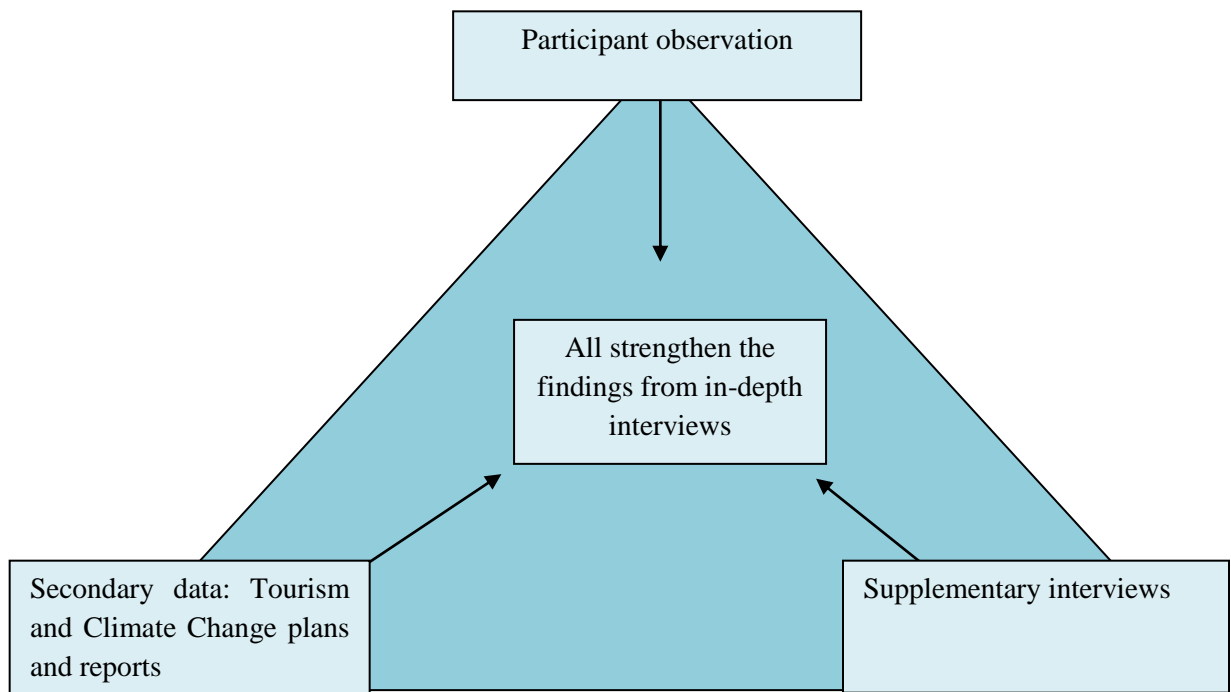
The second criticism is the lack of rigour of the data collection. Multiple methods of data collection can be used to try to increase the validity and reliability of the findings within case studies (this is dealt with in more depth in section 4.1.12). In addition, the lack of rigour is linked to the subjectivity of the Researcher. The social constructionist methodology clearly identifies that the Researcher does bring their own assumptions, beliefs, values and biases to the study, so the Researcher is aware that multiple methods will be required to provide greater objectivity and provide challenges to a single perspective being presented. Chapouillie’s study (1986:276) examines this issue in greater detail and suggests that the “use of the comparative method [multiple cases – is used] not for demonstrating proofs, but to construct analytical categories free from value judgments and from categories used by the respondents themselves for practical purposes”.

#### 4.1.10 Triangulation

In Table 4.2 Matching Research Questions with Strategy, Marshall and Rossman (1995) suggest three key research techniques are used for data collection: participant observation; in-depth interviewing and elite interviewing. The main research method used in this study is that of in-depth interviews with key representatives of the public and private sector within the destinations. Different methods and sources were used to collaborate each other, and to provide some form of methodological triangulation (Mason, 1996). The use of multiple methods of data collection helps to overcome the inherent weaknesses that are present in all research methods, so the use of multiple methods reduces the problems of relying upon one method of data collection (Easterby-Smith *et al* 1991; Miles and Huberman 1994).

The supplementary methods used in this study were fieldwork observations, normally recorded through photography and the use of a research diary; participant observation during the fieldwork visits; supplementary interviews conducted at international conferences the Researcher attended; and secondary data such as tourism planning and climate change documents from the destinations.

Figure 4. 3 Triangulation of data methods utilised



Source: Researcher

#### **4.1.11 Ethical issues**

Approval was sought from the University Ethics Committee before fieldwork was conducted and the project was given approval. The key ethical issue was that of confidentiality. Participants in the study were given the opportunity to remain anonymous. This involved the Researcher not identifying the names of the respondents in the initial explanation of the research, and anyone reading the research will not be able to link the holder of those positions. Surprisingly, all respondents were happy to be named in the research. The Researcher considers that this is due to the research being given the credibility and support of the respective National Tourism Organisations and a growing recognition of the critical turning point that these countries are in regarding the issue of climate change; so respondents wanted their voices to be heard. Whilst the names of respondents will be made available to the examiners, the respondents will remain anonymous to subsequent readers due to longer and more complex ethical considerations. The findings of the research do not refer to the respondents by name; all respondents were anonymously coded during the transcription of the interview recordings, to maintain the confidentiality. Prior to interviews being conducted the respondents were asked to sign the informed consent form (Appendix 6), which also included consent for the audio recording.

#### **4.1.12 Pilot testing**

Yin (1994, p74) describes the pilot test as helping “investigators to refine their data collection plans with respect to both the content of the data and the procedures to be followed”. The pilot survey was conducted in Cyprus to test out the methodology. Cyprus was selected as it is an island tourism destination, where English is widely spoken and a high proportion of the gross domestic product is reliant upon inbound tourism. Contacts with the National Tourism Organisation – Cyprus Tourism Organisation were made during the Davos conference. Ten in-depth interviews were conducted, five with the public sector and five with the private sector (Table 4.3).

Table 4.3 Respondents in the pilot test

File reference	Date of interview	Respondent code	Respondent Position Blue – Public sector Purple – Private sector
<b>CYP 1</b>	12.04.08	Pilot respondent 1	<b>Director of Tourism Planning and Strategy</b>
<b>CYP 2</b>	12.04.08	Pilot respondent 2	<b>Owner of Diving Dreams</b>
<b>CYP 3</b>	14.04.08	Pilot respondent 3	<b>Head of Tourism Marketing</b>
<b>CYP 4</b>	15.04.08	Pilot respondent 4	<b>Deputy Director of Environmental Services</b>
<b>CYP 5</b>	16.04.08	Pilot respondent 5	<b>Cyprus Tourism Officer Assistant</b>
<b>CYP 6</b>	16.04.08	Pilot respondent 6	<b>Dionasysis Tour Operator</b>
<b>CYP 7</b>	17.04.08	Pilot respondent 7	<b>Mediterranean Beach Hotel, Environmental Manager</b>
<b>CYP 8</b>	19.04.08	Pilot respondent 8	<b>Manager of Troodos Visitor Centre</b>
<b>CYP 9</b>	21.04.08	Pilot respondent 9	<b>Manager of the Four Seasons Hotel</b>
<b>CYP 10</b>	<b>21.04.08</b>	<b>Pilot respondent 10</b>	<b>Manager of Limassol Dives</b>

Source: Researcher

### **Confirmation of suitable methodology**

Cyprus was an interesting pilot case and a lot of lessons were learned, which have made the collection and capture of the data in the subsequent case studies more professional and in turn strengthened the validity of the research and data collected. Cyprus clarified that an exploratory case study would provide a good foundation for data collection in the area of tourism and climate change, as the respondents identified issues outside those expected within the remit, such as the responsibilities and rights of tourists and residents regarding water usage, which reinforced and ratified the need for an inductive approach. Also the public and private stakeholders had very different perspectives on the issues of tourism and climate change and what actions should be taken, which confirmed that a social constructionist methodological approach was valid and would indeed provide invaluable insights into the different tourism destinations and the different stakeholders perspectives on tourism and climate change.

### **Importance of working closely with the National Tourism Organisation**

Whilst the Researcher had made good links with the Cyprus Tourism Organisation who supported her in setting up interviews with respondents within the Organisation, they did

not help to set up interviews with key public or private sector stakeholders. This created difficulty on a number of levels, knowing who were the most suitable people to interview was quite hard to judge. As the Cyprus Tourism Organisation did not act as a ‘go between’ from the Researcher to the tourism stakeholders, this resulted in it being more difficult to target the most appropriate people with specific perspectives to report about tourism and climate change. This was an important lesson to learn and as a result the Researcher worked more closely with the National Tourism Organisations in the main fieldwork. At times during the pilot test the process of arranging meetings with suitable respondents felt like cold calling, which meant the Researcher was nervous at the start of the interview and this might have impacted upon the quality of the data collected. In some instances, the Researcher was viewed with suspicion by some of the respondents, who maybe thought the research was being undertaken on behalf of the Cyprus Tourism Organisation; so their responses were fairly cautious. In a couple of situations the respondents contacted the Cyprus Tourism Organisation to validate who the Researcher was and in one of those instances, a respondent did not want to be recorded. This enabled the Researcher to recognise that the interviews needed to be requested via the National Tourism Organisation and be set up in advance, to provide greater credibility, help secure the most appropriate informants and formalise the interview timetable.

### **Improvement of interview techniques**

Marshall and Rossman (1995) suggest that conducting a pilot study can illustrate the ability of the Researcher to manage qualitative research by describing initial observations and interviews. The pilot study enabled the Researcher to improve her interviewing technique. For example, Cyprus during this period was experiencing a drought and there was a severe shortage of water to the point that water was having to be imported in tankers from countries in the Middle East. This was at the forefront of the respondent’s minds and they had to be encouraged to discuss the issue of tourism and climate change from a wider perspective. This was invaluable as the sample interviewees in the case study destinations tended to be swayed by recent media coverage and the Researcher was able to get the respondents to broaden the scope of the issues discussed.

### **Reduction of the interview questions**

The interview questions used to prompt the Researcher during the pilot study were found to be too cumbersome, which resulted in the Researcher hesitating in the process of

navigating through all the topics to discuss and on one occasion missing out a section. Following on from this a more succinct schedule was produced to reduce these technical difficulties. So when the main fieldwork was conducted a streamline list of issues and keywords were used far more effectively as a checklist of interview topics to be covered, rather than a rigid interview structure.

### **Initial interview transcription**

Upon returning from Cyprus the Researcher also conducted some transcription and began to develop a means of analysing the data. This provided a good insight into the time implications of full transcriptions and the importance of designing an effective means of handling the findings and clarifying the relevant emerging themes and patterns. The transcription was a labour intensive task and the Researcher found that by listening to the interviews it was possible to identify key issues that emerged during the interviews and also some issues that were considered less relevant to the issue of tourism and climate change. The latter could be noted but not transcribed verbatim. Half of the interviews from the pilot study were fully transcribed and half were listened to on three occasions and then selective transcription of key issues was conducted. Having compared the effectiveness of the two methods, it was decided to conduct repeated listening and selective transcription with the final data as it did not appear to reduce the richness or scope of the data.

### **Validity and reliability of the research methods**

Research instruments should be tested to assess the validity and reliability of them. The simplest and weakest test involves the face validity; does it look and appear OK? A stronger measure of validity is to use some objective measurement and to examine both the content and construct validity. With qualitative methods used in this study it is the quality of the data that is important and by which the research can be judged. Brotherton, (2008:102) recommends an assessment is made about how adequate in terms of coverage of data and also the extent to which the data collected will be of value and this is the approach that was taken at the end of the pilot test. This is because the analysis of the data is based on contextual matters within the tourism destinations not statistical matters. All the respondents were specialists in the area of tourism within Cyprus, so their expert opinions form the basis of the interview findings. After lots of deliberation and some changes to the interview structure and sample selection that have been identified in this

section, it was decided that the research design and methods were sufficiently robust to offer validity and reliability.

### **Pilot test reflections**

A limitation of the pilot study was it was not a developing country, but time and cost implications prohibited this and the main purpose of the pilot was to test the methodological framework. Marshall and Rossman (1995) conclude that the inclusion of a pilot study strengthens the research and usually reveals fascinating questions and intriguing patterns. The Researcher concurs, but would also add, that the adaptation of the interview schedule and the development of the Researcher's interviewing techniques, also led to richer more insightful data being captured in the main study which followed.

## **4.2. RESEARCH METHODS USED TO CONDUCT THE FIELDWORK**

This section of the Chapter provides an overview of the fieldwork undertaken and the research methods used to collect the data. It commences with an introduction to the fieldwork conducted in the case SIDS visited by the Researcher and provides an insight into the research methods used during the data collection phase.

### **4.2.1 Fieldwork in the case study destinations**

The research necessitated conducting fieldwork and staying in each of the tourist destinations for a period of approximately two weeks. In each of the research trips a stay was necessary in the capital cities to interview government officials. A period of time was also spent staying in popular tourist resorts to provide an insight into the tourist experience. This allowed the Researcher to get very close to the issue of interest (tourism and climate change), 'catching the experience of flight' by experiencing the hidden aspects of the experience (Madge, 1953). During this time the Researcher was able to become immersed in the culture and stayed in hotels used by tourists, which enabled the Researcher to converse with the tourists and employees within the tourism industry and glean an insight into their experiences, attitudes and opinions. The observation of the natural environment and actions of tourism employees was an essential aspect of this research; at times it either validated or contradicted the information given within the interviews.



## Map 4.4 Sri Lanka

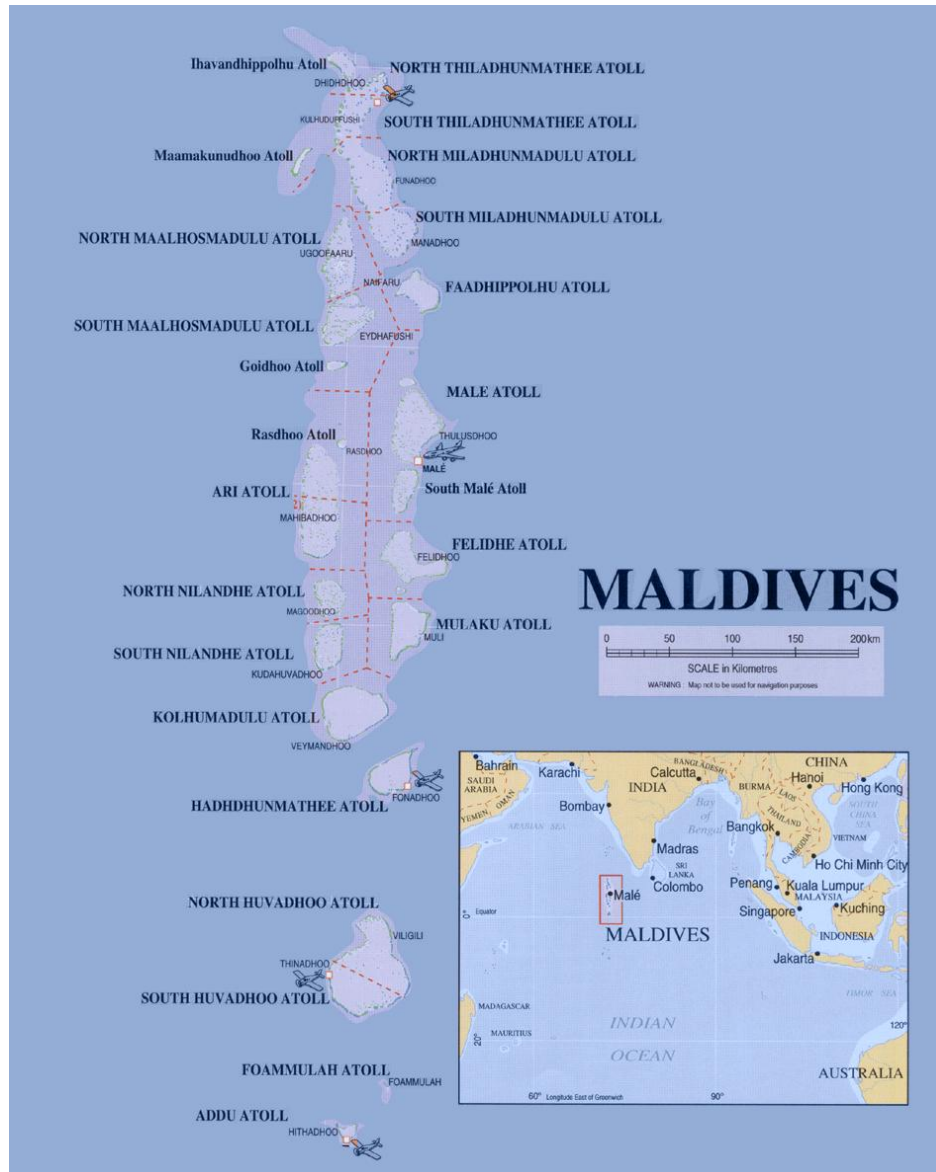


Source: Geology.com 2010

### Research in Sri Lanka

The Researcher went to Sri Lanka in May 2008 and stayed for two weeks. Initially, a period of time was spent in Colombo, staying in the Galle Face Hotel. Most of the public sector interviews were undertaken during this time. Day trips were taken to a number of World Heritage Sites in central Sri Lanka during this period. During the second part of the fieldtrip the Researcher stayed in a tourist hotel near Bentota on the west coast and many of the private sector interviews were conducted from this location. The south of the island was explored with a number of excursions. Unfortunately, due to the political conflict at the time it was not possible to visit the north or east of the country.

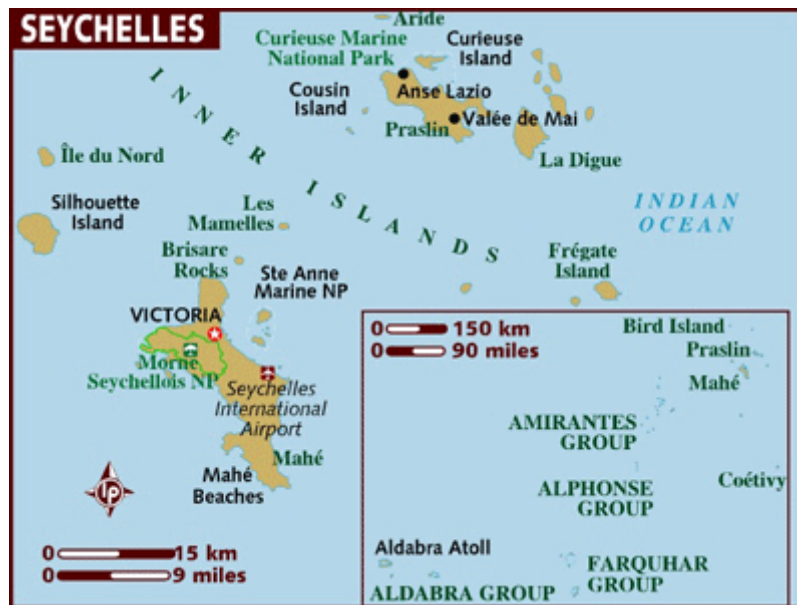
Map 4.5 The Republic of the Maldives



Source: maldivesnet.com

In July 2008 a two week fieldtrip took place to the Maldives. For the majority of the time the Researcher stayed on the main atoll, Malé in the Citi Inn hotel. However, during the stay two overnight trips were made to tourism resort atolls. The contrast between staying on the capital island and the resort islands was immense. Malé is a very small, densely populated island where all the administrative functions take place, so it is extremely busy, chaotic and few tourists stay there. In contrast the tourism resorts were accessed by long boat journeys that culminated in an idyllic luxurious experience for the tourist. Having visited a number of the resorts it became clear that they all had distinctive features and specific concerns that were linked to climate change.

Map 4.6 The Seychelles



Source: Source: greece-Map.net

The fieldwork in the Seychelles took place during September 2008 and again two weeks were spent on the islands. The majority of the time was spent on Mahé, the administration island, but a total of 5 nights were also spent in Praslin, La Digue and Fregate islands. During the time at Praslin, the Vallee de Mai Nature Reserve WHS was visited. Whilst on Mahé, two day trips were taken to Silhouette and Ste Anne islands. The Seychelles islands are all rather different and have their own characteristics. By visiting the different islands, the Researcher was also able to verify information given by the respondents regarding the impacts of climate change. This next section reports on the research methods used to collect the data during the field visits.

#### 4.2.2 Participant observation

Roy (1960); Lupton (1963); and Golding (1979), all advocate the use of participant observation where the phenomena maybe rather controversial or surrounded in secrecy. The research area comes into this category as ‘those involved in tourism’ (the stakeholders), sometimes do not want to disclose the problems being experienced with climate change for fear that it may deter tourists from visiting their destinations. At times the Researcher was accompanied on excursions (by officials from the NTO), such as diving trips to see the coral bleaching and this was useful to illustrate some of the discussion points, but during this time the Researcher was aware she may be taken to observe what

the NTO wanted her to see. However, at other times the Researcher travelled alone enabling full exploration of the issues and this also helped to maintain objectivity within the research. The Researcher would not have been able to gain such rich data if the fieldtrips had not been undertaken, as it enabled a fuller understanding of the current context within each of the destinations.

#### **4.2.3 In-depth interviews**

The main data collection methods of the study were semi-structured in-depth interviews. The interviews (approximately one hour each) were conducted with key public and private sector stakeholders so that an understanding was gained of the meanings and importance attached to climate change and tourism.

An interview is essentially a conversation with a purpose (Berg, 1989; Dexter, 1970; Lincoln and Guba, 1985). Mishler 1986 (quoted from Maykut and Moorhouse 1994: 79), expands on this: “At its heart is the proposition that an interview is a form of discourse. Its particular features reflect the distinctive structure and aims of interviewing, namely, that it is discourse shaped and organized by asking and answering questions. An interview is a joint product of what interviewees and interviewers talk about together and how they talk with each other. The record of an interview that we Researchers make and then use in our work of analysis and interpretation is a representation of that talk”.

There is a long history of interviews being used within Social Science and they are viewed as a particularly useful tool in to illuminate salient features of culture and human experience (Maykut and Moorhouse 1994), thus they were deemed an effective tool for this study, as they would be able to draw out the perceptions of the tourism stakeholders to the issues of climate change that they were, or anticipated experiencing and also allow for a prolonged engagement and probing of the issues. The interviews explored the key themes set out in Table 4.4 below (the full interview framework is in Appendix 7).

Table 4.4 Interview structure

Interview stage	Key theme	Reference to conceptual framework
1	The knowledge and attitudes of the respondents to the national tourism plan	Destination region
2	Respondents knowledge and observations of the impacts of climate change within the destination	Destination region
3	Adaptation and mitigation measures taken or planned; to assess the effectiveness of transfer from policy to sustainable tourism practice	Destinations responsiveness to climate change
4	Future predictions and expectations of climate change impacts and the tourism industry	Destinations responsiveness to climate change
5	Dependent upon the respondent, specific issues were explored in greater depth with particular informants. For example, when interviewing the public sector, the focus was frequently based around tourism planning, implementation and monitoring, whilst the private sector interviews tended to focus on the transfer of information and specific initiatives	Destinations responsiveness to climate change

Source: Researcher

The interview structure was designed to provide a flexible medium, as all the informants had a different perspective to give; it needed to be flexible enough to capture their particular aspects of the issues. However, it was also required to provide data that was comparable in nature, to allow for effective analysis. The initial structure of the interviews was too cumbersome, which became evident in the pilot testing in Cyprus, as a result, a briefer structure was developed. The use of in-depth interviews proved to be a flexible instrument with which to capture relevant data. The questions asked during the interviews flowed from the literature reviews conducted in the earlier chapters. This led to key line of enquiry being developed. Finally, a brainstorming process led to an interview schedule to be produced for both the public and private stakeholders (Appendix 7). The interview schedule gave the interviewer plenty of options and prompt to ensure the interviewee disclosed rich data. As Payne (1951) noted, question asking is an art, and like most art forms it is improved through practice and persistence. The Researcher supports this, recognising that the process of interviewing became easier during the research process and found the pilot study an invaluable experience to gain confidence in the art of interviewing.

#### 4.2.4 Sampling process

The purpose of sampling is to select a representative population so that the Researcher is confident that the phenomena being investigated can be observed and so that confident assertions can be made about the issues being observed (Arber (1993). The selection of the case studies as discussed in section 4.1.9 used purposive sampling (Guarte, 2006) and led

to the identification of a sample population that had the most information on the characteristics of interest, namely climate change in island tourism destinations in the Indian Ocean.

#### **4.2.5 Selection of the key respondents**

As one is not able to study “everyone everywhere doing everything, even within a single case” Miles and Huberman (1984:36) a process of participant selection has to take place. This stage of the sampling process involved making decisions about who to interview. Prior to embarking on the fieldwork one contact had been made with the head of the National Tourism Organisation (NTO) in the tourism destination, a number of telephone conversations were conducted to identify the most suitable key respondents from the public and private sectors. This was quite a difficult process as none of the organisation structures are the same and job titles can be rather misleading; hence the telephone discussions were at times lengthy and at times quite difficult. However, the NTO representatives were extremely helpful in this process.

#### **The selection of public and private sector stakeholders**

The sample of respondents was broken down into two subsets to include individuals that were involved in the development of policy and those implementing it. Firstly, within the public sector, respondents were selected who formulated policy to do with climate change at a national level and if possible had engagement in international forums. In some instances, this involved people working in meteorological, economic development departments and fellow academics. A key aspect of the research was to examine how tourism policy was developed, delegated and implemented, and so a second subset comprising of respondents who worked in the National Tourism Organisation (NTO) at different hierarchical levels and geographic locations were selected. This ensured a balance between those involved in policy formation and those in managing tourism operations. A full list of the respondents can be found in Appendix 8.

The sample of private sector stakeholders was similarly broken down to include representatives of leading hotel groups, tour and transport operators and tourist attractions. As the structure and set up of the tourism industry and governments varied from nation to nation it was impossible to gain exact replications of specific roles within the case studies.

However, the Researcher used experience, advice and persistence to get access to people in comparative roles.

The sample selection of interview respondents tended to take on the characteristics of convenience sampling, but there was also some degree of snowball sampling through contacts made during the fieldwork. The studies of Patton (1990:171) and Miles and Huberman (1994:28) both caution against the use of convenience sampling, stating “it is neither purposeful or strategic”. Although Weiss (1994:25) argues that “there are certain situations where convenience sampling is the only way to proceed.....to gain access”. The Researcher considers that the use of the National Tourism Organisation was essential in the selection of a suitable sample as this ensured access to key people in the industry and helped to overcome some of the problems experienced within the pilot study. However, the Researcher was aware that she may not have been given access to respondents who had a different perception of the issues of tourism and climate change. To overcome this limitation the Researcher, ensured that contact was made with supplementary informants (informal contact was made during participant observation) so that different views of the issues from those respondents introduced through the NTO.

#### **4.2.6 The interviewing process**

Once suitable respondents had been identified, the Researcher sent an information sheet outlining the basis of the research and an introduction to the Researcher and the interview process (Appendix 6). The interview process was developed using the advice of Davis (1960); Lofland and Lofland, (1995), who were both cited by Robson, (2002). The points below outline the structure of the interviews:

1. Initially, the purpose and nature of the study was explained to the respondent, telling how they came to be selected.
2. Assurance was given to the respondent that they could remain anonymous and that their responses will be treated in the strictest confidence. Interestingly, not one respondent wished to remain anonymous, they were strident that they wanted their views recording and attributing.

3. The research questions were briefly introduced and assurance given that there were no right or wrong answers. The Researcher was interested in their knowledge, opinions and personal experience of tourism and climate change.
4. Assurance was then given that the respondents could interrupt, ask clarification throughout the interview, and if there were any areas not covered, please expand.
5. Next, the interviewer told the respondent something about herself: her background, training, job role and interest into tourism and climate change.
6. Finally, the interviewer asked permission to record the interview. Patton 1990 advocated the recording of the interview to obtain the best possible record of the interviewee's words. The respondent was then asked to sign an informed consent form.

Interviewing respondents is a complex process, as the interviewer and the interviewee need to develop a rapport, so that the interviewee feels they are able to trust the interviewer enough to disclose information. As Maykut and Morehoue (1994) point out, the interviewer needs to know the questions well, listen more than talk and be genuinely curious about the topic to maximize the chance of a good interview. At times the interviewing process proved difficult due to cultural differences, such as language and a female interviewer asking male respondents in predominantly Muslim countries. The Researcher endeavoured to take on board the advice of Mishler (1986), through empowering the respondent so they felt like a collaborator in the research process. This was particularly important during this study, as most interviewees recognised that they could be doing more and the development of a certain line of questioning may have made the respondents uncomfortable and defensive in their response, so it was important to offer reassurance and be non-judgemental in order to gain an open and honest response to the questions. Patton (1990:279) captures this well: "the quality of the information obtained during an interview is largely dependent on the interviewer". Hence the Researcher made careful preparations in the interview process.

#### **4.2.7 The interview timetable.**

The full interview timetable can be seen in Appendix 8, but the Table below provides an overview of the interviews conducted.



Table 4.5 Summary of interviews conducted

Case study	Date	Public sector interviews	Private sector interviews
<b>Sri Lanka</b>	May 2008	5	<b>7</b>
<b>Maldives</b>	July 2008	6	<b>10</b>
<b>Seychelles</b>	<b>September 2008</b>	<b>10</b>	<b>6</b>

Source: Researcher

#### **4.2.8 Location and timings of interviews**

The vast majority of interviews took place at the respondent's place of work, normally in a private office, but sometimes in a public area, such as a hotel lobby. On some occasions, interviews were organised at the National Tourism Organisation headquarters, to dovetail with other meetings and reduce the inconvenience to the respondents. As most interviews took place in the environment that the respondent was discussing, this provided an ideal opportunity to validate the information in the discussion through participant observation and collection of secondary data reports, etc. Interviewing the respondents in their own setting generally enabled them to be more relaxed. Where the interviews took place in resorts or in hotels and dive centres, this was normally accompanied by a tour, which also helped to verify the data.

The length of the interviews varied greatly, dependent upon the interest and knowledge of the respondents, but also linked to the number of relevant initiatives they were involved in. The duration of the interviews varied from approximately 45 minutes to two and a half hours. At times, there were interruptions to the interviews, especially those in senior positions who needed to take phone calls or speak to staff. When this occurred the Researcher simply reminded the interviewee as to what they were saying when the interruption took place.

#### **4.2.9 Supplementary interviews**

Whilst preparing for the fieldwork and doing secondary research, the opportunity arose to attend a number of international conferences about tourism at Breda Netherlands June 06; Davos Oct 07; Gothenberg 09. On a number of occasions this led to interviewing influential people in the field of work who were able to offer insider information into the wider political, economic, social and environmental aspects of the countries and the tourism destinations. This was valuable in gaining a fuller understanding of the context of the research. These supplementary informants were very open and candid, maybe they felt

they had less invested interest with the disclosure of information and tended not to be as guarded as the key respondents. Appendix 9 contains a table of the sixteen interviews that were conducted at these conferences.

#### **4.2.10 Documentary evidence**

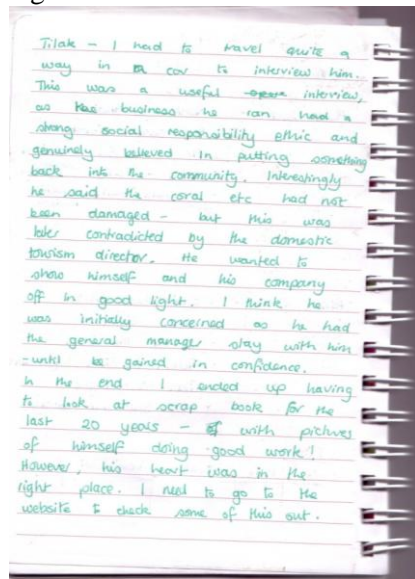
Whilst conducting the fieldwork the interview respondents would often refer to a key document, such as the NTO strategy document or a report on climate change. When these situations occurred the Researcher would request permission to have a copy of these documents. This proved useful so that information given during the interviews could be confirmed. This secondary data also provided an excellent contextual background into the tourism industry within the destinations.

#### **4.2.11 Research notes**

The Researcher also maintained a detailed diary that was used to record observations and also to capture emerging thinking. Alasuutari (1995) recommends that Researchers maintain field notes to avoid presenting the reader with a seamless web of ideas, which conceals the development of thinking with all its set-backs and dead-ends. Patton (1980: 159) discusses the importance of field notes in participant observer research and emphasises that ‘the documentation would not have made sense without the interviews and the focus of the interviews came from the field observations. Taken together, these diverse sources of information and data gave me a complete picture’ (taken from Brent *et al* (2005: 13).

Keeping these records ensured that the Researcher kept an open mind and critical stance to the research (Silverman, 2005) and helped to develop a more ‘reflexive stance’. Huberman and Miles (1994, p439) condone “regular, on-going, self-conscious documentation – of successive versions of coding schemes of conceptual arguments.....of analysis episodes – both successful ones and dead ends”. The Researcher kept copious notes during the fieldtrips, some of which were taken directly after interviews or visits and some which were written later in the day, pulling together observations about seemingly unrelated events. Figure 4.4 is an extract from the Researcher’s field notes, written after an interview.

Figure 4.4 Illustration of research diary



Source: Researcher

#### 4.2.12 Photographic evidence

A picture can convey a thousand words and is a standard means by which tourists share their experiences with one another. Flick (2007) observes that images are ubiquitous in society and as a result some consideration should be given to them in social studies. Photographs were used during the fieldwork to capture some of the Researcher's experiences and also to illustrate as verification of some of the potential impacts of climate change, and to act as an aide memoire along with the field notes. The Researcher took all the photos so was able to capture the scene warts and all, not just the idyllic tourist pictures the NTOs are keen to promote. Figure 4.5 and 4.6 are examples of photographs taken during the field work.

Figures 4.5 and 4.6 Sri Lanka



Source: Researcher

Figures 4.7 and 4.8 show the enormous contrast between being in Kalutara a tourist resort (photo on the right) and the poor infrastructure of roads in Galle (photo on the left).

Figures 4.7 and 4.8 Maldives



Source: Researcher

The picture on the left is taken on Malé, the capital island and shows the dense high rise buildings. A third of the population live on this congested island. The photo on the right is taken at the port area and shows the dependence of the tourist resorts on good boat transportation.

Figures 4.9 and 4.10 Seychelles



Source: Researcher

Figure 4.9 is an illustration of the beautiful granite stones and beaches on the islands, a major motivation for tourists to travel to the Seychelles. Figure 4.10 shows an oxen and cart are the main means of transport for tourists on one of the island, La Digue.

The photographs have proved invaluable in prompting the Researcher during the analysis stage of the research. In future research they would prove useful to compare specific geographic locations and observe changes that might have occurred.

The development of the field notes and photographs has also enabled the Researcher to see the progression of ideas during the research. The Researcher agrees with Patton (1980) as the data from one of the methods used would have been informative, but the combination of data from all the methods used; interviews, secondary data, participant observation through field notes and photographs has provided a deeper and more comprehensive insight into tourism and climate change in island tourism destinations in the Indian Ocean. This triangulation of research methods has allowed for a more robust set of data to be collected that provides a wider perspective of the issues within the research. At times the data collected during participant observation and secondary documentation collaborated the data collected during the interviews; at other times the data contradicted the key respondent data. In both instances it enabled the Researcher to ask additional questions and probe further to gain a wider understanding of the issues.

### **4.3 ANALYSIS OF DATA**

This section of the Chapter outlines the process used to analyse the data gathered once the fieldwork had been completed.

Miles and Huberman (1984: 21) suggest that data analysis consists of “three concurrent flows of activity: 1. data reduction, 2. data display and 3. conclusion drawing and verification”. These three activities were followed in the analysis stage and are now considered in turn.

#### **4.3.1 Stage one - data reduction**

The first stage of the analysis process was reducing the data so effective analysis could occur. All interviews were recorded using a digital recorder to enable accurate recovery of the data. A lengthy process of transcription began as soon after the field trip as was possible. This was considered important to remind the Researcher of important issues that were not captured at the time whilst still fresh in the mind of the Researcher (Maykut and Morehouse 1994).

The process of transcription involved a number of stages. Firstly, the files were listened to thrice prior to transcription. As well as simply reducing the data, the process adopted provided an opportunity for initial analysis as notes were made and fieldwork notes were re-organised, which enabled the development of tentative ideas about categories and relationships (Maxwell, 2005). The first listening reminded the Researcher of salient points and developed familiarisation with the arguments presented. A second focused listening to the interviews identified the key issues using the proforma developed (Appendix 10). Finally the sections for selective transcription and further content analysis were listened to again to establish the section to be transcribed. Full transcription of all the interviews would have been an extremely lengthy process. Maykut and Morehouse (1994:100) estimate that for a one and a half to two hour interview, this would take approximately twenty hours. With the region of one hundred hours of interviews recorded it was decided that full transcription was prohibitive, so selective transcription (as described in section 4.1.13) was conducted. During this stage of the process the data was coded to provide anonymity of the respondents. In later Chapters the respondents are given a unique code, for example Mal Priv 5. SL, Mal and Sey respectively refer back to the three case studies; Sri Lanka, the Maldives and the Seychelles. The codes also indicate whether the respondent was from the public (pub) or private (priv) sector and a number allocated that can be matched to each particular respondent. A full list is provided in Appendix 8.

#### **4.3.2 Stage two - understanding the data and starting to draw conclusions**

The principal means of analysis is the coding of the data for development of content analysis. In qualitative research the goal of coding is not to count things, but to ‘fracture’ the data and rearrange them into categories that facilitate comparison between things in the same category, which aid the development of theoretical concepts (Strauss, 1987:29). The Researcher went by intuition and the feel of the data but also took into account the key themes from the literature, with the aim of providing common and contradictory themes and patterns which can be used for interpretation (Easterby-Smith *et al* 1991). The Researcher was keen to avoid the criticism directed at much qualitative research of falling into the trap of “using a set of ad hoc procedures to define, count, and analyse its variables” (Silverman, 2003:5). Use was made of ‘Organisational categories’, which Coffey and Atkinson, (1996: 34-35) recommend as “bins” for sorting the data for further

analysis, they are likely to be useful section headings in presenting the results, but they are not likely to help much with the actual work of making sense of what’s going on. This process led to nine key themes being identified from the initial review of the data and a two matrix structure (public and private stakeholders) evolving from the concepts and themes in the literature, within which to undertake further content analysis ( see Table 4.6). Once the data from the interviews had been categorised in this way, the data from fieldwork observations and participation as a tourist was also coded and placed within the themes. The key techniques were to print out photographic evidence that the Researcher had taken and copy the field notes and then link to the findings from the interviews to provide collaborating or conflicting evidence with the data from other methods, thus triangulating the data set.

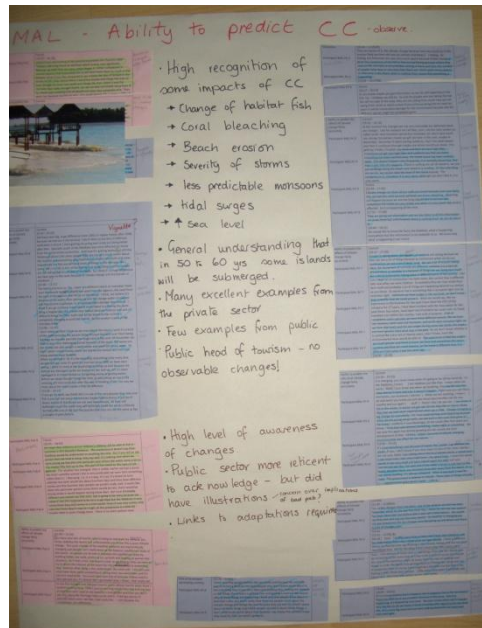
Table 4.6 Mapping of key themes

Key themes	Public sector	Private sector
Importance reliance of tourism		
Tourism and climate change documents		
Ability to predict the effects of climate change fairly accurately - current and future		
Incentives - Regulation		
Adaptations		
Mitigation		
Role of developed / developing country		
CC in decision making		
Optimistic / pessimistic		
Vulnerability to CC		
Adaptability to CC		

Source: Researcher

Content analysis enabled the identification of similarities and differences and paradoxes between the perceptions of the public and private sector stakeholders and between the different tourist destinations (Maxwell 2005). Figure 4.12 below gives an example of one of the analysis sheets.

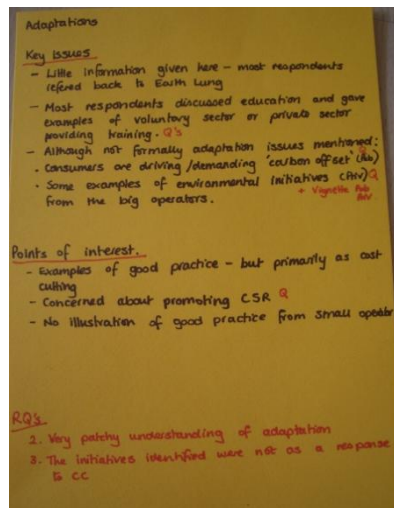
Figure 4.11 Example of the within analysis sheet, Maldives: ability to predict climate change



Source: Researcher

The single case thematic analysis was undertaken in Chapter Five (Figure 4.11), during this lengthy process, plausible explanations and metaphors evolved as the themes were split, related and factored (Miles and Huberman, 1984; Maxwell, 2005).

Figure 4.12 Example of the further development of 'within analysis' sheet



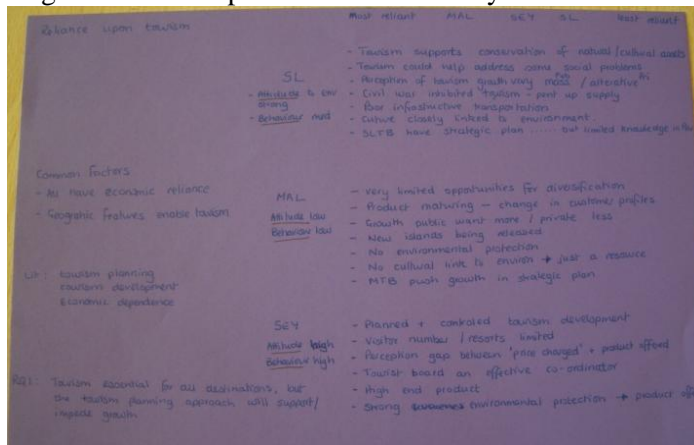
Source: Researcher

The process continued to provides an account of key issues emerging from a cross-case analysis in Chapter Six (Figure 4.12).The use of the themes in the Table above helped to identify patterns and themes that have emerged by the development of the cross-case data analysis within the comparative matrices (Figure 4.13). The objective of this emergent



process was to provide a rational set of evidence that will support and validate a conceptually coherent theory (Scriven, 1976).

Figure 4.13 Example of a ‘between analysis’ sheet



Source: Researcher

The results enable an assessment to be made of the adaptation and mitigation actions taken by coastal tourist destinations in response to climate change. It provides in-depth contextual information, which can improve understanding of the issues involved, add to the academic research in this area and inform policy decisions.

### 4.3.3 Stage three – verification of the findings

The final stage in the analysis process is that of verifying the data collected and questioning whether the themes that have been identified do actually provide an understanding about the issues of climate change within Sri Lanka, The Maldives and the Seychelles, particularly the different approaches taken between the public and private sector stakeholders. The Researcher returned to the conceptual framework to validate the findings and with much discussion and reflection was able to make amendments to the conceptual framework. This has led to new ideas about how the current knowledge, attitudes and behaviour by the stakeholders in the destinations, could influence the responsiveness and preparedness of the tourism sector to the potential changes that might result from climate change. This will be examined in detail in Chapter Six.

#### **4.3.4 Fieldwork reflections**

##### **Research methodology**

As the research was conducted in the developing world and the Researcher was from the developed world, it was an essential aspect of the methodology (social constructionism) to recognise these differences and allow the respondents to provide their perspectives of the issues. At times this was a humbling experience as many of the respondents considered the economic growth and lifestyles in the developed nations was responsible for the climate change problems that they were dealing with. Another aspect was that immersion in the fieldwork that took place in island developing states which took the Researcher out of her comfort zone, the accounts of some respondents and experiences within the destinations challenged her values.

##### **Research design**

The combination of the research methods used has been very successful in providing lots of rich data on the subject of tourism and climate change. The respondents in most instances were very candid in sharing their knowledge and opinions. However, it was the triangulation of the data that provided a more holistic understanding of the situations. The participant observations during the fieldwork provided the Researcher with a deeper insight into the geographic, economic, social and environmental issues within the tourism destinations and without this understanding the results of the research would not be as complete.

#### **4.3.5 Personal reflections**

##### **Tenacity**

When conducting international research the challenges are more complex and as a result require greater persistence. There are differences in time zones, national culture, work culture, language and political systems, to name but a few and at times these practical issues have proved frustrating. The challenges were further exacerbated when conducting research in developing countries, where the infrastructure can be immature, so travelling can be both time consuming and hazardous and communications haphazard, hence the Researcher had to be tenacious.

## **Corruption**

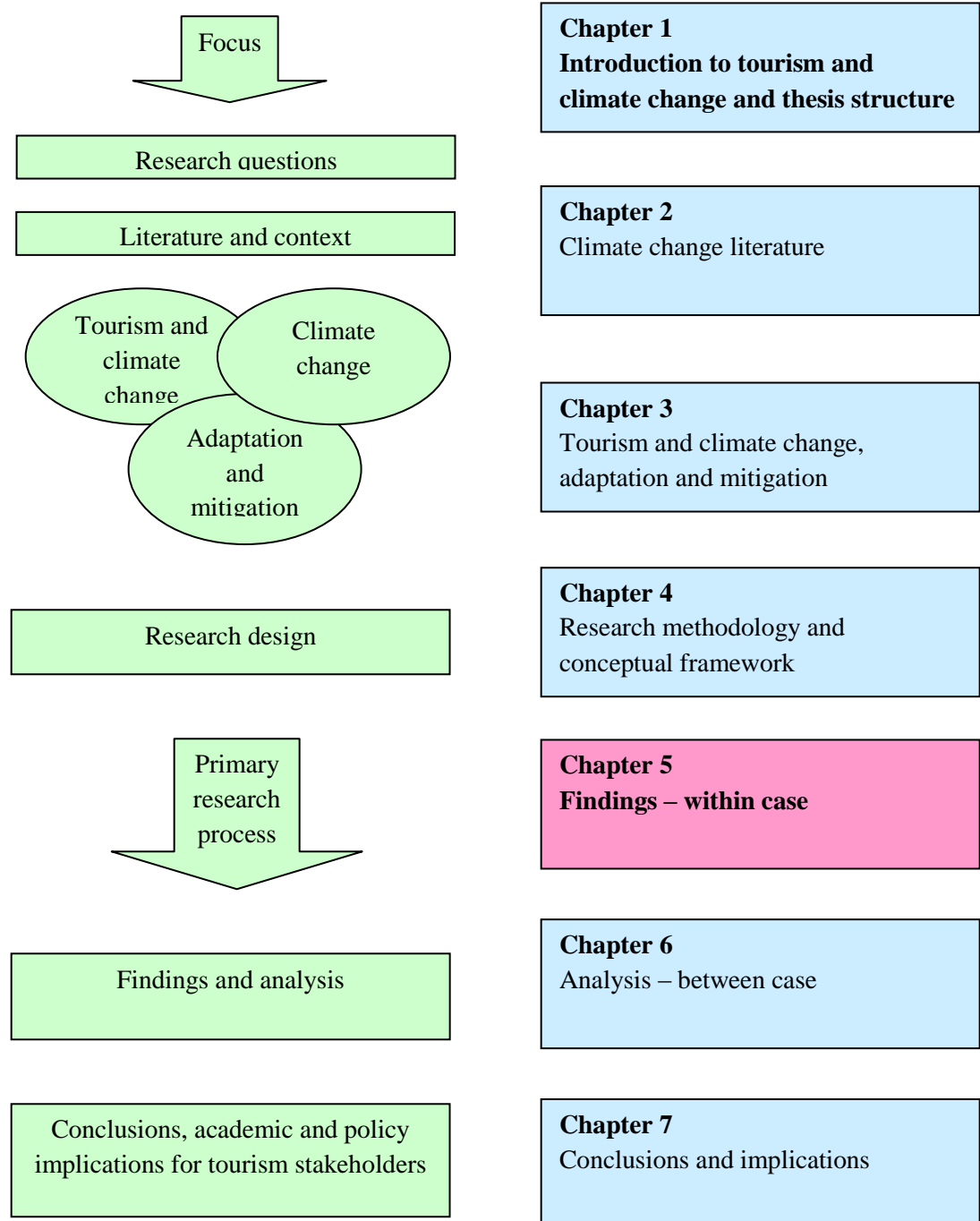
An unexpected outcome of the research was developing an insight into the levels of corruption that appeared to operate within the political and business systems. So the Researcher needs to be aware of the consequences of this to the research, such as the biases of certain respondents and the importance of confidentiality of data.

## **Knowledge and skill development**

Whilst some challenges were experienced during the fieldwork, the Researcher was very privileged to have been allowed unique insights into the cultures and tourism systems within these destinations. This has both expanded the Researcher's personal knowledge of tourism and climate change and enabled the development of practical research skills.

*To conclude, a strength of this research has been the synergy between the social constructionist research methodology, the conceptual framework and the case-based research strategy, with excellent access within suitable tourism destination case studies. In addition to this, the research design has enabled the triangulation of a number of different but supporting research methods to provide rich data. The research could have been improved with a greater number of case studies and conducting the study over a longer period of time, but economic and practical reasons made this prohibitive. On balance the study has provided a valuable learning experience and has generated an in-depth insight into the issue of tourism and climate change within Indian Ocean island tourism destinations.*

# Chapter Five Inter-case findings



*This Chapter draws upon the secondary and primary data collected during the fieldwork to provide an understanding of the tourism destination's responses to climate change. The data analysis is informed by a social constructionist methodology that has enabled key themes to emerge to present the findings. The Chapter is divided into three distinct sections, one for each case study, commencing with Sri Lanka then the Maldives and finally the Seychelles. These sections have a common structure; firstly, secondary data is used to provide a backdrop to the country and the tourism conditions within the destination. Then primary data is reported to provide an exploration of nine key themes namely, reliance upon tourism; government regulations; documentation; predictions of climate change; developed and developing country roles; adaptation; mitigation; decision-making and perceptions of stakeholders.*

## 5.1 SRI LANKA

### 5.1.1 Tourism context

Sri Lanka is situated in south East Asia and is a tear shaped island located at the Southern tip of India, with longitude 7 00 N, latitude 81 00 E, as Map 5.1 illustrates. Table 5.1 provides key facts about Sri Lanka.

Map 5.1 Map of Sri Lanka



Source: Geology.com 2010

Table 5.1 Key facts on Sri Lanka

<b>Capital:</b>	<b>Colombo</b>
<b>Population:</b>	<b>21,513,990</b>
<b>Climate:</b>	<b>tropical monsoon; northeast monsoon (December to March); southwest monsoon (June to October)</b>
<b>Total area:</b>	<b>65,610 square kilometres</b>
<b>Coastline:</b>	<b>1,340 km</b>
<b>Extreme elevations:</b>	<b>lowest point: Indian Ocean 0 m; highest point: Pidurutalagala 2,524 m</b>

<b>Religion:</b>	<b>Buddhist 69.1 percent, Muslim 7.6 percent, Hindu 7.1 percent, Christian 6.2 percent, unspecified 10 percent (2001 census provisional data)</b>
<b>Language:</b>	<b>Sinhala (official and national language) 74 percent, Tamil (national language) 18 percent, other 8 percent <i>note: English is commonly used in government and is spoken competently by about 10 percent of the population</i></b>

Source: CIA 2010

### **5.1.1 Political context**

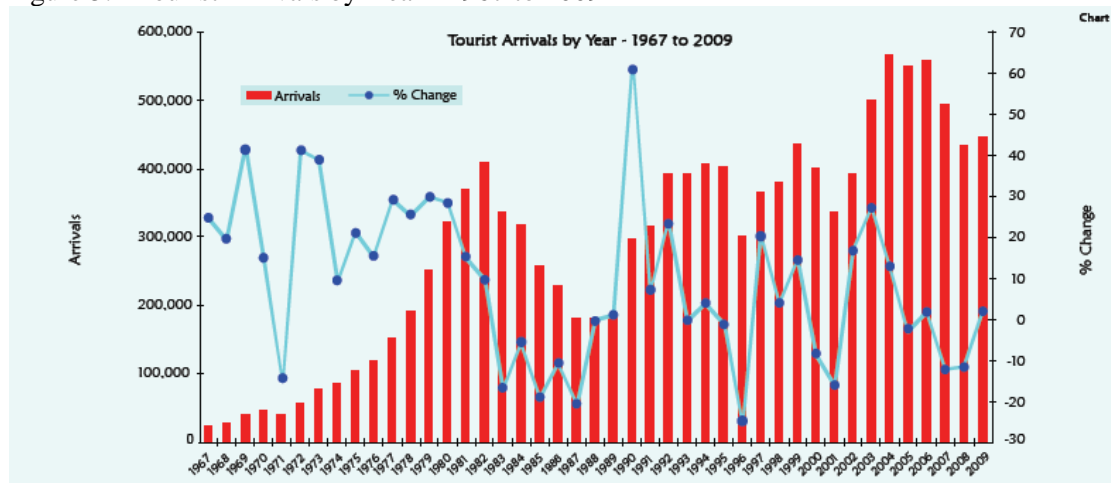
Sri Lanka is a multi-ethnic country, an ancient centre of Buddhism with a complex ethnic population, consisting of Hindus, Christians and Muslims and smaller communities such as the Burghers and the Veddas. Sri Lanka has had a civil war between the Tamil Tigers and the incumbent government over the past two decades and this has seriously damaged the tourism sector and resulted in the death of about 70,000 people (BBC, 2010).

The origins of the war start in 1948 when Sri Lanka gained independence from the British government. Although the years immediately after the war were peaceful, there was ethnic unrest below the surface between the majority ethnic group Sinhalese, who are mainly Buddhist and the Tamil community who are mostly Hindu or Roman Catholic. Both groups have their own languages, Sinhala and Tamil and both claim their ancestors were the original settlers in Sri Lanka. After independence, the Tamils considered that the Sinhalese had better job and education opportunities. The Sinhalese who led the government, stated they were just readdressing the balance after the British colonial times, as they (the Sinhalese) perceived the Tamils had been given preferential treatment. The Liberation Tigers of Tamil Eelam (LTTE) tended to be located in the north and east and the Sinhalese people in the south and west, the Tamils were fighting for a separate Tamil state in Sri Lanka's north and east.

Tensions erupted in 1983 into a full-blown civil war. There was a formalised cease-fire, in 2002 when Norway tried unsuccessfully to broker a peace agreement. Since the mid 1980's "large numbers several hundred thousand Tamil civilians have fled the island and more than 200,000 Tamils have sought refuge in the West" (CIA, 2010). Although the Sri Lankan government reclaimed the north and east of the country which had been the strong hold of the Tamil Tigers in May 2009, there has been criticism from United Nations observers about the level of violence used and the disruption for local people. As a result,

most developed countries continue to provide foreign office advice to tourists that they should not to travel to Sri Lanka. The British government recognises that the conflict is over, but does have concerns as there is still a general threat of terrorism in Sri Lanka and isolated attacks cannot be ruled out (Foreign and Commonwealth Office, 2010). Tourists are still advised not to travel to the northern districts of Jaffna, Kilinochchi, Mannar, Mullaittivu and Vavuniya, by both the UK and Sri Lanka governments. Obviously, this has had a devastating effect upon the tourist arrivals as can be seen in Figure 5.1 below, where tourist numbers peaked in 2004 but dropped by more than 50 percent the following year.

Figure 5.1 Tourist Arrivals by Year - 1967 to 2009



Source: Sri Lanka Tourist Development Authority, 2009

### The tourism product

The key ‘pull’ factors for Sri Lanka to develop a thriving tourism industry are based around cultural heritage and natural environment, both of which are expanded upon below.

### Cultural heritage

Historically, Sri Lanka has a very rich and interesting past with early influences coming from the diverse ethnic backgrounds; Sinhalese (6-5th Century BC), Buddhism (3rd Century AD), Tamils (5th Century AD) and Muslims (7th Century AD). It then became a colony of the Portuguese (1505), Dutch (1658) and British (1796) until 1948 when it became an independent member of the British Commonwealth. In 1972 the country changed its name from Ceylon (the British name) to the Democratic Socialist Republic of Sri Lanka (History World, 2010). This colourful evolution has provided the Sri Lankans with a very rich and diverse culture, which is reflected in the notification of seven

Chapter Five



UNESCO World Heritage Sites (Figure 5.2 shows one of these). The World Heritage Sites are examined in detail in the section below and identified on Map 5.2.

Figure: 5.2 Temple of the Sacred Tooth Relic in Kandy



Source: Researcher

### **The Natural Environment**

The natural environment is also worthy of note, as it has a southern centre that is dominated by high mountain ranges (the highest being Mt Peidurutalagala at 2524m) that lead down to tea plantations and the rice-growing plains. Sri Lanka was at one time reliant upon the forests for its subsistence. Today Sri Lanka's forest cover amounts to approximately 2.1 million hectares, representing 32 percent of the total land area. Of this, 2.04 million hectares represent natural forest and 0.7 million hectares planted forest (NPPD, 2002). Of the area under natural forests, 1.58 million hectares are close canopy forest covering 23.9 percent of the land area and 4.6 million hectares sparse forest covering 7.0 percent of the land area. Figure 5.3 illustrate an area of open forest cover.

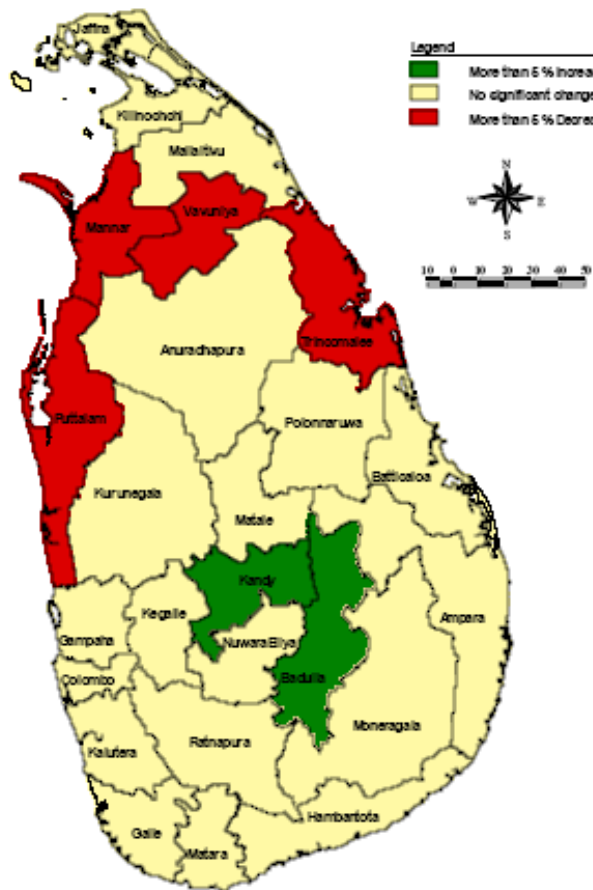
Figure 5.3 Open forest cover at start of Sinharaja Forest Reserve



Source: Researcher

The natural forests are very unevenly distributed with 86 percent being concentrated in the dry zone and intermediate zones. These two zones carry 85 percent of the closed canopy forests in the country and 90 percent of the sparse and open forest (see Figure 5.4). There is an ongoing pressure from illegal deforestation (Silva, 2001), as Figure 5.4 illustrates, the red areas showing where there has been more than a 5 percent decrease of canopy forest cover in a nine year period.

Figure 5.4 District variations in close canopy forest area 1992-2001



Source: Ratnayake *et al* 2002.

### Wildlife

As a result of its diverse natural environment, Sri Lanka hosts a large number of mammal species, such as leopards, monkeys, elephants (shown in Figure 5.5) with 88 mammal species in all, and 242 species of butterflies, 435 species of birds (of which 33 are endemic), 107 species of fish and 81 species of snake (Nation Master, 2010).

Figure 5.5 Indian elephants

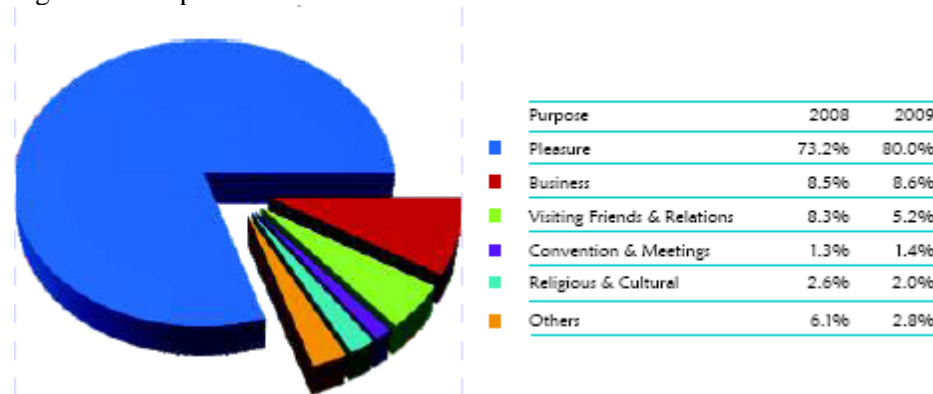


Source: Researcher

### The typical tourist route<sup>17</sup>

The length of time that tourists stay in Sri Lanka is variable, but the trend shows that there is a decrease in the average stay of tourists in 2008; it decreased from 9.5 to 9.1 nights (Sri Lanka Tourism Development Authority (SLTDA), 2009). In addition, SLTDA (2009), reported that 25.7 percent of tourists stayed 3 nights or less whilst 29.2 percent stayed between 4-7 nights, 34.1 percent stayed between 8 to 14 nights and 11 percent stayed more than two weeks. As can be seen from Figure 5.6 the overwhelming purpose of visits to Sri Lanka is for leisure.

Figure 5.6 Purpose of visits to Sri Lanka



Source: Sri Lanka Tourist Development Authority, 2009

<sup>17</sup> Leisure tourists will tend to either stay in one beach hotel or have a two or three overnight stops that enables them to see cultural and natural sites throughout the country. An indication of this is given in the typical route section.

As it can be seen in Figure 5.7, most tourists come to the island via Bandaranaike International Airport which is situated about 30 km north of Colombo. They usually stay a few days in Colombo to explore the city, particularly the Buddhist temples, such as Kelaniya Raja Maha Vihara. After spending some time in Colombo, they are likely to go down to the south west coast, taking time to enjoy the seaside destinations of Bentota and Hikkaduwa, before spending time in Galle, a 17<sup>th</sup> century Dutch city within a fort, which also has a cricket pitch where international test matches are held. From this southerly point, the typical route takes tourists towards the centre of the island, visiting ex-colonial hill stations and Horton Plains National Park. Penultimately, tourists head for the cultural centre of Kandy, before heading back to Colombo.

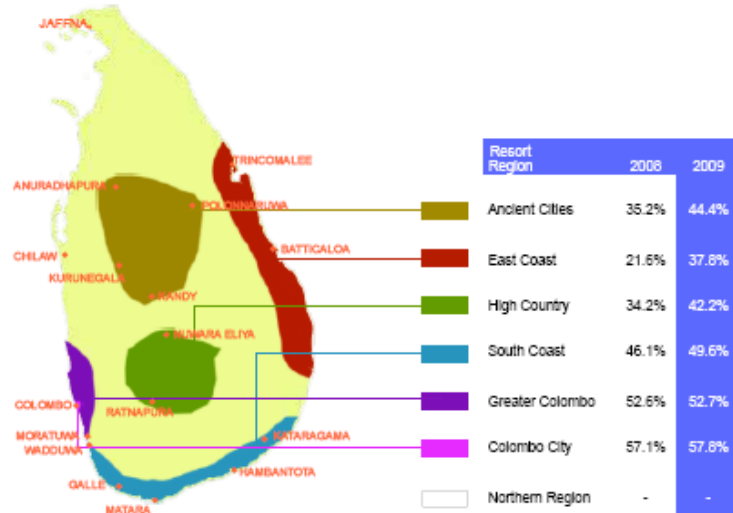
Figure 5.7 Mode of transport and port of arrival

Port	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Katunayake (BIA)	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9
Kankasanturai	-	-	-	-	-	-	-	-	-	-
TOTAL AIR	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9
Talaimannar	-	-	-	-	-	-	-	-	-	-
Colombo Harbour	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
TOTAL SEA	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Sri Lanka Tourist Development Authority, 2009

Figure 5.8, shows the key tourism accommodation hubs which support this route. An insight into the cultural and environmental sites is provided below.

Figure 5.8 Occupancy rates by resort region



Source: Sri Lanka Tourist Development Authority, 2009

### World Heritage Sites

As previously mentioned, Sri Lanka has eight UNESCO World Heritage Sites (WHS) (2010) and some tourists come specifically to explore these sites. The inscription criteria area also listed<sup>18</sup>. Map 5.2 below identifies the location of the WHS.

Map 5.2 Properties inscribed on the World Heritage List



Source: QWIP, 2010.

<sup>18</sup> UNESCO World Heritage Sites Criteria

## Cultural

- Ancient City of Polonnaruwa (1982) <sup>19</sup> **Criteria: (i)(iii)(vi)**
- Ancient City of Sigiriya (1982) <sub>3</sub> **Criteria: (ii)(iii)(iv)**
- Golden Temple of Dambulla (1991) **Criteria: (i)(vi)**
- Old Town of Galle and its Fortifications (1988) **Criteria: (iv)**
- Sacred City of Anuradhapura (1982) **Criteria: (ii)(iii)(vi)**
- Sacred City of Kandy (1988) **Criteria: (iv)(vi)**

## Natural

- Sinharaja Forest Reserve (1988) **Criteria: (ix)(x)**
- Central Highlands of Sri Lanka (2010) **Criteria: (ix)(x)**

## Properties submitted on the Tentative List

- Seruwila Mangala Raja Maha Vihara (2006)
- Seruwila to Sri Pada (Sacred Foot Print Shrine), Ancient pilgrim route along the Mahaweli river in Sri Lanka (2010)

It has proved difficult to get precise numbers of visitors to the individual World Heritage Sites, but the data in Table 5.1 below give an indication, with the ancient city of Sigiriya being the most popular.

Table 5.1 Number of Foreign Visitors visiting the cultural triangle

Location	No. of Foreign Visitors	Revenue (in Rs.)
Round Tickets	34,098	196,063,500
Sigiriya	53,358	146,725,818
Alahana	20,293	55,795,125
Anuradhapura	1,655	4,242,062
<b>Total</b>	<b>109,404</b>	<b>402,826,505</b>

Source: Sri Lanka Tourist Development Authority, 2009

- i. to exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design;
- ii. to bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared;
- iii. to be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history;
- iv. to be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change;
- v. to be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance. (The Committee considers that this criterion should preferably be used in conjunction with other criteria);
- vi. to contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;
- vii. to be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features;
- viii. to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals;
- ix. to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

## Natural environment

Sri Lanka is famous for its wildlife. There are sixteen designated National Parks and sanctuaries where one can see animals in their natural habitats. These are identified on Map 5.3 and the key features of the parks are identified in Table 5.2.

Map 5.3 National Parks in Sri Lanka



Source: Sri Lanka National Parks, 2010

Table 5.2 Sri Lanka National Parks

Park	Feature	Activities
<b>Yala (Kumana) National Park</b>	Yala National Park is situated in the southeast region of the island in the dry zone boarding the Indian Ocean. Park area is belonging to two provinces namely South and Uva Provinces. The total area of the park (which is of 5 blocks) is 97,881 Ha.	The park is also famous for its abundant bird life. Over 140 species have recorded within the park.
<b>Udawalawe National Park</b>	The Udawalawe National Park situated in the dry zone of the country and belonging to Sabaragamuwa and Uva provinces. The park area is 30,821 ha. The park was established in 1972.	The park is also famous for birdlife.

<b>Wasgamuwa National Park</b>	Wasgamuwa National Park was originally declared as strict nature reserve in 1938 and then changed to a national park in 1984. The park lies within central and north-central provinces. The total park area is 39,322 Ha.	Wasgamuwa is famous as an elephant habitat. These elephants are known to be less used to people and are more wild.
<b>Maduruoya National Park</b>	Maduruoya is situated by Kuda Sigiriya	Famous for large elephant herd reaching Maduruoya reservoir.
<b>Weerawila National Park</b>	This dry zone sanctuary is mainly comprises with three lakes namely, Weerawila wewa, Debara wewa and Pannagamuwa wewa.	Being the most prominent water resources in the area these tanks <sup>20</sup> attract considerable numbers of animals during the dry season. However, the most common animal of the area is feral buffalos.
<b>Horton Plains National Park</b>	Horton Plains National Park is in the highlands of the country belonging to central province. This is the highest plateau in the country. This was declared as a National Park in 1988. The park area is 3160 Ha..	Endemic bear monkey, rusty-spotted and fishing cats, otter, black napped hare and giant squirrel are among other mammals. Many species of endemic and threatened rats and shrews are also found in the park. Diversity and endemcity of reptiles (lizards) and amphibians is remarkably high. Though this is cold highland plateau the bird diversity is very high. 70 percent of Sri Lanka's endemic birds are found here.
<b>Bundala National Park</b>	Bundala National Park is situated in the southeast part of the country in the semi arid zone. Park belongs to Southern Province. The park area is 6,216 Ha. The park was initially established as a sanctuary in 1969.	It has significant role as a wintering site for migratory birds
<b>Wilpattu National Park</b>	Wilpattu is one of the oldest National Parks in Sri Lanka Located in Northwest coast lowland dry zone of Sri Lanka. The park lies within the North-central and North-western providences. The area of the park is 131693 ha. The unique feature of this park is the existence of "Willus" (Natural lakes).	Elephants, leopards, sloth bear, water buffalo and spotted deer are among the large mammals. The coastal belt supports abundant birdlife such as painted storks, white ibis, open bills, whistling teals, spoonbills, cormorants and kingfishers.
<b>Kumana National Park</b>	Yala East Kuman is Sri Lanka's best destination to see large numbers of migratory and aquatic birds, including Flamingos, herons, ibis and many others.	Endemic red faced Malkoha are often seen in forest areas as are herds of elephants sometimes one can spot leopards and bears too.
<b>Minneriya National Park</b>	This ancient city by the tank built by King Parakramabahu is a habitat for wildlife especially birds. Minneriya now a wildlife and game park.	Ideal destination to see wildlife and elephants.

<sup>20</sup> Ancient populations dating back to the 4<sup>th</sup> century built a sophisticated system of reservoirs and water tanks used for irrigation purposes.



<b>Giritale National Park</b>	Giritale is a nature destination by an ancient tank.	Wildlife and a farming community.
<b>Habarana National Park</b>	Elephants are the main attraction in Habarana National Park.	The tank, forest and the peaceful environment of Habarana is appreciated by any tourist who enjoys wildlife and elephant safaris, birds and nature.
<b>Lahugala National Park</b>	Lahugala is a beautiful National Park by the east coast Arugam Bay.	A place to see wild elephants by the beach.
<b>Galoya National Park</b>	Situated in the eastern part of Sri Lanka, Galoya is an ecological destination and a National Park centered around the Senanayaka Samudra Reservoir, the largest inland body of water in Sri Lanka.	Galoya is a great place for bird watching, nature expeditions and elephants. Galoya also has several archaeological sites with ancient ruins.

Source: Adapted from information from Sri Lanka National Parks, 2010

The importance of the National Parks to Sri Lanka are evidenced in Table 5.3. This shows that Yala National Park is the most visited and tourism to the National Parks provided an annual income of approximately £674,000 in 2009.

Table 5.3 Visitors to the Wildlife Parks in Sri Lanka 2009

Location	Foreign Tickets		Local Tickets		Total No. of Visitors	Total Revenue (In Rs.)
	No. of Visitors	Revenue (In Rs.)	No. of Visitors	Revenue (In Rs.)		
1. Yala National Park	29,822	50,221,174.0	89,698	3,968,040.0	119,520	54,189,214.0
2. Wilpattu National Park	-	-	-	-	-	-
3. Kumana National Park	-	-	-	-	-	-
4. Udawalawa National Park	11,247	9,864,294.4	43,186	1,949,320.0	54,433	11,813,614.4
5. Horton Plains National Park	11,026	18,481,305.5	155,587	6,266,610.0	166,613	24,747,915.5
6. Bundala National Park	1,943	2,179,004.0	5,889	228,140.0	7,832	2,407,144.0
7. Wargamuwa National Park	234	269,100.0	18,731	749,240.0	18,965	1,018,340.0
8. Minneriya National Park	11,118	16,958,277.0	31,609	1,400,510.0	42,727	18,358,787.0
9. Kaudulla National Park	5,207	5,917,748.8	9,963	386,160.0	15,170	6,303,908.8
10. Lunugamvehera National Park	5	6,342.4	1,514	60,810.0	1,519	67,152.4
11. Gal Oya National Park	9	8,650.0	2,128	104,210.0	2,137	112,860.0
12. Horagolla National Park	-	-	2,104	83,008.2	2,104	83,008.2
13. Meduru Oya National Park	1	1,100.0	82	2,050.0	83	3,150.0
14. Angammedilla National Park	-	-	2,295	182,127.5	2,295	182,127.5
15. Calwaysland National Park	76	85,975.0	1,328	46,550.0	1,404	132,525.0
16. Lahugala National Park	-	-	-	-	-	-
<b>Total</b>	<b>70,688</b>	<b>103,992,971</b>	<b>364,114</b>	<b>15,426,776</b>	<b>434,802</b>	<b>119,419,746.8</b>

Source: Sri Lanka Tourist Development Authority, 2009

## Tsunami

On December 26, 2004, the worst tsunami in the history of the world hit Sri Lanka, triggered by a massive earthquake in Sumatra with a magnitude of 9.0. It was the largest earthquake recorded worldwide in 40 years (USGS, 2005). The south of Sri Lanka was particularly badly hit. The death toll was estimated at between 31,000 and 35,000 (ICFI, 2005). The tourism arrivals from Europe declined in 2005, but the reduction in tourists was not as great as in other destinations such as Thailand and the Maldives.

### 5.1.2 Key tourism indicators

This next section draws on key tourism statistics to gain an indication of tourism arrivals, purpose of visit, transport and accommodation modes and levels of tourism receipts.

Table 5.4 Inbound tourist arrivals

	Units	2003	2004	2005	2006	2007
Visitors	('000)	583	681	669	689	592
Tourists (overnight)	('000)	501	566	549	560	494
Same-day visitors	('000)	82	115	120	129	98
Cruise Passengers	('000)	---	---	---	---	---

Source: UNWTO, 2009

The areas within Leiper's Tourism System (1990) will be broadly used to enable a clearer understanding of the tourism context in Sri Lanka together with data from the UNWTO (2009), which has been used to identify the tourism generating region; the modes of transport within the transit routes and the key destinations that tourists visit within the country.

Table 5.5 Arrivals by region

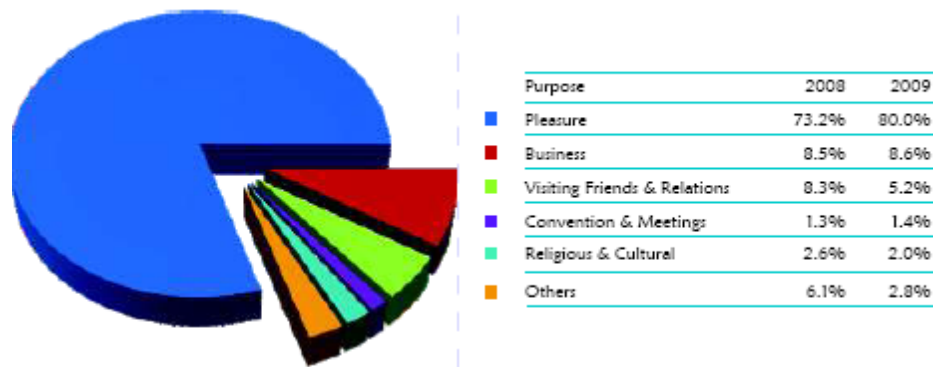
The generating regions	Units	2003	2004	2005	2006	2007
Africa	('000)	2	2	2	3	3
Americas	('000)	26	31	47	36	32
Europe	('000)	266	299	236	243	220
East Asia and the Pacific	('000)	84	91	100	98	76
South Asia	('000)	116	133	153	169	150
Middle East	('000)	7	10	10	10	14

Source: UNWTO, 2009

Clearly, most of the tourists that go to Sri Lanka originate from Europe and it can be seen from Table 5.5 that the majority of the European tourists are from the United Kingdom, with Germany next, but there are only half the numbers of Germans compared to the British tourists. One significant reason for this, is that many Sri Lankans emigrated to the UK during the civil war (see section 5.1.1), and this naturally increases the number of visits between the two countries.

In 2008, there were a similar number of tourists from Western Europe (170,123) and Asia (174,534) (Sri Lanka Tourist Development Authority, 2009). There are two key reasons for this. Firstly, the geographic proximity and the cultural / natural environments, which encourage visits from countries such as India. Secondly there are many visits to see friends and relatives as can be seen in Figure 5.9. Within Asia, both the Maldives and India are important generating markets, with 31,916 and 83,634 tourist arrivals respectively (Sri Lanka Tourist Development Authority, 2009).

Figure 5.9 Purpose of visit to Sri Lanka 2009



Source: Sri Lanka Tourist Development Authority, 2009

### Transit route

Sri Lanka is an island destination in the Indian Ocean it is not surprising that the most popular transport mode is by air routes (Table 5.6).

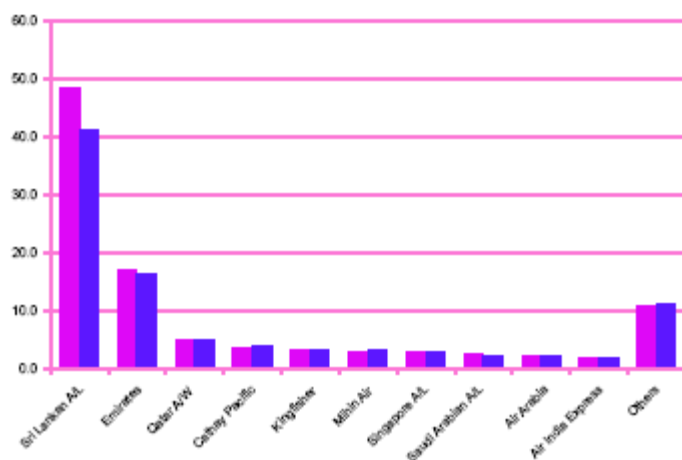
Table 5.6 Arrivals by means of transport used

	Units	2003	2004	2005	2006	2007
<b>Air</b>	('000)	500	566	549	559	<b>494</b>
<b>Rail</b>	('000)	---	---	---	---	---
<b>Road</b>	('000)	---	---	---	---	---
<b>Sea</b>	('000)	0.2	0.2	0	0	0

Source: UNWTO, 2009

Tourists from local generating regions such as the Maldives and India will use ferries, but this is time consuming. As can be seen in Figure 5.10 Sri Lanka is well supported by scheduled airline operators, the most important being Sri Lanka airlines and Emirates, but there are a good number of other operators which means the market remains competitive.

Figure 5.10 Shares of total seating capacity by carrier -2009



Source: Sri Lanka Tourist Development Authority, 2009

### The economic importance of tourism to Sri Lanka

Table 5.7 reports the amount that each tourist spends in Sri Lanka which peaked along with tourism arrivals in 2004.

Table 5.7 Tourism expenditure in the country

	Units	2003	2004	2005	2006	2007
<b>Tourism receipts (money spent in the country)</b>	US\$ Mn	709	808	729	733	<b>750</b>
<b>Travel</b>	US\$ Mn	441	513	429	410	<b>385</b>
<b>Passenger transport</b>	US\$ Mn	268	295	300	323	<b>365</b>

Source: UNWTO, 2009

Tourism is the sixth largest foreign exchange earner, despite the recent downturn in visitor arrivals (Sri Lanka Tourist Development Authority, 2009). It can be seen in Table 5.8 that the GDP has decreased between 2004 and 2007 probably as a result of the civil unrest. Those industries ranked above tourism were Foreign Remittances – Rs. 382.8 billion, Textiles and Garments – Rs. 376.1 billion ,Tea – Rs. 136.2 billion, Transportation Services Rs. 99.4 billion and Rubber Based Products - Rs. 44.2 billion (Sri Lanka Tourist Development Authority, 2009).

Table 5.8 Related Indicators

	Units	2003	2004	2005	2006	2007
<b>Gross Domestic Product (GDP)</b>	Percent	3	3	3.0	2	2
<b>Exports of goods</b>	Percent	13	14.0	11	10	9
<b>Exports of services</b>	Percent	50.2	52	47	4	43

Source: UNWTO, 2009

Although the value of tourism is approximately £206 million (using data from Table 5.9); the suppressed tourist arrivals in Sri Lanka are seen as a major area for economic growth and government is keen to maximise these opportunities.

Table 5.9 Value and volume of tourism to Sri Lanka 2001 -2009

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Tourist Arrivals	336,794	393,171	500,642	566,202	549,308	559,603	494,008	438,475	447,890
Excursionist Arrivals	60,084	63,560	82,086	115,095	119,618	128,719	98,432	87,695	89,526
Official Receipts Rs. mn.	18,863.3	24,202.0	32,810.0	42,666.3	36,377.3	42,585.5	42,519.3	37,094.0	37,506.0
US\$ mn.	211.1	253.0	340.0	416.0	362.3	410.3	384.4	319.5	326.3*
SDR Units (mn.)	165.7	179.3	242.6	298.6	244.6	278.3	250.9	202.1	211.6*
Receipt per Tourist per day (in US \$)	63.1	63.4	66.8	72.2	74.6	83.4	79.1	76.7	81.8*
<b>*Revised</b>									
<b>**Provisional</b>									

Source: Sri Lanka Tourist Development Authority, 2009

### The purpose of visits to Sri Lanka

Most trips to Sri Lanka are for leisure purposes, as has already been established in Table 5.10. However, given the changing political state, there are thought to be many business opportunities on the horizon, hence quite a number of business trips.

Table 5.10 Arrivals by purpose of visit

	Units	2003	2004	2005	2006	2007
<b>Leisure, recreation and holidays</b>	('000)	404	443	382	337	<b>343</b>
<b>Business and professional</b>	('000)	56	74	105	116	<b>57</b>
<b>Other</b>	('000)	<b>41</b>	<b>49</b>	<b>62</b>	<b>66</b>	<b>94</b>

Source: UNWTO, 2009

### **The type of tourists that visit Sri Lanka**

Using Plog's psychographic traveller types (1974), it is likely that due to the Sri Lankan civil war, very few of the tourists visiting the destination would be psychocentric as the conditions would be too unstable and unpredictable. These types of tourist are risk averse. Instead, it is argued by looking at Table 5.11, and where tourists spend money, that a considerable number of the tourists would fall into the allocentric group, trying to take advantage of the natural flora and fauna and culture before the mass market, tourism descends and reduces these opportunities.

Table 5.11 Tourism revenue, 2001.

Source of revenue (LKR M)	2001
<b>Hotels and Restaurants</b>	<b>128.4</b>
<b>Travel agencies</b>	<b>52.6</b>
<b>Shops</b>	<b>13.9</b>
<b>Embarkation tax</b>	<b>269.3</b>
<b>Cultural triangle</b>	<b>222</b>
<b>Botanic gardens</b>	<b>21.2</b>
<b>Zoological gardens</b>	<b>22.3</b>
<b>National parks</b>	<b>54.4</b>
<b>Museums</b>	<b>0.6</b>
<b>Total</b>	<b>784.7</b>

Source: Mintel, 2003

### **Travel and tourism infrastructure**

There is only one international airport in Sri Lanka, Bandaranaike International Airport 30 km north of Colombo, and this has recently had an input of \$500 million to upgrade the facilities (Airport Technology, 2010). The road and rail systems throughout Sri Lanka are in severe need of improvement. During the fieldwork undertaken by the Researcher, it took an extremely long time to travel between the tourism attractions and the roads could

at best be described as run down and unpredictable. The amount of paved road in Sri Lanka is 81 percent (Nation Master, 2010). The UK Foreign and Commonwealth Office 2010, specifically give advice that the driving is erratic and as a result, road accidents are frequent. The Sri Lankan government reports that there will be an aggressive programme to update the highways although no specific amount of investment is specified (Master Plan 2007).

Table 5.12 Accommodation

	Units	2003	2004	2005	2006	2007
<b>Overnight stays in hotels and similar establishments</b>	(‘000)	1,327	1,381	1,292	1,302	1,548

Source: UNWTO, 2009

Table 5.13 also shows that the occupancy level is very low probably because of the civil war and this did increase between 2008 and 2009, when the civil war was declared over.

Table 5.13 Tourism Industries Hotels and similar establishments

	Units	2003	2004	2005	2006	2007
<b>Number of rooms</b>	Units	16,973	17,640	17,142	19,207	19,634
<b>Number of bed-places</b>	Units	33,331	32,578	31,277	35,349	35,799
<b>Occupancy rate</b>	Per cent	53	59	45	47	46
<b>Average length of stay</b>	Nights	---	---	---	---	---

Source: UNWTO, 2009

The range and quality of hotel stock on the other hand is excellent and can accommodate budget travellers and luxury tourists too, which can be seen in Tables 5.12 to 5.14.

Table 5.14 Capacity and nights in all accommodation establishments by class 2008 – 2009

Class of Accommodation	No. of Units		No. of Rooms		No. of Beds		Total Guest Nights		Foreign Guest Nights		Local Guest Nights		Room Occupancy Rate	
	2008*	2009**	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009
(A) Hotel	256	242	14,793	14,461	28,698	28,344	3,742,661	3,981,707	2,763,223	2,818,487	979,438	1,163,220	43.9	48.4
5 Star	13	13	3,080	3,080	6,037	6,037	861,271	879,004	745,079	740,940	116,192	138,064	52.9	56.6
4 Star	9	13	957	1,582	1,876	3,101	238,980	392,111	171,839	288,314	67,141	103,797	51.7	52.3
3 Star	6	13	435	1,079	853	2,115	87,910	168,825	70,285	124,922	17,625	43,903	45.1	48.5
2 Star	30	39	1,912	2,517	3,748	4,933	487,907	588,897	348,761	416,923	139,146	171,974	43.4	44.9
1 Star	22	30	702	1,005	1,376	1,970	88,179	166,727	45,697	103,903	42,482	62,824	29.2	41.9
Unclassified	176	134	7,707	5,198	14,809	10,188	1,978,414	1,786,143	1,381,562	1,143,485	596,852	642,658	40.1	46.3
(B) Supplementary Establishments:	578	629	5,319	5,946	9,712	11,654	1,123,241	1,251,047	701,254	779,317	421,987	471,730	48.2	50.7

Total Number of Registered Tourist Hotels

\*2008 - 256

\*\*2009 - 242

Source: Sri Lanka Tourist Development Authority, 2009

The accommodation stock is well developed and of a high standard but it can be seen from the occupancy rates, supply is twice the level of demand. Given that the civil war is officially over, it will be interesting to see how long it takes tourists to return with confidence to Sri Lanka. Within the Strategic Marketing and Country Activity Plan 2008, the forecast is to increase tourist arrivals by 20 percent in 2010.

### **5.1.3 Tourism policy**

During the early 1980's tourism began to expand significantly and develop and there was recognition of the potential significant economic gain that could be derived from the industry. The tourism arrivals data reflect the 'stop start' nature of the war and the optimism for brokering an international peace deal, for example, around 1995 and 2001/2. The Sri Lankan Tourism Board recognises the pent up demand and immense opportunities for tourism in Sri Lanka and reflects this in the Strategic Marketing and Country Activity Plan 2008.

#### **The structure and organisation of tourism in Sri Lanka**

There has been considerable change in the structure of the public sector tourism organisation over the last few years. Firstly, there has been a change in Chairman of the Sri Lanka Tourism Board (October 2006) and the new Chairman Renton de Alwis appears to be extremely proactive in developing a new tourism policy – the Master Plan. As part of these changes, the structure of public sector tourism was reformed in October 2007, to enable the private sector to have more of a contribution to tourism policy. Now the Sri Lanka Tourism Board functions under four new strategy groups:

- 1) Sri Lanka Tourist Development Authority (SLTDA)
- 2) Sri Lanka Institute of Tourism and Hotel Management (SLITHM)
- 3) Sri Lanka Tourism Promotion Bureau (SLTPB)
- 4) Sri Lanka Convention Bureau (SLCB)

This is quite a radical reform as no other sector has any quasi-nongovernmental organisation, but in the short time, since the changes have been implemented it appears to be working well. This will be explored further in section 5.1.12.



### **Sri Lankan Tour Operators**

The private sector is represented by Sri Lankan Association of Inbound Tour Operators (SLAITO), they have currently have 89 members, with 40 covering beach, 59 culture and 31 nature holidays<sup>21</sup>, (SLAITO, 2010). Thus it can be seen that Sri Lanka is well-endowed with inbound tour operators. Mintel (2003) identifies that the major operators are: Aitken Spence Travel, Travel MacKinnon Tourism, Jetwing Travel, Thomas Cook and Keels Travel.

This completes the background tourism information on Sri Lanka. This secondary data has shown that there are both cultural and natural heritage attractions to encourage tourists to Sri Lanka. Tourism arrivals and receipts have been variable and this is mostly attributed to the aftermath of the tsunami and the civil war. There is an active presence of tour operators and accommodation available and Sri Lanka Tourism Board has been restructuring to try to facilitate the coordination of tourism more effectively.

Section 5.1.4 to 5.1.12 reports the primary findings from the fieldwork. The Researcher collected the primary data in May 2008, during which two weeks were spent in Sri Lanka, initially, in Colombo, then spending a few days in the cultural triangle in the centre, before a final stay in the south near Galle. The research methods used to gain the information were participant observation with photographic evidence to support this, documentary evidence, informant and supplementary interviews as discussed in detail in section 4.2. A summary of the respondents and their roles is provided in Table 5.14.

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<sup>21</sup> Some of the tour operators cover more than one area of tourism, such as culture and beach, which reflects the combinations of holidays that tourists take within Sri Lanka.

Table 5.14 Summary and coding of Sri Lankan respondents

Respondent code	Informant Position
	Blue – Public sector Purple – Private sector
Participant SL Pub 1	National Tourism Organisation – policy maker
Participant SL Pub 2	National Tourism Organisation – policy maker
Participant SL Pub 3	Consultant working fro NTO
Participant SL Pri 1	Director Small Local Enterprise Tour Operator
Participant SL Pri 2	Director Large Multinational Hotelier
Participant SL Pri 3	Director Small Local Enterprise Tour Operator
Participant SL Pri 4	Director Medium Multinational Tour Operator
Participant SL Pri 5	Director Large Independent Tour Operator
Participant SL Pri 6	Director Small Local Dive Operator
Participant SL Pub 4	National Tourism Organisation – policy maker
Participant SL Pri 7	General Manager Large Multinational Hotelier
Participant SL Pub 5	National Tourism Organisation – policy maker

Source: Researcher

Once the data had been collected, selective transcription of the interviews took place, photos and notebook reflections along with documentary evidence were layered to provide a holistic picture of the case study. Then data was reviewed using content analysis and nine key themes emerged which are used to present the data. The nine themes are:

1. *The importance of tourism and the country's reliance on tourism;*
2. *Government regulation and incentives;*
3. *Tourism and climate change actions;*
4. *Ability to predict the current and future effects of climate change;*
5. *The role and responsibilities of developed and developing countries;*
6. *Adaptation initiatives;*
7. *Mitigation initiatives;*
8. *The degree to which climate change was considered in decision-making;*
9. *Perceptions of stakeholder groups*

#### **5.1.4 Theme 1 Importance of tourism**

All the interview respondents reported that tourism was of great consequence for Sri Lanka but interestingly different reasons were given, which are identified below. The first two sections examine the economic importance of tourism to Sri Lanka, then the

significance of tourism to Sri Lanka is examined and finally, the concerns about the growth of tourism.

### **Economic growth**

The first most obvious reason given for tourism's importance was the necessity for economic growth. The tourism industry began to take off in the mid sixties: *"Tourism is an economic activity...there was one objective at the time, purely to make money<sup>22</sup>" SL Pub 2*. Whilst the economic benefits of tourism are mentioned by all the respondents, there were also concerns that these are not being maximised. A typical observation was *"their [the tourist's] money goes out again if it is not done in the right way" SL Priv 5* and there was considerable concern that money was being leaked out of the country and not being retained in the local communities.

### **Tourism generates employment**

As identified in section 5.1.2, the majority of the country's foreign earnings (Foreign Remittances – Rs. 382.8 billion) came from Sri Lankans working abroad and sending money back to their families in Sri Lanka. There was a great deal of concern about the social problems that this caused, for example, *"house maids, it is unskilled workers, mothers of young children going out to the Middle East and having a lot of problems, social problems they come back, families are broken up there is huge problems" SL Priv 4*. The point that respondents from both the public and private sector were making was that if tourism was able to grow there would be enough jobs within the tourism sector in Sri Lanka to support employment of that group of people working as house maids and this would reduce the social problems that were currently being experienced.

### **Tourism product**

Sri Lanka undoubtedly has a diverse portfolio of tourism attractions, as established in section 5.1.1, that can appeal to many types of tourist. There is a broad diversity of historical and archaeological sites, which ranges from the ancient cultures of the north to the cultural heritage of the central region; and from the colonial history around the coast to the geographical diversity of beaches, rainforests, jungle, hills, plains, dry zones all within a relatively small area. Tourism is now the sixth most important sector in Sri Lanka, as

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<sup>22</sup> The quotes are verbatim and reflect varying levels of English of the respondents.

identified in section 5.1.2 (Sri Lanka Tourist Development Authority, 2009) and its cultural and natural assets provide a good foundation for further expansion.

### **Conservation of cultural heritage**

The third factor, mentioned by almost half of the respondents, was that tourism led to improvement of the management of cultural heritage of Sri Lanka and was a *“supportive factor in the development of the cultural triangle which led to the world heritage sites come into the picture” SL Pub 2*. Respondents were very aware of the richness of the tourism offering that Sri Lanka possesses; the seven World Heritage Sites (listed in section 5.1.1) and the natural environment were frequently mentioned. The Researcher visited a number of these sites during the field work.

Undeniably, whilst the World Heritage Sites were extremely important, their management appeared to be rather limited. The Researcher observed that tourists were not very well controlled during their visits, they were able to touch delicate wooden carvings and paintings and interpretation was minimal, as is demonstrated in Figures 5.1.11 and 12. There seemed to have been a number of recent repairs that were out of kilter with the conservation of such important sites. It appeared that lack of funding was compromising the integrity of the WHSs, which could erode the quality of the product offered in the future.

Figure 5.1.11 Dambulla, showing limited tourist restrictions



Source: Researcher

Figure 5.1.12 Anuradhapura, wood carving in need of restoration



Source: Researcher

## Local culture

Respondents, supplementary informants and local Sri Lankans were keen to demonstrate their culture<sup>23</sup> to the Researcher. In line with UNESCO definition of culture, the Researcher takes a broad interpretation of culture as not simply the material or physical manifestations but also the living expressions and traditions. In the photographs below, Figure 5.1.13 and 5.1.14, workers in the tea factory are wearing traditional saris and the Sri Lankan traditional costumes are being worn by dancers at a ‘society’ wedding, showing pride in the Sri Lankan culture. The importance of the culture to tourism was clearly articulated by *SL Pub 2* “*Sri Lankan culture is very, very strongly linked with this biological diversity and nature, it is reflected very well in the architecture, the structuring, the buildings, the lifestyles and all of these facets that you can think of in terms of the cultural side*”.

Figure 5.1.13 Traditional wedding party



Source: Researcher

Figure 5.1.14 Tea workers in traditional Sri Lankan saris



Source: Researcher

## Conservation of the natural environment

Respondents were very aware that the tourism product is intricately entwined with the natural flora and fauna found in Sri Lanka. This was articulated well by *Participant SL Pub 5*: “*Our fauna and our flora is something of great pride to our country. And it is part*

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<sup>23</sup> Cultural definition “Cultural heritage is not limited to material manifestations, such as monuments and objects that have been preserved over time. This notion also encompasses living expressions and the traditions that countless groups and communities worldwide have inherited from their ancestors and transmit to their descendants, in most cases orally”. UNESCO 2010b

*of our heritage; we don't want to become a concrete jungle*". The Researcher spent a day in Yala National Park and Maduruoya National Park and was impressed by the variety of different species observed, from big mammals such as elephants, to small tropical birds and abundant plants (as the Figure 5.1.15 and 5.1.16 below demonstrate). The respondents were very aware of the fragility of the tourism product and a number of them referred to their endeavours to *"try to protect nature as much as possible"*. *SL Priv 6*.

Figure 5.1.15 Yala National Park



Source: Researcher

Figure 5.1.16 Maduruoya National Park



Source: Researcher

This next section identifies the three main concerns of respondents for future tourism development, which respondents referred to when discussing the importance of tourism to Sri Lanka.

### **Poor infrastructure**

The deficiencies in the transport infrastructure were observed during the fieldwork. A number of the private sector respondents commented upon this, *"It's a nightmare driving from one place to the other"*, *SL Priv 7*. In the Researcher's journey from the airport to the Galle hotel in Colombo (approx 20 miles) two serious road traffic accidents were observed and the disrepair of the roads was dangerous and horrifying; people literally take their life into their hands when travelling in Sri Lanka. One of the luxury resorts had relied on using private aeroplanes to transport guests both internally and out to the Maldives, but the government has stopped the use of private planes in the last year, due to the security situation in Sri Lanka.

Figure 5.1.17 Traffic congestion in Colombo



Source: Researcher

Figure 5.1.18 Children walking in main road



Source: Researcher

Figures 5.1.17 illustrates the congestion with motorbikes tuktuks<sup>24</sup> and cars in Colombo. Navigating around is extremely difficult as the drivers tend to make unpredictable manoeuvres. The Researcher also approached tuktuk drivers who were obviously drunk, but still wanting to take passengers. Figure 5.1.18, show the standard of the main road between Colombo and Galle where cars travel at fast speeds with school children walking at the side of the main road and animals are herded. In addition, tuktuks weave in and out of the cars making the roads perilous to travel on. In 2000, there were 2150 road fatalities in Sri Lanka (Regional Health Forum, 2010), which supports the observations collected by the Researcher.

### Civil war

During the interviews, the respondents without exception exhibited pent up exasperation about the civil war and the impact it was having in suppressing growth within the tourism industry. The problems began in 1983 with unrest between the Tamil Tigers and the government (as outlined in section 5.1.1); this also coincided with the development of tourism in the Maldives. This was captured in the interview with *SL Pub 2*, *“It killed the tourist industry in its sense of how it was operating at that time. So we went into a big depression in the tourist industry. Which also resulted in Maldives taking over”*. The focus of the respondents was to look to the future when the civil war would end and both

<sup>24</sup> A tuktuk is a three wheel vehicle – a popular transport option in Sri Lanka  
Chapter Five

the public and private sector stakeholder felt it was imperative to *“have proper strategic programmes in place to take things forward otherwise the money again will go to other destinations” SL Pub 1*. As identified in section 5.3 there are five major inbound tour operators in Sri Lanka and they were clearly concerned about their return on investment. A respondent, from one of these companies stated that the company was *“holding back investment in this country” SL Priv 2* and actively looking at business opportunities in nearby countries as an alternative.

### **Mass versus alternative tourism**

The general feeling was that the respondents wanted the tourism sector to grow. However, this was also tempered with notes of caution from the private sector. Tourist arrivals for 2008 were only 438,475, whereas the projected number of international tourists was 524,240 and indeed the projected growth target for 2010 is an additional 20 percent (Sri Lanka Statistical report 2009 and Strategic Marketing Plan 2008). This reflects that the public sector are keen to expand the tourism sector and gain the economic benefits. The private sector on the other hand observed *“Tourism (straight talking) it can destroy lovely sites, we do not want that, I keep telling the tourist board, we do not need mass tourists, we need a niche market tourism those who spend” SL Priv 1*. Whilst the respondents wanted the tourism sector to grow, they did not want unlimited growth, *“we have to be careful the area we develop and end up with, what is the capacity we can take” SL Priv 6*. The public sector respondents did not articulate the same concerns and focused upon increasing tourism volume.

Clearly, Sri Lanka values tourism for the contribution to national GDP. Tourism is perceived as being important to Sri Lanka from an environmental stance, supporting conservation of both the cultural and natural heritage. In addition, tourism could alleviate some of the social problems that arise from nationals working abroad, as well as helping their culture to be appreciated by others. There is concern about the failing infrastructure, especially if the country aims to target luxury tourism markets. Differences in the thinking of the public and private sector respondents regarding tourism development were detected, with the public sector supporting aggressive growth. The civil war has undoubtedly limited tourism growth and this has led to both frustration and local investors investing abroad.



### 5.1.5 Theme 2 Government regulation and incentives

One area of questioning during the interviews was around the issue of government control and leadership within the countries studied. The aim was to establish the government approach, style and tactics in its dealings with the tourism sector and to see if this reflected the issue of climate change. In Sri Lanka there seemed a rather a limited response to this area of questioning.

#### **Incentives**

Whilst there were some government incentives in place, these were not specifically for the tourism industry. It was rather difficult to gain information about these projects (such as grants for replacing inefficient boilers) as the data was fragmented and not easily available, and there seemed to be no monitoring of the projects to ensure the outcomes were achieved. Insight 1 illustrates this:

#### **Insight 1: Environmental project**

Six years ago, the government launched an environmental loan facility to update sewerage systems, as most hotels had the old sewage pits. The Environment Department provided a grant to get a consultant to come in to each and give advice worth up to seven hundred thousand rupees (approximately £4,000 for the consultant). In addition, there was a low interest loan scheme. This incentive programme resulted in many of the tourist hotels improving their sewage systems.

Based on information provided by SL Pri 2

Significantly, there was only one large hotel operator able to give tangible examples of government incentives offered to the tourism industry and when the Researcher questioned other hoteliers there was a blank expression and no collaboration. So there appeared to be a disconnection between the large and small operators and indeed the private and public sectors. *“Certainly, now there are lots of initiatives now one of them is the chamber for example, they are encouraging people to do more” SL Pub 1.* However, the respondent was not able to illustrate this with any tangible examples.

## **Taxation**

None of the respondents mentioned taxation of tourists or tax breaks given to investors, although there are a number of taxes directly related to tourism. The embarkation tax is approximately £10 per tourist, and in 2008 the total public sector revenue from tourism was £10, 370,000 (Sri Lanka Tourism Development Authority, 2009).

## **Building regulations**

Interestingly, the respondents did not mention building regulations or government inspections of their premises. Whilst completing the fieldwork the Researcher became aware that there were ‘tourist police’ and these were quite active in protecting the rights of the tourist against fraudulent business practices, such as conning tourists to pay more for gem stones. Therefore, there was an anomaly, as on the one hand the government had a rather laissez faire approach to building and regulation and on the other hand, the ‘tourist police’ were very active and feared by the tourism operators.

There was a clear distinction between public and private sector views in this theme. There were grants and incentives available for building projects, but the individual businesses needed to have the capacity to tap into these and smaller operators did not seem aware that they were available. The public sector respondents did not really discuss the issue in much depth, preferring to focus on the Earth Lung<sup>25</sup> project. Although not directly articulated the SLTDA did not seem to consider it their role to communicate these grants to tourism businesses (see section 5.1.10).

### **5.1.6 Theme 3 Tourism and climate change**

Respondents were asked to talk about any formal documents or education programmes relating to tourism and climate change. None of the respondents was able to refer to any formal documentation specifically about tourism and climate change. All the references that were made were back to the Earth Lung Project (which is considered in more detail in section 5.1.10).

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<sup>25</sup> The Earth Lung project is a Sri Lanka project that will enable tourists to offset their carbon emissions used to fly to the destination. The project is expanded upon in section 5.1.10.

## **Earth Lung Project**

All the respondents discussed the Earth Lung project when asked about documentation, and there is enormous commitment from the public sector to ensure that it is a success. *SL Pub 1 stated "I think this is not now a nice to do, but a must do"*. However, on the private sector side they respondents appeared to need more convincing *"It is a good concept, but now he has got to sell it to all those of us who are disbelievers, so there is a little confusion as to where we are going"* *SL Pri 2*. The issue of climate change or the Earth Lung project were not mentioned in the tourism strategic plan at all. This might be as climate change is an emerging issue, or it is not seen as an issue of strategic importance, but its absence will be discussed in more detail in the next chapter.

## **New carbon offsetting role**

One respondent who worked within the SLTDA went on to explain that there would be a new structure within SLTDA, in the form of a department called 'Destination Social Responsibility'. Eventually there would be three officers within the team, one responsible for each of the following areas: animal protection, sex tourism, and carbon offsetting. If this comes to fruition, it really will be a first step in putting the issue of climate change in the heart of tourism planning and development and it will be interesting to observe the effect the role of this official has in furthering the commitment to climate change.

Although there were no specific tourism and climate change documents, the government considered the Earth Lung project as the platform for increasing awareness of climate change within the tourism sector. The plans to address the issue in a more formal way, by employing a specialist within the new department, to raise the profile of climate change in the Sri Lankan tourism sector.

### **5.1.7 Theme 4 Impacts of climate change**

All the respondents without exception were able to recount many examples of changes that they thought were linked to the changing climate. This was well expressed by one respondent, *"So many things have happened in the last two, three years which people are now recounting or at least there is this basket that you can throw it in and say climate change"* *SL Pub 2*. The most frequently identified effects are explored below in turn.

## **Changing weather patterns**

Changing weather patterns were frequently mentioned, *“we should be in the middle of the worst weather of the year at the moment and we are not” SL Pri 5*. The respondents felt that the weather patterns used to be quite predictable, *“We had even temperature patterns, temperate rainfall and we depend on two monsoons. That is now changing, normally monsoon start May now we got a lot of rain - torrential - there is a big change” SL Pub 4*.

## **Loss of habitat**

Loss of habitat was mentioned, both in marine environments and the rain forests as *SL Pub 5* illustrates, she was concerned about the *“effect on our agricultural output because certain tropical produce does flourish in the sun, extreme conditions could have a negative effect”*. An additional example of this is provided in Insight 2 below.

### **Insight 2: Changes to habitat**

An eco-tourism tour operator relayed a story about trying to photograph the endemic Dwarf Lizard (*Lacerta andreanskyi*). In previous years the lizard had been fairly easy to find in a particular area of the rainforest, but after fruitless trips, he decided to ask the advice of a German Researcher, Wolfgang Verner, who had conducted research in the cloud forest of Sri Lanka. The operator was informed that because the rain forest was very gradually drying out and the lizard was restricted to very small areas of cloud forest which suits the lizard’s subtle ecological requirements, it had moved its habitat to a higher altitude in the rainforest.

Based on discussion with SL Participant Pri 4

Other respondents reported diminishing fish supplies. The issue of food security was topical at the time as the cost of oil had just increased again and being an island state, they are very dependent upon imports.

## **Flooding**

There was also a problem of flooding in the lowlands that was reported by the respondents as becoming more frequent. One respondent was particularly alarmed, *“in the interior now you get salty water, this is the problem, even that means sea level must be rising” SL Pri 1*.

During the fieldwork there was lots of rain throughout Sri Lanka resulting in flooding as illustrated by Figure 5.1.19.

Figure 5.1.19 Flooding near Colombo



Source: Researcher

There was also concern about silt within the rivers that created pollution problems and contamination of drinking water: *“water reserves has gone down, there is a lack of water” SL Pub 4*. This was confirmed by SL Pri 7, who came to Sri Lanka six years previously, *“the first four years of coming here there were three years of drought”*. Respondents were also concerned that drought and flooding also impact upon hydropower plants, which are responsible for 8 percent<sup>26</sup> of the country’s electricity generation.

### **Coral bleaching**

A number of the respondents discussed the problem of coral bleaching, *“now, when you go there with glass bottom boat you see down only brown colour coral” SL Pri 3*. This was also observed during a snorkelling trip that the Researcher went on. The quality of the coral reefs did not live up to the expectation provided by the dive operator prior to booking the trip, as can be seen in Figure 5.1.20.

Figure 5.1.20 Bleached coral



Source: Researcher

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<sup>26</sup> Sri Lanka’s energy sources consist primarily of biomass, hydro-electricity and petroleum that contribute to 47%, 8% and 45% of total energy respectively (Ministry of Power and Energy, 2010).

### **Increase in temperature**

Several respondents commented that the weather during the fieldwork was much hotter than would have been usual for June, *“now unexpectedly some days were excruciatingly hot and days they would have predicted it to be hot, were cooler than expected” SL Pub 3.*

### **Storm intensity**

Respondents wanted to make clear that although total rainfall is similar to previous years, it is changes to the patterns of rainfall that’s causing concern. *“You still getting five thousand millimetres of rain, so the total is the same, it’s the intensity as well, now you get them in two or three short bursts. The rain forest can’t handle it; it’s going to thunder down the streams in the rivers and the erosion and silting and the flooding which we are seeing” SL Pri 1.*

As can be seen in this theme both the public and private sector stakeholders gave many examples of the transformations they considered that climate change was responsible for. Whilst all the examples provided were anecdotal, the thrust of the responses was that the changing weather patterns; changes to habitat, flooding, coral bleaching, increases in temperature and increased storm intensity were attributable to climatic changes.

## **5.1.8 Theme 5 Roles and responsibilities of developed and developing countries**

The respondents were asked to discuss the roles of the developed and developing world with regard to states of industrial development and anthropogenic climate change. Overwhelmingly, the respondents pointed out that the West had created the problem of global warming and the developing countries were feeling the effects of climate change first.

### **Global responsibilities**

One of the private sector respondents became very animated during this section *“we are talking about human rights all the time but this is also human rights because we who are going to be affected and lose our country and our land and all that, we didn’t secrete or emit all this emissions, it is the Westerner and what is wrong is we can understand that the West is emitting all this, but at least they should accept to try and do something now”. SL*

*Pri 1* This goes to show how deeply embittered some of the Sri Lankans are about the lack of action to address this problem by developed countries.

Not all the respondents were so direct; some were more pragmatic in their appraisals *“In the Western countries they have to do bigger changes because of the high consumption of energy per head”, SL Pub 3*, and *“yes, maybe people in rich countries have perhaps at the expense of others created a lot of these emissions”, SL Pub 1*. Both these respondents continued to discuss ways in which the Sri Lankan people could help to reduce emissions, but the problem requires all countries to get involved. Whilst there was a certain resignation to the situation, a number of respondents were critical of the Kyoto Protocol *“now they are trying to impose all those strict rules and regulations onto the developing world before they have a chance to develop” SL Pri 5*

### **Long haul flights**

Just prior to the fieldwork the Researcher undertook in Sri Lanka, the Archbishop of Canterbury entered the climate change debate<sup>27</sup> by opposing the expansion of Heathrow airport. His support for the ‘no’ campaign had been widely publicised and a number of the respondents were concerned that these out spoken views would deter people from flying to tourist destinations such as Sri Lanka. *“When somebody of that stature, a religious leader or somebody who’s at the top of... says you know it is a sin to go on planes, without knowing the technical details you at once reflect that this is gospel idea” SL Pub 2*. The key issue mentioned by all respondents was that unless Western tourists visited Sri Lanka it would compromise the economic wellbeing of Sri Lankan citizens.

One of the private sector respondents was not convinced that there was a *“correlation between fuel emission, carbon emission and stuff like that on the long haul flights”* she continued to say that she was *“sure that there are other industries that pollute the environment more than flights”, SL Pri 5*. Whilst this was not a widely held view, it was

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<sup>27</sup> The Archbishop's spokesman told the Evening Standard 2008: "He is writing a message of support. He acknowledges the strength of support (against a third runway). He is aware of the problems encountered by churches on the ground across London. He is trying not to fly if he can help it. He has not flown at all this year."

one that was mentioned on a few occasions both by people working within and outside the tourism industry.

### **Trade before aid**

One respondent was very clear that it was imperative for Western tourists to continue to come to Sri Lanka, so that trade can be maintained and developed. The idea of the west providing aid to support carbon offsetting was *“an insult as far as I am concerned. SL Pub 1*. Respondents had obviously considered the issue of the contribution of developed and developing countries to anthropogenic climate change. Regarding the issue of global warming, most took a pragmatic view but this could have been because the Researcher was from the West and they did not want to cause offence. The key concern was that if tourists stopped taking long haul flights it would have a detrimental effect on the ability of Sri Lanka to generate money through tourism.

### **5.1.9 Theme 6 Adaptation initiatives**

During the fieldwork, the Researcher wanted to find out if adaptation practices were being initiated in Sri Lanka since there appeared to be little knowledge of the concept of adaptation. The respondents tended to discuss the Earth Lung project again in this section. Nonetheless, during the interviews, it became apparent that there was confusion about adaptation initiatives taking place. The reporting below provides an overview of what the respondents discussed in this area.

#### **Adaptation initiatives – change in mindset**

A member of the public sector recounted a story about some of the large hoteliers feeling under pressure to provide tourists with homogenised five star hotel furnishings which needed to be imported. He was opposed to the import of resource intensive goods when there were local goods that would fulfil the same needs. He managed to persuade the hotelier by stating, *“today the world has changed, people don’t want to be thinking in those lines and wall-paper is environmentally not sound” SL Pub 2*. So, the chandeliers and wallpaper were not imported, but the hoteliers used local goods, which were considered to enhance the tourist experience and also reduced the air miles accrued through the import of such goods.



One of the larger hotelier groups had made changes so that aerosols were not used and only natural oils were used to repel mosquitoes. As these products could be sourced locally, it reduced the hotel's carbon footprint. In addition, some of the lodges had set up organic gardens. This project was known as the 'village experience'; it helped to provide a stable supply of fruit and vegetables, reduced the carbon footprint of having to transport the goods to the resort and hotel guests liked to wander in the garden and help collect fruit and vegetables for the kitchen. SL Priv 2, suggested it was a win win situation as the guests *"they pay me a thousand bucks; it is so fantastic to see their faces, when they come in the morning cut your own fruits and make your own salad"*.

### **Improvements to the design of buildings**

A number of both public and private sector stakeholders referred to the design of buildings. Both discussed the cost of air conditioning and that hotels that were designed correctly could *"use the breeze"* SL Pub 3 to circulate air in public areas.

### **Education**

There was an understanding that education of locals was an important stage in the process of adaptation to climate change. An illustration of this was provided by an eco-tourism company, who encourage their tour guides to learn more about the species that tourists come to the rainforest to see. He referred to it as a positive feedback loop: *"The local guides also become expert enough so that when the school children come with the school teachers then they start they can provide more expert instruction. The school groups are not going to tip them handsomely but it does not matter the foreign clients will. Their knowledge gets circulated much more effectively"* SL Pri4.

Whilst the Researcher was made aware of a number of education initiatives with local groups (all initiated by the private sector), the issue of climate change has not been placed on the national curriculum in Sri Lanka.

There was a lack of clarity about the term 'adaptation'<sup>28</sup> by the respondents. The effects of climate change that the respondents reported in section 5.1.7 tended not to require immediate action, so maybe there seemed to be less to respond to in this area. During the

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<sup>28</sup> Adaptation - Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. (IPCC TAR, 2001 a) –also refer section 2.4.2.

fieldwork, the Researcher did observe some responsive adaptation measures, such as increasing sea defences, but the respondents did not report these.

### **5.1.10 Theme 7 Mitigation initiatives**

Another area of enquiry during the fieldwork was that of mitigation; the ability of stakeholders to be able to reduce the amount of greenhouse gases going into the atmosphere and contributing to global warming. A significant project in Sri Lanka is the Earth Lung Project that had been launched in 2007 a year prior to the fieldwork and this is outlined in Insight 3.

#### **Insight 3: Earth Lung Project**

The Earth Lung project was launched in 2007 at the Davos conference on tourism and climate change (Figure 5.1.21, below). The basic concept is that forests are the lungs of the earth, breathing in carbon dioxide and emitting oxygen. As Sri Lanka has approximately 30 percent forest cover, it can be used to sink the carbon that is used by the planes, which bring tourists to Sri Lanka. However, Sri Lanka has suffered from some deforestation, so tourists will be encouraged to pay into a carbon offset fund and the proceeds of this will be used to purchase, plant and maintain hundreds of thousands of trees.

The idea for the name of the Earth Lung came from a planning model, where there are polluted and non-polluted areas in urban spaces and since Sri Lanka is shape like a lung, the name materialised.

Based on information from SL Pub 2.

Figure 5.1.21 Earth Lung Logo



Source: Sri Lanka Tourist Development Authority, 2009

### **Commitment by public sector**

There was enormous pride in the Earth Lung Project by the public sector. *“Sri Lanka is very well positioned to take advantage of this carbon offsetting as we have huge forest coverage” SL Pub 5*. They perceived it as *“something that also gives us a different trading platform and will encourage more and more things to happen” SL Pub 1*. The Earth Lung project appeared to be a project that united the public sector stakeholders and provided a platform to demonstrate this; it also made them feel ahead of other areas of the public sector *“tourism is the first to have been pro-active because the idea of the Earth Lung itself is a pro-active stance” SL Pub 2*. Whilst the picture painted by the public sector tended to be a very positive one, they also recognised that it had not been easy getting the commitment from the private sector, it had been difficult as SL Pub 1 reflected *“a hard sell to tell you the truth, it was a real hard sell”*.

### **Social benefit**

The Rotarians of Sri Lanka were tasked with co-ordinating the planting of trees to provide the carbon sink. An additional benefit was the community involvement that was being developed, as *“seventy percent will be planted in rural neighbourhoods - income generating trees”, SL Participant Pub 3*. The project not only helped to address the issue of climate change but also provided cash crops and education for the villagers. *“First the benefit for their stomachs and then the benefit of the environment”*. SL Pub 3

### **Scepticism amongst the private sector**

The private sector respondents also mentioned the Earth Lung project but tended to be rather sceptical about the project initially, *“I can’t see anything being organised centrally in this country that would make a difference”*. SL Priv 7. This showed the frustration that the private sector seemed to have about the responsiveness of the public sector. Another respondent commented, *“I am not quite sure whether Sri Lanka is ready for it [Earth Lung]”*. SL Priv 2. Private sector respondents did not appear to have a great deal of confidence in the ability of the public sector to implement the programme and this is shown where one respondent thought that SLTDA would: *“find it difficult to allocate money for things like that [Earth Lung] because people will say, you are not Ministry of*

*Environment, you should not use tourism promotion money to plant a million trees” SL Priv 1.*

However, by the end of the discussion about this theme, the respondent tended to accept that the project was a starting point, *“I think it is good and probably essential but the tourist board doesn’t have the budget to plant ten million trees and see it through,” SL Priv1.* Another very erudite point was made by SL Pri 2, *“Ninety percent of the people don’t understand and they are sceptical, mind you I know what, they are sceptical about it. The joke is how we can talk about Earth lung in Sri Lanka when we got zero tourists and we’re bleeding and we don’t know where our next client is going to come”.* So whilst there was considerable scepticism of the Earth Lung project by the private sector in Sri Lanka, there was also recognition that it was a catalyst to raise the profile of the issue.

### **Patchy understanding**

The Researcher was very aware that all respondents were keen to discuss the Earth Lung project, but it was extremely difficult to gain information about the implementation and logistics of the project. This may well be because the Earth Lung project was in an embryonic state, but it was reflected in feedback gained particularly from the private sector. One of the key drivers of the project seemed to be aware of this and stated, *“we had a meeting where we felt that the hotel industry have not really understood this whole thing” SL Priv 2.* No indication was given of future training events or how this problem was to be addressed.

The only mitigation initiative that the public sector mentioned was the Earth Lung project. The private sector was keen to inform the Researcher about other initiatives. The Sigiriya hotel group had developed a project known as the ‘Green Directory’, which reported all the environmental and social projects undertaken by the hotel. These projects ranged from rescuing monkeys and elephants, providing computers for local schools and reducing the air miles of food for the restaurants. The hotel chain had employed a consultant to conduct an audit, once the audit had been completed and published, it became the responsibility of the general manager to update it. The results were published in the guest rooms and *“it puts additional pressure on the hotel because when it is in print and in every room then it’s like, oh, yes, we better do all this because the book says we are doing all of this. So it becomes a continuous process” SL Pri4.* All the private sector respondents wanted to talk

about actions they took to reduce energy consumption, such as having efficient energy management systems and reducing the number of journeys taken in business practices.

### **Business sense**

The respondents that undertook some mitigation activities, were very candid about their motivations, which primarily were based on cost savings, as can be seen by these two extracts: *“we have realised that by doing this not only are we helping the environment we are also getting rupees and cents”*, SL Priv 5; and in addition: *“I also was driven by my desire to get my company more profitable”*, SL Priv 2.

### **Market conditions**

The motivation for the Earth Lung project was explored during the research. The head of SLTDA suggested that the driver behind the Earth Lung project was: *“Customer is driving, customer is asking, where we go, how can we meet offset our carbon. Customer’s asking how much would we be contributing to global warming when we travel”* SL Pub 1. In later interviews with members of the private sector, these views were directly contradicted. *“Personally I don’t think we are quite ready, the market is... the type of client we are getting is the guy who’ll jump into any discount”* SL Priv 2. Understanding the tourist profiles and market conditions are key to a successful tourism business. Given the civil war and the reduction in visitors, many of the tour operators were operating at very low profit margins to maintain some business activity. One of the tour operators expanded upon the issue of price sensitivity: *“where you have quality end of the market coming those people are prepared to spend an extra twenty-five dollars or fifty dollars if they feel that the service provider is more expensive because you know they are doing something good, it is costing them more to minimise the environmental impact.”* SL P Pri 4. A concern for the private sector respondents was that the foreign tours operators are now requesting information about companies corporate social responsibility reporting, so this was also raising the companies’ awareness and responsiveness.

### **Green washing**

Whilst there were pockets of good practice in Sri Lanka, a number of private organisations reported that they are *“very careful not to use the word eco because that is a much bandied word, you know that....but it provides a good spin for publicity”*. SL Priv 2. This

gave the impression that they were happy for the press to know about their environmental and social programmes, but did not want to be associated with ‘eco’ connotations. Another of the key operators put it in stronger terms *“Our official policies is that everything we do is done for business, it’s part of the business plan and so we are very clear that we are not doing anything because it is a good thing to do or it is like we actually underplay the CSR side”* SL Pri 4. Therefore, it appeared that the private sector was cautious about being held to ransom over their ‘green’ credentials.

To summarise, within the theme of mitigation, the public sector talked exclusively of the Earth Lung project. However, it was actually very difficult to establish the specific details of the implementation of the initiative. The Rotarians were responsible for the planting of the trees, but the Researcher was not given any details about how the tourists would be made aware of the initiative or how they could contribute. The private sector varied from being sceptical to thinking the project was a joke. There were some good private sector initiatives running, such as the carbon audit and various initiatives to reduce energy in resorts. The private sector were being pushed through the supply chain to report on their ‘green credentials’ but were concerned that they might be accused of green washing, so tended to underplay this area.

#### **5.1.11 Theme 8 Consideration of climate change in decision-making**

This theme allowed the respondents to outline the degree to which the issue of climate change was considered in their day to day decision-making. This area of questioning within Sri Lanka elicited very few response. Frequently respondents changed the subject. Those who did respond are reported below.

The public sector tended to state that climate change and environmental issues were very much at the forefront in their everyday decision-making however, *“since the country’s been hit by so many blows, one after the other, with it get the hopes up then, phew another bomb comes in”* SL Pub 4. The civil war appeared to have demoted the issue of climate change and left operators needing to focus on short term issues as a priority. The private sector respondents seemed in consensus that *“I think, I suppose there’s isn’t probably a day goes by, where we don’t, we are not conscious about something you are doing in terms of minimising the environmental impact. SL Priv 5* and *“it’s definitely part of every*

*decision-making process on, especially, well one of my main challenges everyday is, cost cutting on energy and so on that viewpoint that's at the forefront," SL Priv 7.*

From these responses, it can be seen that climate change appeared to be more part of the decision-making process in the public sector than the private sector. However, the public sector was not able to support this with tangible examples beyond the Earth Lung project. Although, this tended to contradict the responses in earlier themes, where the private sector took actions to reduce energy usage and costs on a daily basis (although these actions may not be primarily as a response to climate change), the public sector tended to revert discussion back to the Earth Lung project. So this tentatively suggests that there was rhetoric around climate change, especially around the high profile Earth Lung project, but limited tangible evidence of tangible actions; this will be explored in more detail in the next chapter.

### 5.1.12 Theme 9 Perceptions of stakeholder groups

Towards the end of the interviews, the respondents were asked to provide a numerical score to a few short questions on a number of issues to do with the perceptions of the future vulnerability, degree of optimism and the adaptability of public and private sector stakeholders in relation to climate change (as outlined in section 4.2.3). The first is summarised in Table 5.15 about the future of tourism in Sri Lanka.

Table 5.15 Optimism for the future of tourism in Sri Lanka in 50 to 100 years time

Optimistic	1	2	3	4	5	Pessimistic
Private sector	2	2	2	1		Private sector
Public sector	1	1	1	2		Public sector
	3	3	3	3		

Source: Researcher

The respondents tended to use almost the full range of responses from optimistic to pessimistic, with no clear view one way or the other. The private sector was more optimistic than the public sector overall. Most of the public sector respondents had similar words of caution to SL Pub 1 *“once we are over this conflict then strategically we are able to manage our growth rather than yielding to mass tourism”*. One public sector member

stated she was optimistic with the caveat *“of getting at least most of them on board,” SL Pub 5* (in relation to the Earth Lung project).

The private sector based their levels of optimism upon the excellent natural and cultural product offerings that Sri Lanka has: *“our problem will be to stop tourism coming into the country. Managing will be the issue so there will be a big demand for Sri Lanka.” SL Priv 3*. Secondly, respondents were asked to assess the vulnerability of Sri Lanka to climate change and the results are presented in Table 5.16.

Table 5.16 Vulnerability of Sri Lanka to climate change

Not Vulnerable	1	2	3	4	5	Very Vulnerable
Private sector			3	2	2	Private sector
Public sector				3	2	Public sector
			3	5	4	

Source: Researcher

There was a general consensus that Sri Lanka was vulnerable to climate change, as SL Priv 1 reflected, *“I mean we can see things happening now and I am sure if, there must be some relationship between this and the climate change” SL Priv 6*. The public sector was slightly more concerned about the vulnerability than the private sector. The reasons the respondents gave to support this assessment of vulnerability included that the low lands where the agricultural crops are grown are only 25-50 feet above sea level and staple food items, such as rice, have recently tripled in value. The damage to the mangroves was also identified, *“if you destroy the mangroves ten years later your deep sea fish stocks could plummet” SL Priv 4*. Therefore, there was a reasonable understanding of the level of vulnerability in Sri Lanka, but one knowledgeable respondent observed, *“Sri Lanka is in a much more precarious situation than people realise”*. SL Priv 2, which suggests more research is required.

Thirdly, respondents were asked to assess the ability to adapt to climate change of both the public and private sector respondents, the results are in Table 5.17 and Table 5.18.



Table 5.17 Views on adaptability of the public sector.

Not adaptable	1	2	3	4	5	Very adaptable
Private sector		3	3	1		Private sector
Public sector			3	2		Public sector
		3	6	3		

Source: Researcher

The responses all fell in the middle variables, so there was no strong feeling that the public sector was adaptable or not. Most respondents discussed issues related to the environment and tourism ministries and considered that there was recognition about what needed to happen, but they had reservations about the effectiveness of the government, as SL Priv 3 stated: *“what I mean is weak in terms of efficiency and not in term of the power”*. This was endorsed by SL Pub 5 *“We are not terribly active but at least there is an awareness”*. So there appeared to be recognition of the problem, but no clear direction of what needed to be done to address it.

Table 5.18 Views on adaptability of the private sector.

Not adaptable	1	2	3	4	5	Very adaptable
Private sector			3	4		Private sector
Public sector		1	1	3		Public sector
		1	4	7		

Source: Researcher

The private sector was more confident about their own ability and the main reason given is that the operators needed to be *“very conscious about being green”*. SL Priv 2. This complemented their responses in the mitigation theme and illustrations of their environmental programmes and carbon audits. SL Pub 1 reiterated his earlier stance that the private sector had to be adaptable as *“it is a good business thing to do and because of the demand was driving it”*. There was an understanding that the bigger operators who were active in the field were proactive, but the *“smaller companies who having problems surviving”* SL Priv 5, The smaller operators were not as aware of the issues and as a result were less proactive. It was interesting this was observed by the public sector, but again

there was no discussion of education programmes. Although, both private and public sectors accepted that they *“would need to do an education programme first” SL Priv 7.*

### **5.1.13 Sri Lanka summary**

Tourism is one of the top six foreign currency earners in Sri Lanka and therefore an important sector for the economy, but the government is not totally reliant upon developing it as there are other sectors such as textiles and garments, tea production and rubber production that could be pursued. Policy makers could consider this and plan the development of tourism in a more sustainable way to reduce the negative social, economic and environmental impacts that can occur with mass tourism.

As can be seen in section 5.1.1 there is an excellent natural and cultural heritage product and these unique sites have been awarded with high levels of recognition and protection at an international level, World Heritage Site inscription and a national level of National Park status. The respondents clearly recognised the significance of these sites for tourism, but also that these sites needed more professional management to conserve them and use them as tourism enticers.

Clearly the civil war has impeded the growth of tourism in Sri Lanka, as Figure 5.1 illustrates. Between 1967 and 1982, there was stable growth, then in 1983, when the civil war started tourism arrivals fell until the early 1990s. Tourism arrivals tend to follow an unpredictable patterns increasing when there was less fighting and decreasing when incidents erupted. This was also influenced by the advice given by Western governments suggesting tourists should not travel to Sri Lanka. Interestingly since the cessation of the war in May 2009, there has been an increase in tourist arrivals. The SLTDA are keen to maximise the growth in tourism and have a target of 20 percent increase for 2010. The respondents were frustrated with the consequences of curtailed growth to tourism and some of the larger investors suggested they were looking at opportunities outside Sri Lanka. There was a contradiction in that the public sector were keen for rapid growth, whilst the private sector were more cautious and discussed alternative tourism such as eco-tourism.

Understandably, the government has needed to focus upon resolution of the political situation. As a result, it appears not to have prioritised the issue of climate change within government policy. There was an incentive loan scheme to improve sewage treatment and boiler performance; but only the larger hotel groups knew about these schemes. The government had clear building regulations, but these were handled by the Environment Department and respondents made very little reference to them and as an official within SLTDA suggested, his role was to provide leadership not to implement schemes. There was a small group of Tourist Police that operated from the SLTDA section and these were very active in reducing malpractice within the tourism industry, highlighting that the government was ‘hands on’ for some issues and ‘hands off’ for others.

The respondents were all able to recount and predict the impacts of climate change and acknowledge that the developed world had contributed to global warming more than developing countries; so there was reasonable awareness of climate change in those interviewed. There was very little awareness or understanding of adaptation measures. There could be of number of reasons for this; firstly, that the observed impacts had not reached a critical point to require direct intervention and this coupled with the government focus on the civil war, simply meant there was not the capacity to address the issues. Secondly, as Sri Lanka is a developing country people are more used to dealing with chaotic situations such as the flooding and they are more programmed to be reactive, rather than try to reduce the likelihood of the flooding happening again.

In terms of mitigation the key focus of the public and private sectors in Sri Lanka was based around the Earth Lung project, although respondents were vague about the exact details of its implementation. There was a great deal of talk about the project at all levels within the public and the private sector. The public sector considered it essential in order to respond to the Western tourist’s guilty conscience of taking a long haul flight, whilst the private sector were blatantly sceptical about the project. There was only one document produced that set out its aims. This was the paper that had been delivered at the Davos conference a year earlier, but there seemed to be very little tangible evidence that the project had moved from on from this aspiration.

There were pockets of good environmental practice in the private sector, but this was limited to the large operators. There was a lack of consensus in whether to be optimistic or pessimistic about the future of tourism in Sri Lanka. There was recognition the country was vulnerable to the impacts of climate change by all respondents. The private sector was perceived as being more adaptable to climate change than the public sector.

### **Issues to carry forward**

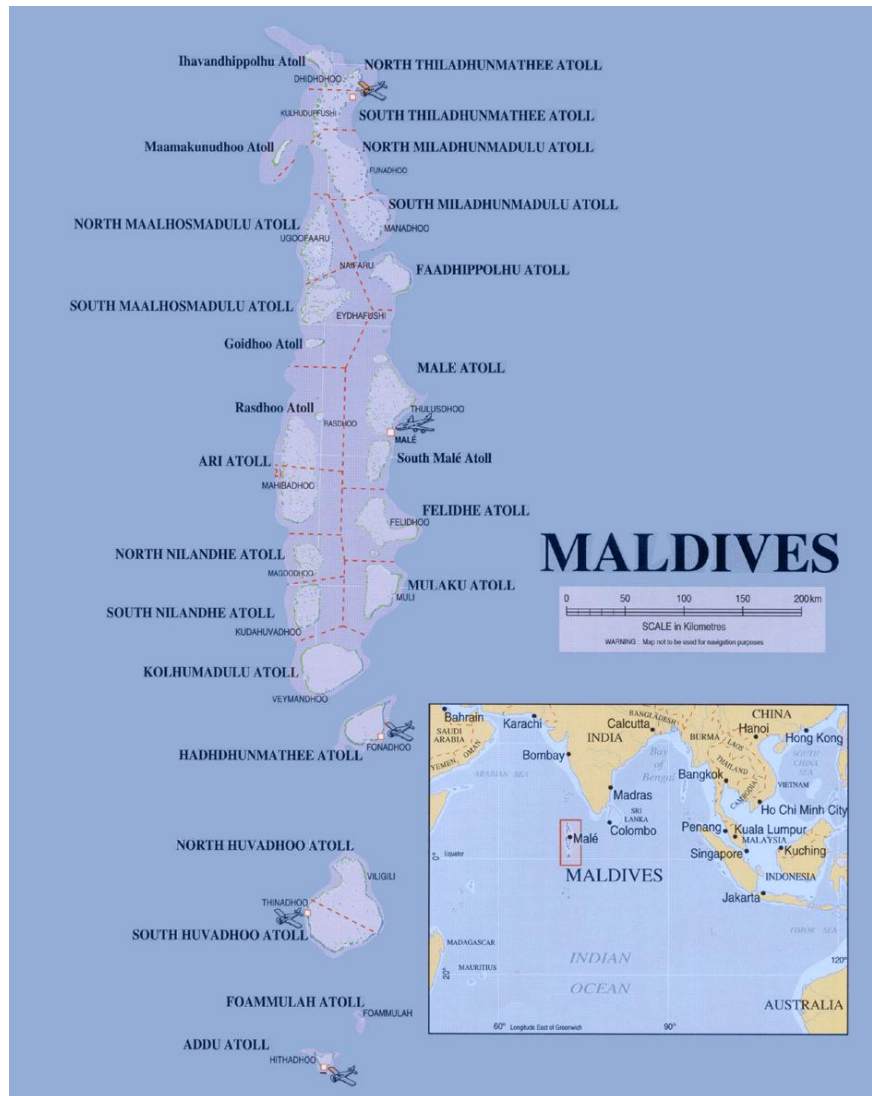
A cautionary observation is that the public sector is totally focused upon the Earth Lung project within Sri Lanka. However, the details of implementing the programme are vague. The private sector tends to be standing back from the programme to see what happens and in the meantime the larger operators are continuing with their own green initiatives. Another tentative observation is that there appears to be quite a disconnection in the actions and perceptions of the stakeholder groups in Sri Lanka, as the private sector respondents are quite critical of the actions of the public sector. These issues will be examined in greater detail in the next chapter.

## 5.2 THE MALDIVES

### 5.2.1 Tourism context

The Maldives is located in south east Asia, in the Indian Ocean and approximately 1000 kilometres south west of Sri Lanka, 3° 15' north latitude and 73° 00' east longitude as Map 5.4 illustrates. Table 5.2. provides key facts about the Maldives.

Map 5.4 The Maldives



Source: maldivesnet.com

Table 5.2. Key facts on the Maldives

<b>Capital:</b>	<b>Malé</b>
<b>Population:</b>	<b>395,650 (July 2010 est.)</b>
<b>Climate:</b>	<b>tropical; hot, humid; dry, northeast monsoon (November to March); rainy, southwest monsoon (June to August)</b>
<b>Total area:</b>	<b>298 sq km (1,190 islands)</b>
<b>Coastline:</b>	<b>644km</b>
<b>Extreme elevations:</b>	<b>lowest point: Indian Ocean 0 m; highest point: unnamed location on Viligili in the Addu Atholhu 2.4 m</b>
<b>Religion:</b>	<b>Sunni Muslim 100 percent.</b>
<b>Language:</b>	<b>Maldivian Dhivehi (official) (dialect of Sinhala, script derived from Arabic), English spoken by most government officials</b>

Source: CIA 2010

### **Political context**

The Republic of the Maldives was granted independence from the United Kingdom in 1965. Two elected presidents deserted the country with considerable assets between 1965 and 1968. Ibrahim Nasir, Prime Minister under the pre-1968 sultanate, became President and held office from 1968 to 1978. Then, in 1978, Maumoon Abdul Gayoom, became President. In the initial years of his presidency, he reformed many areas of government, increased economic growth, and drew international attention to the problems of sea level rises (Maldives Politics, 2010). President Maumoon Abdul Gayoom lobbied tirelessly for reductions in industrial activity and lamented the lack of progress of international summits and treaties (Intel, 2004). However, behind the scenes there was considerable domestic unrest, with reports of nepotism, electoral malpractice and undemocratic reforms. In August 2004, there were riots in Malé, which culminated in the President pledging to pursue a more democratic electoral process and introduce other political reforms. Maumoon Abdul Gayoom remained in government until October 2008, when the Electoral Reform Society observed the elections and a new president was elected, Mohamed "Anni" Nasheed (CIA 2010). In the initial stages of his government he has continued to raise the awareness of climate change in the international arena.

### **The tourism product of the Maldives**

The key ‘pull’ factors for the Maldives are the idyllic tropical islands, as illustrated by Figure 5.2.1. Each island offers a very quiet relaxing environment with a pleasant climate

for holidays. Coral reefs provide many opportunities for divers to encounter unusual coral and fish species and as most of the islands have their own reef, it makes diving convenient.

Figure 5.2.1 A typical island in the Maldives, with pristine beach and coral reef.



Source: Researcher

### The Natural Environment

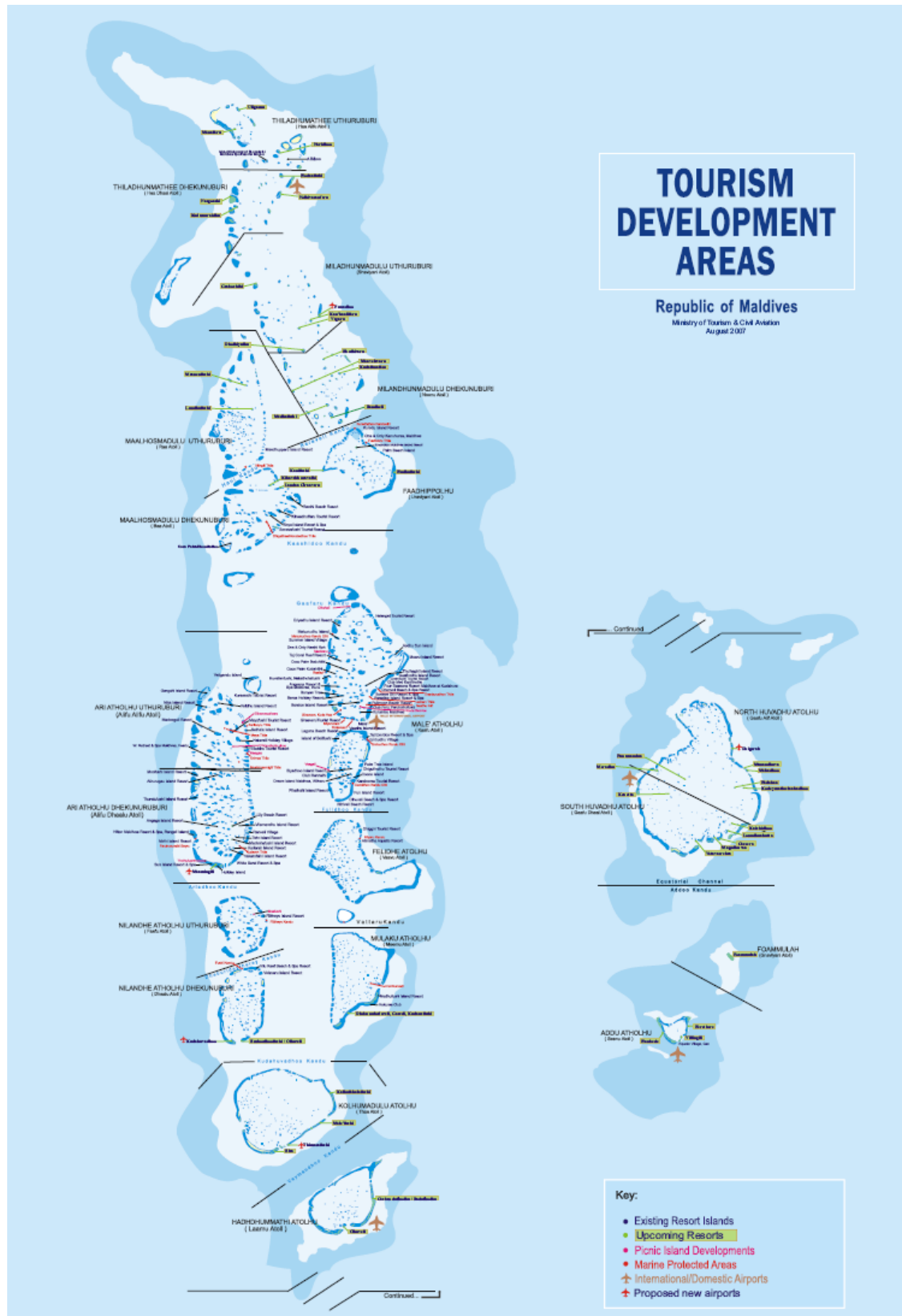
The Republic of the Maldives is comprised of 1,190 small, low lying coral islands in the Indian Ocean. Coral reefs surround all the islands, which helps to protect them from the impacts of strong waves and other effects. To date 94 islands have been released for development as Map 5.5 demonstrates and there is a range of accommodation available as Table 5.2.1 shows.

Table 5.2.1 Number and type of accommodation establishments in the Maldives.

Type of Establishment	2004		2005		2006		2007		2008	
	No	Beds	No	Beds	No	Beds	No	Beds	No	Beds
Resorts	87	16,858	88	17,348	89	17,802	92	19,028	94	19,860
Hotels	8	636	8	636	9	713	11	836	13	1,110
Guest Houses	28	425	28	425	21	391	24	400	24	400
Safari Vessels	113	1,676	121	1,789	116	1,599	133	1,923	143	2,094
<b>Total</b>	<b>236</b>	<b>19,595</b>	<b>245</b>	<b>20,198</b>	<b>235</b>	<b>20,505</b>	<b>260</b>	<b>22,187</b>	<b>274</b>	<b>23,464</b>

Source: Ministry of Tourism Art and Culture, 2009

Map 5.5 Tourism developments in the Maldives 2007



Source: Ministry of Tourism and Civil Aviation, 2007



## Geology of the Maldives

The islands of the Maldives are low-lying and began forming between 3,000 and 5,500 years ago. They represent the most recent deposition along a submarine plateau that is underlain by approximately 2,100 metres of mostly shallow-water carbonates resting on a slowly-subsiding volcanic foundation (UNEP, 2005).

The islands are composed primarily of reef-derived carbonate sediment that has been deposited by waves and currents. In simple terms, the islands tend to have taken one of three forms:

- seaward-edge islands on the peripheral atoll rim, formed of sand and gravel with steep, coarse beaches along their seaward margins and sand beaches along their lagoon shores;
- lagoon-edge islands composed mostly of sand with minor amounts of gravel; and
- sand-cay type islands that form on peripheral rims and within lagoon, reef-top settings (Kench *et al*, 2005).

The reef foundations have been in existence for millions of years. The islands, however, are some of the youngest land surfaces on earth. As the island shorelines consist of sand, gravel, and a variety of engineering structures, the country's beach systems are highly dynamic and subject to seasonal conditions, especially from monsoons. Due to the make-up of the islands, erosion is an ongoing process to which local communities have adapted in the past. The erosion problem has been exacerbated by the various manmade structures that have been built on the shoreline, such as over-water bungalows and harbour boardwalks. It is estimated that 80 percent of the islands are one metre or less above sea level (UNEP, 2005). Their low elevation makes them particularly vulnerable to storms and changes in sea level as can be seen in Figure 5.2.2. The prospect of global sea level rise and its potentially catastrophic impact on low-lying islands makes erosion management all the more urgent.

Figure 5.2.2 The low level of elevation of an island in the Maldives



Source: Researcher

### Wildlife

Its rich marine environment is a key asset of the Maldives. Generally, the islands have poor sandy soil, so vegetation is limited, although some of the larger islands do have small areas of rain forest. Similarly, there is some fauna, such as fruit bats, palm squirrel and local land birds, but the principle interest lies in the marine life. Table 5.2.2 provides an overview of the biodiversity of the flora and fauna in the Maldives.

Table 5.2.2 The Biodiversity of the Maldives<sup>29</sup>

Number and Status of Species		Number and Status of Species, continued		Maldives
Higher Plants		Reptiles		
Total known species (number), 1992-2002	583	Number of Total Known Species, 1992-2003		8
Number of threatened species, 2002	X	Number of threatened species, 2002		2
Mammals		Amphibians		
Total known species (number), 1992-2002	3	Number of Total Known Species, 1992-2003		X
Number of threatened species, 2002	X	Number of threatened species, 2002		X
Breeding Birds		Fish		
Total known species (number), 1992-2002	18	Number of Total Known Species, 1992-2003		489
Number of threatened species, 2002	1	Number of threatened species, 1992-2002		X

Source: Earth Trends, 2010.

There are more than 700 species of fish in the Indian Ocean including many diverse types of reef fish, that live on and around the coral structures, and also cetaceans that come close to use the reefs as food channels (Dive Maldives, 2010). An assessment of the coral reefs in the Maldives conducted by Naseer and Hatcher (2004) found the reefs support a high diversity of reef animals, with about 250 species of hard corals and 1,200 reef and reef associated fish species. Figure 5.2.3 shows a healthy reef.

<sup>29</sup> X denotes 0.

Figure 5.2.3 Coral garden in Maldives



Source: Researcher

Figure 5.2.4 Bleached coral



Source: Researcher

In 1998, during the months of March and June, the average sea temperature was around 2.1°C above the usual. This caused death to the majority of corals and coral bleaching to those remaining (Edwards *et al*: 2001). A number of studies have been conducted to assess the recovery of the coral in the Maldives (Rajasuriya *et al*, 2004 and Loch *et al*, 2002). So far coral recovery has been slow with only a 3 percent increase recorded between 1998 and 2002, which is obviously a concern for the tourism sector. As Figure 5.2.4 shows there is still evidence of coral bleaching.

### **Tsunami**

On December 26th 2004 the tsunami waves hit the Maldives approximately three hours after the onset of the Sumatran earthquake. The waves were reported as being between 1 metre and 5 metres high. The impact of the tsunami on the Maldives was devastating; coastal areas were washed away, solid waste was spread around the islands, ground water supplies were contaminated with sewage and seawater destroyed vegetation. One third of the population was displaced and 12,000 remained homeless a year after the event (UNEP, 2005).

The effect on the tourism industry was profound with three tourists killed, 19 resorts closed and 1,200 bed spaces unavailable during 2005 due to the restoration work required (UNEP, 2005). Tourist arrivals declined significantly, as can be seen in Table 5.2.3, leading to a significant reduction in tourist spending (Wall Street Journal, 2005).

Table 5.2.3 Tourist arrivals growth trend 2004 to 2008 (expressed in percentages)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2004	13.5	5.3	13.1	13.7	35.6	25.7	14.3	15.3	4.2	8.6	10.9	-23.6	9.4
2005	-69.7	-50.8	-44.0	-46.4	-40.0	-33.2	-31.4	-31.3	-27.9	-22.8	-21.5	5.3	-35.9
2006	211.2	86.3	52.8	88.4	61.8	46.2	43.3	30.2	32.1	35.0	20.5	25.1	52.3
2007	10.7	19.2	18.1	12.8	13.8	16.4	19.3	6.4	8.7	7.3	6.0	11.2	12.3
2008	0.1	4.2	11.1	-0.8	4.6	4.7	-6.6	-2.5	4.6	-4.0	2.0	-4.0	1.1

Source: Ministry of Tourism Art and Culture, 2009.

### Cultural Heritage

The history of the Maldives is usually divided into a period prior to the conversion to Islam, in 1153 and the post conversion period associated with a number of Colonial governments and finally a Republic. There are very few cultural attractions within the Maldives. One such is the main mosque in Malé shown in Figure 5.2.5. Most tourists visit the capital Malé and the national museum, but unlike Sri Lanka and the Seychelles there are no UNESCO World Heritage Sites.

Figure 5.2.5, Masjid-al Sultan Mohamed Thakurufaanu-al-A'z'am Mosque, Malé main mosque



Source: Researcher

### The typical tourist route within Maldives

There is limited mobility by tourists within the Maldives. The vast majority of tourists simply select one resort and remain there for the duration of their stay. There are a few excursions offered to visitors and they can opt to undertake water sports such as diving and snorkelling or go on a day trip to Malé. Those tourists who choose to go to Malé can visit

the few cultural attractions such as the mosque and the museum, but the opportunities are limited.

### **Wildlife protection**

The Maldives has no official internationally protected areas or marine reserves (Earth Trends, 2010). However, in 1995 the Department of the Environment introduced Marine Protection Areas (MPAs) to protect key sites from excessive fishing, garbage dumping and coral mining. Initially, 15 marine areas were designated and a further 10 have been added, making 25 MPAs. In addition, the buying and selling of turtle's shell and products is illegal in the Maldives to protect endangered species on the verge of extinction (Tourism Maldives, 2010).

### **5.2.2 Key tourism indicators**

Tourism in the Maldives began in 1972 with 280 beds on a two-island resort. Tourist numbers have grown quickly to reach 676,000 arrivals in 2007 (Maldives Third Master Plan, 2006). It has shown an average growth rate of 9 percent, well in excess of the global tourist arrivals rate of around 5 percent between 1980 and 2004 (Maldives Third Master Plan, 2006). Now, as can be seen in Table 5.2.1. 94 islands have been developed for tourist resorts and an additional 51 islands have been allocated and offered for development. The cruise market, referred to as the 'liveaboards'<sup>30</sup> in the Maldives, has been growing significantly with operators providing luxurious marine safaris, a product popular with the rich and famous, as shown in Table 5.2.4.

Table 5.2.4 Inbound tourist arrivals

	Units	2003	2004	2005	2006	2007
<b>Visitors</b>	('000)	---	---	---	---	---
<b>Tourists (overnight)</b>	('000)	564	617	395	602	<b>676</b>
<b>Same-day visitors</b>	('000)	---	---	---	---	---
<b>Cruise Passengers</b>	('000)	<b>4</b>	<b>4</b>	<b>4</b>	<b>3</b>	<b>6</b>

Source: UNWTO, 2009

As Table 5.2.5 shows, Europe is the main market generating an average of 77 percent of the tourist arrivals. Key source markets within Europe are Italy, United Kingdom, Germany and France. Japan is also an important source market for the Maldives, but has

<sup>30</sup> Liveaboard, is a term used for 3 cabin and 75 cabin cruise ships.

proven to be less reliable due to the SARS<sup>31</sup> and tsunami. There are a number of emerging markets that are showing growth trends particularly China, Russia and India.

Table 5.2.5 Arrivals by region

	Units	2003	2004	2005	2006	2007
<b>Africa</b>	('000)	4	5	3	4	<b>5</b>
<b>Americas</b>	('000)	8	9	7	11	<b>14</b>
<b>Europe</b>	('000)	443	476	307	458	<b>495</b>
<b>East Asia and the Pacific</b>	('000)	84	100	56	102	<b>125</b>
<b>South Asia</b>	('000)	21	22	19	23	<b>30</b>
<b>Middle East</b>	('000)	<b>4</b>	<b>5</b>	<b>2</b>	<b>4</b>	<b>6</b>

Source: UNWTO, 2009

### Transit route

All tourists to the Maldives arrive by plane at Malé International Airport or Gan International Airport in the southern zone, as seen in Table 5.2.6. They are then transported via passenger ferries or smaller aircrafts to their resort. There are a number of domestic air strips to facilitate this process and Hanimaadhoo Airport in the northern zone is currently being considered for development to enable international flights (Maldives Third Tourism Master Plan, 2006).

Table 5.2.6 Arrivals by means of transport used

	Units	2003	2004	2005	2006	2007
<b>Air</b>	('000)	564	617	395	602	<b>676</b>
<b>Rail</b>	('000)	---	---	---	---	---
<b>Road</b>	('000)	---	---	---	---	---
<b>Sea</b>	('000)	---	---	---	---	---

Source: UNWTO, 2009

Table 5.2.7 shows that in 2008, 859,305 passengers arrived the Maldives by schedule and charter flights. This is a 3.1 percent increase compared to the 833,436 passengers that arrived in 2007. While more than 80 percent of the passengers arrived by schedule flights, charter flights have been increasing over the last five years illustrating the maturity of the market, as more inclusive packages are sold.

<sup>31</sup> Severe acute respiratory syndrome - There has been one near pandemic to date, between the months of November 2002 and July 2003, with 8,096 known infected cases and 774 confirmed human deaths (a case-fatality rate of 9.6%) worldwide being listed in the World Health Organization's (WHO, 2004)

Table 5.2.7 Schedule and Charter flights

Type of Carrier	2004		2005		2006		2007		2008	
	Arrivals	% Share	Arrivals	% Share	Arrivals	% Share	Arrivals	% Share	Arrivals	% Share
Scheduled	578,147	81.3	419,271	81.6	592,971	80.7	669,219	80.3	694,718	80.8
Charter	133,241	18.7	94,525	18.4	141,762	19.3	164,217	19.7	164,587	19.2
Total	711,388	100.0	513,796	100.0	734,733	100.0	833,436	100.0	859,305	100.0

Source: Ministry of Tourism Art and Culture.

### Economy

In the Maldives, tourism has become the key industry, followed by fisheries and construction. Today, tourism accounts for 55 percent of the GDP, about 51 percent of foreign currency earnings, and for more than 22,000 jobs (Tourism Third Master plan, 2007) as illustrated in Table 5.2.8.

Table 5.2.8 Related Indicators

	Units	2003	2004	2005	2006	2007
<b>Gross Domestic Product (GDP)</b>	Percent	58.1	60	38	50	<b>55</b>
<b>Exports of goods</b>	Percent	264	260.2	177.2	227	<b>257.0</b>
<b>Exports of services</b>	Percent	<b>93.1</b>	<b>92</b>	<b>88</b>	<b>92</b>	<b>93</b>

Source: UNWTO, 2009

However, the data from the Tourism Year Book, 2009, shown in Table 5.2.10 shows lower GDP than the UNWTO data shown in Table 5.2.9.

Table 5.2.9 Tourism expenditure in the country

	Units	2003	2004	2005	2006	2007
<b>Tourism receipts (money spent in the country)</b>	US\$ Mn	---	---	---	---	---
<b>Travel</b>	US\$ Mn	<b>402</b>	<b>471</b>	<b>287</b>	<b>512</b>	<b>586</b>

Source: UNWTO, 2009

This is due to the UNWTO utilising Tourism Satellite Accounting methods, which includes indirect economic benefits. The lower contribution in 2004 when the tsunami hit shows the government's economic reliance upon the tourism industry. There is also a decline in 2008, which is due to the global economic downturn.

Table 5.2.10 Tourism contribution to GDP

Year	GDP	GDP Growth %	Tourism Contribution	% Share of Tourism Contribution
2004	8,312.30	9.5	2,688.80	32.3
2005	7,927.50	-4.6	1,798.50	22.7
2006	9,442.60	19.1	2,559.70	27.4
2007	10,067.40	6.6	2,816.60	27.9
2008	10,607.30	5.4	2,884.95	27.2

Source: Ministry of Tourism Art and Culture, 2009.

The government has increasingly been benefiting from tourism revenue, as Table 5.2.11 illustrates. The percentage share of tourism revenue to the total government revenue in 2008 was 27.9 percent, but this is a reduction from 37.9 in 2007.

Table 5.2.11 Tourism revenue and tax (Million Rufiyaa)

Year	Government Revenue	Tourism Revenue	% Share of Tourism Revenue	Tourism Tax	% Share of Tourism Tax to Tourism Revenue
2004	3,351.80	921.47	27.5	409.50	44.4
2005	3,788.30	911.80	24.1	346.50	37.8
2006	5,286.70	1,776.90	33.6	495.70	27.9
2007 //	6,669.40	2,525.07	37.9	544.25	21.7
2008	7,054.43	1,969.72	27.9	566.55	28.8

Source: Ministry of Tourism Art and Culture, 2009.

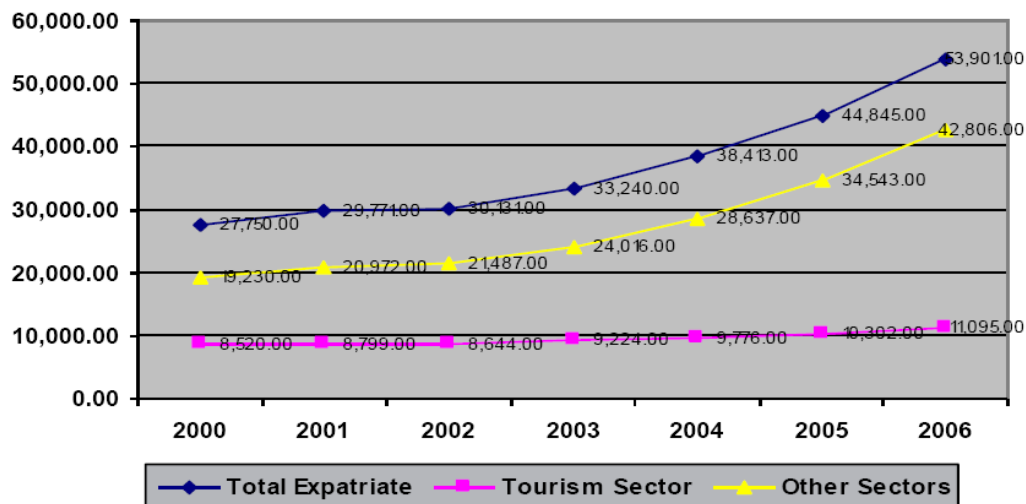
The government's direct revenue from tourism includes:

- Lease rent from the resorts
- The tourist bed tax (\$8 per night)
- The airport departure tax (\$7 per passenger) (Third Tourism Master Plan, 2007)

The way that tourism contributes indirectly is through supporting industries, government import duties; bank taxes etc. The Maldives has an increasing problem with economic leakage mainly due to the high level of imports and repatriation of expatriate workers, which is on the increase (see Table 5.2.1) and repatriation of profits (Third Tourism Master Plan, 2007).



Figure 5.2.6 Expatriate Employment 2000 to 2006



Source: Third Tourism Master Plan, 2007

In Table 5.2.12 it can be seen that all visitors go to the Maldives to enjoy a product that draws on the basic natural environment and climate, mainly for rest and relaxation on a beach.

### The purpose of visits to the Maldives

Table 5.2.12 Arrivals by purpose of visit

	Units	2003	2004	2005	2006	2007
<b>Leisure, recreation and holidays</b>	('000)	564	617	395	602	<b>676</b>
<b>Business and professional</b>	('000)	---	---	---	---	---
<b>Other</b>	('000)	---	---	---	---	---

Source: UNWTO, 2009

The Maldives is a romantic destination and so attracts many honeymooners or celebration tourists (30 percent) and the final group are attracted by marine life and diving (15 percent) (Third Tourism Master Plan, 2007). A growing market is the cruise product (better known as liveboards vessels in the Maldives) as can be seen in Table 5.2.2 there were 143 liveboards vessels with a total of 2,094 bed spaces available. The owners tend to provide customised tours around the islands for the tourists.

## Travel and tourism infrastructure

At the present time there are two international airport in the Maldives, Malé International Airport and Gan International Airport. Malé International Airport is situated on a separate island approximately half a kilometre from the capital. There are limitations as it only has a single runway and is only able to hold a maximum of five wide bodied aircrafts such as, the Airbus 340 or Boeing 747-300, at any one time. So this obviously limits the arrivals and departures of tourists. Gan International Airport is situated in the Addu Atoll and opened in 2007 to alleviate these problems.

Tables 5.2.13 and 5.2.14 show there is good accommodation provision within the resorts for tourists and the high occupancy rate evidences there is not a great deal of slack in the system.

Table 5.2.13 Accommodation

	Units	2003	2004	2005	2006	2007
<b>Overnight stays in hotels and similar establishments</b>	(‘000)	4,705	5,110	3,300	4,826	5,293

Source: UNWTO, 2009

Table 5.2.14 Tourism Industries Hotels and similar establishments

	Units	2003	2004	2005	2006	2007
<b>Number of rooms</b>	Units	8,557	8,747	8,992	9,258	9,712
<b>Number of bed-places</b>	Units	17,114	17,494	17,984	18,515	19,424
<b>Occupancy rate</b>	Percent	77.23	83.3	64.9	81.9	82.6
<b>Average length of stay</b>	Nights	8.5	8.29	8.5	8.02	8.1

Source: UNWTO, 2009

The government recognises the resorts are operating at close to maximum capacities and is conducting a review of 51 islands that can be offered to future developers to provide greater capacity.

### 5.2.3 Tourism policy

#### The structure and organisation of tourism in the Maldives

Tourism policy and co-ordination is formulated and managed through the Ministry of Tourism and Civil Aviation. Between 1980 and 1996, the Ministry controlled all tourism functions. In the period of 1996 to 2005 (within the remit of the Second Master Plan), the roles of tourism were separated out into the following institutions:

1. Maldives Tourism Board (MTB) – strategic co-ordination
2. Maldives Tourism Promotion Board (MTPB) – marketing and promotion
3. Maldives Tourism Training Board (MTTB) – human resource development

During the period of the First Master Plan (1983-1995), the public sector was the driving force. A key theme of the Plan was that “the role of the government should be to facilitate the business environment whereby the private sector can operate efficiently”(Maldives Third Tourism Master Plan 2007). This was the impetus for enabling the private sector to become more active in the planning process.

The private sector is directly represented by the resorts and also by the Maldives Association of Tourism Industry (MATI). Its membership comprises Maldives companies and individuals engaged in travel and tourism related activities; local and foreign travel agents; tour operators, dive bases, suppliers, airlines, banks and financial institutions (MATI, 2010).

### **Tourism Development**

The Ministry of Tourism has been successful in leading tourism development during the First and Second Tourism Master Plans. The Second Master Plan (1996-2005) suggested new roles and functions within the tourism sector to better facilitate tourism development and enhance public-private partnerships in marketing tourism. As a result, an additional organisation was formed, the Maldives Tourism Promotion Board (MTPB) in 1998. This board was tasked with marketing and promotion of the Maldives as a destination with greater involvement of the private sector for maximising tourist arrivals and revenue for the benefit of the whole economy (Ministry of Tourism and Civil Aviation 2006). In reality, this meant a more co-ordinated approach to the promotion of the Maldives. In 2005 the Department of Civil Aviation and the Ministry of Tourism combined to enable the development of the synergies between domestic and international air transport.

The Maldives quickly recognised the contribution that tourism could be making as a key platform for economic development. The growth of the industry has been progressed via a clear planning process that has been laid out in the First Tourism Master Plan (1983-1992), the Second Master Plan (1996 – 2005) and is now outlined in the Third Master Plan

(2007-2011). Of the 1192 islands that make up the archipelago's 26 atolls, 89 islands have been developed for tourist resorts. "Sustainable tourism development has been the key to the Maldives' success as a tourist destination" (Third Tourism Master Plan, 2007:p23). From the start of tourism in the Maldives in 1972, tourist resorts and local communities have purposefully been separated, to help avoid some of the negative socio-cultural impact often associated with tourism development. However, under a recent policy decision (2007-2011), 51 islands for resort development areas have now been released across the country, as is demonstrated in Table 5.2.15, along with plots of land for city-style hotel development on inhabited islands.

Table 5.2.15 Release of islands for tourism development

No.	Name of the Island / Land	Atoll	No. Beds to be Developed	Estimated Opening Date (as at end March 2009)
<b>II Islands Leased in 2004</b>				
1	Dholhiyadhoo	Shaviyani Atoll	200	Nov - 2009
2	Funamudua	Gaafu Alifu Atoll	100	
3	Hadahaa	Gaafu Alifu Atoll	100	Dec - 2009
4	Hondaafushi	Haa Dhaalu Atoll	200	Jul - 2010
5	Kalhufahalafushi	Thaa Atoll	200	NA
6	Konotta	Gaafu Dhaalu Atoll	100	Dec - 2009
7	Lomudhuahuttaa	Gaafu Dhaalu Atoll	100	Jan - 2010
8	Maavelaavaru	Noomu Atoll	100	Dec - 2009
9	Olhuveli	Laamu Atoll	200	Oct - 2009
10	Randheli	Noomu Atoll	100	Jun - 2010
<b>Rent Open Islands Leased in 2006 (Phase 1)</b>				
11	Gazeera	Gaafu Dhaalu Atoll	44	Dec - 2009
12	Lundhufushi	Raa Atoll	40	NA
13	Meradhoo	Gaafu Alifu Atoll	44	Dec - 2009
14	Munandhuvaa	Gaafu Alifu Atoll	48	NA
15	Vagaru	Shaviyani Atoll	70	Dec - 2009
<b>Rent Controlled Islands Leased in 2006 (Phase 1)</b>				
16	Male'Fushi	Thaa Atoll	100	Dec - 2009
17	Kudamuraidhoo	Haa Dhaalu Atoll	250	May - 2010
18	Vatavarehaa	Gaafu Dhaalu Atoll	150	Nov - 2009
<b>Rent Open Islands Leased in 2006 (Phase 2)</b>				
19	Naridhoo	Haa Alifu Atoll	100	NA
20	Maamenfushi	Raa Atoll	150	NA
21	Dhekunu Boduveli, Gasveli, Kudausfushi	Meemu Atoll	60	Jul - 2010
22	Mahadhdhoo	Gaafu Alifu Atoll	100	Dec 2009
23	Kaishidhoo	Gaafu Dhaalu Atoll	60	NA
<b>Rent Controlled Islands Leased in 2006 (Phase 2)</b>				
24	Kanbaalifaru	Shaviyani Atoll	200	Dec 2009
25	Gaakoshibee	Shaviyani Atoll	200	Jan - 2010
26	Kanifushi	Lhaviyani Atoll	300	Dec - 2010
27	Elaa	Thaa Atoll	280	Dec 2009
<b>Hotels to be Developed in Regional Airports</b>				
28	Hanimaadhoo	Haa Dhaalu Atoll	200	May - 2010
29	Kaadedhdhoo	Gaafu Dhaalu Atoll	200	NA
30	Kadhdhoo	Laamu Atoll	200	NA
<b>Population Consolidation Resorts</b>				
31	Berimadhoo	Haa Alifu Atoll	200	Feb - 2010
32	Ethhigili	Raa Atoll	200	NA
33	Falhumaafushi	Gaafu Alifu Atoll	200	May 2010
34	Vakkaru	Baa Atoll	200	Jan - 2010

No.	Name of the Island / Land	Atoll	No. Beds to be Developed	Estimated Opening Date (as at end March 2009)
<b>Islands Leased to AIM (Associated with an Airport)</b>				
35	Farukolhu - North (Transit Hotel)	Shaviyani Atoll	200	NA
36	Farukolhu - South	Shaviyani Atoll	200	NA
37	Kudahuvadhoo (Transit Hotel)	Dhaalu Atoll	200	
38	Maafushi	Dhaalu Atoll	200	NA
39	Maavedhdhoo (Transit Hotel)	Gaafu Dhaalu Atoll	200	NA
40	Odegalla	Gaafu Dhaalu Atoll	200	NA
41	Olhugiri	Thaa Atoll	200	NA
42	Raaverehaa (Transit Hotel)	Gaafu Alifu Atoll	200	
43	Thimarafushi (Transit Hotel)	Thaa Atoll	200	NA
44	Ufulandhoo	Raa Atoll	200	
<b>Other Tourist Establishments Associated with an Airport</b>				
45	Dharavandhoo (Transit Hotel)	Baa Atoll	200	NA
46	Dhigurah	Gaafu Alifu Atoll	200	NA
47	Huvandhumaavattaru Resort	Noomu Atoll	200	NA
48	Maafaru (Transit Hotel)	Noomu Atoll	200	NA
49	Mudhdhoo	Baa Atoll	200	NA
<b>Islands Leased to MTDC</b>				
50	Ekulhivaru	Noomu Atoll	180	Sep - 2010
51	Embudhufuhi & Olhuveli	Dhaalu Atoll	220	Sep - 2010
52	Kihavah Huravalhi	Baa Atoll	110	Sep - 2010
53	Kondeymatheelaabadhu	Gaafu Alifu Atoll	100	Sep - 2010
54	Magudhdhuvaa	Gaafu Dhaalu Atoll	200	Sep - 2010
55	Naagoashi	Haa Dhaalu Atoll	600	Sep - 2010
56	Uligamu (City Hotel)	Haa Alifu Atoll	100	Sep - 2010
57	Vodamulaa	Gaafu Alifu Atoll	300	
<b>Other Islands + City Hotels</b>				
58	Hankede	Seemu Atoll	160	NA
59	Fuvahmulah	Gnayiyani Atoll	120	NA
60	Hudhufushi	Lhaviyani Atoll	400	NA
61	Male' Hotel	Kaafu Atoll	200	NA
62	Villingili	Seemu Atoll	396	Sep - 2009
<b>Lagoon Resorts</b>				
63	Kaashidhuffaru	Kaafu Atoll	200	
64	Kelaa	Haa Alifu Atoll	200	NA
<b>Training Resorts</b>				
65	Bodufinolhu & Gasgan'du finolhu	Laamu Atoll	150	Sep 2010
66	Gan	Laamu Atoll	150	
67	Nolhivaranfaru	Haa Dhaalu Atoll	200	NA

Source: Tourism Yearbook 2009

This completes the background data on the Maldives. The next section uses the nine themes identified in section 5.1.3 to report the findings from the fieldwork conducted in the Maldives. Table 5.2.16 provides an outline of the respondents interviewed in the Maldives and their occupation.

Table 5.2.16 Summary of respondents and roles in the Maldives

Respondent code	Informant Position
	Blue – Public sector Purple – Private sector
Participant Mal Pub 1	Civil aviation – policy maker
Participant Mal Pub 2	Civil aviation – policy maker
Participant Mal Pri 1	Director Medium Multinational Tour Operator
Participant Mal Pri 2	General Manager Medium Local Independent Tour Operator
Participant Mal Pri 3	Director Medium Local Liveaboard
Participant Mal Pri 4	Director Small Local Yacht
Participant Mal Pri 5	Director Large International Tour Operator
Participant Mal Pub 3	National Tourism Organisation – policy maker
Participant Mal Pri 6	Director Medium Local Dive Operator
Participant Mal Pri 7	Director Large Independent Construction
Participant Mal Pri 8	Director Large Independent Tour Operator
Participant Mal Pub 4	National Tourism Organisation – policy maker
Participant Mal Pub 5	Ministry of Environment – policy maker
Participant Mal Pri 9	General Manager Large Local Independent Hotelier
Participant Mal Pub 6	National Tourism Organisation – policy maker
Participant Mal Pri 10	Director Large International Hotelier

Source: Researcher

The Researcher conducted the fieldwork in July 2008 and spent two weeks in the Maldives. The majority of the time the Researcher stayed on the main atoll Malé in the Citi Inn hotel. However, during the stay two of overnight trips were made to tourism resorts in Alifu Dhaalu and Lhaviyani atolls.

#### 5.2.4 Theme 1 Importance of tourism

##### Economic reliance

In terms of economic activity, tourism is believed to contribute heavily, with a typical informant suggesting, “70 percent of the economic activity” *Mal Pub 4*. The other important industry is fishing, but tourism overtook fishing in the late 1980s and fishing now struggles to maintain its economic position due to limited fish stocks. From a governmental perspective, tourism is essential as “it generates about 40 percent to the government revenue” *Mal Pub 4*. If tourism were to decline it is very unlikely that the government would be able to gain this level of income from another sector. Tourism was

*“our number one foreign exchange earner” Mal Pri 9*, and the respondents clearly recognised that it supported other economic areas such as the construction and boat building industries. One respondent considered *“it is not healthy for a country to be that dependant on any one industry and we need to work towards diversifying our economy,” Mal Pri 8*. A couple of the respondents referred to tourism as being *“our bloodline” Mal Pri 10* and it is *“in the blood of the people living here”, Mal Pri 3*. They were concerned that it was *“essential for survival” Mal Pri 3*; if anything happened to the tourism industry the nation would *“starve” Mal Pri 10*.

### **Employment**

The Maldives has a small population of 400,000, but *“24,000 people employed in the industry” MAL Pub, 4* tourism is *“the biggest employer” Mal Pri 8*. The Maldives has had a policy to segregate tourism and local residents, so local people do not live on any of the islands that are developed for tourism. The aim of the policy is to reduce the negative social impacts that can transcend between locals and tourists. As a result, tourism is not viewed as an industry that young people would aspire to enter, hence *“the biggest problem is the manpower” MAL Pri 9*. There was no formal training within the Maldives, staff did not stay long in one resort and most of the staff were from other countries, which meant economic leakage.

### **Pace of growth**

There was a great deal of concern about the pace of tourism development in the Maldives, *“I think it has been develop initially too quick” Mal Pri 6*. Thirty seven<sup>32</sup> resorts had just been released for development and the plan was *“to expand by about fifty percent of its present capacity over the next three to four years” Mal Pri 8*. The reasons behind these objections to growth were based around *“the industry being unable to cope with the development because there is no infrastructure” Mal Pri 9*. Some of the respondents felt that the product needed consolidation through improvements to quality, mostly through workforce training. One of the respondents was aware that the product is based around the natural environment and future developments compromised environmental sustainability so was *“completely against opening new resorts. That is overdoing it, overdoing it.*

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<sup>32</sup> Looking at Figure 5.2.2, there were 89 resorts in operation, so the release of an additional 37 would be a 42% increase in resorts.



*Killing the goose that laid the golden egg*". *Mal Pri 10*. Insight 4 below provides some understanding of the complexity of the issue.

#### **Insight 4: Tourism Policy**

A member of The Tourism and Civil Aviation Ministry who was responsible for tourism policy provided an insight into his views on tourism growth within the Maldives.

As the geography of the Maldives is unique the Maldives should go for sustainable mass tourism. There are one thousand islands and only two hundred are inhabited, so the rest of the islands are free for tourism development. Eighty-nine islands are now resorts and there is very high demand by investors to develop new resorts. The developers are proposing high rents, which is very attractive for the government and also means that the Maldives will become a more exclusive destination. However, the respondent contradicted himself later, as he wanted a balanced product where even the starter market can afford to come to Maldives. He suggested the problem was that there was not enough supply, which was resulting in the Maldives being an expensive destination. So the release of more islands for tourism development would alleviate this problem.

Based on discussions with MAL Pub 4

#### **Environmental importance**

There was a recognition that the *"tourism sector in The Maldives is largely based on the environment and any negative impact on the environment would be detrimental"* *Mal Pri 8*. This was reiterated by two of the public sector respondents *"Maldives has been working as a very pro-active environment friendly destination"*, *Mal Pub 4* and one respondent pondered that, if you position yourself in that way, but do *"not carry out those activities, it's actually damaging for the destination,"* *Mal Pub 3*. The Maldives Tourism Promotion Board were keen to explain that they *"spread the news that we are an eco-friendly destination, a green destination. What we are trying to do is invite them to the Maldives and show them what we are doing in different islands. I mean they have actually produced very positive articles about the Maldives and it's actually a huge promotion for us,"* *Mal Pub 3*. Although this was not mirrored by the private sector who suggested that *"we have never been very much environment friendly anyway"* *Priv 2*. In addition two respondents

questioned the motivations behind using the environment to promote tourism, *“what’s the point of promoting something if you can’t sustain it, the same quality” Mal Priv 6*, and *“it shouldn’t be just a question of gimmickry or public relations stance to use the environmental badge” Mal Pri 8*. This raises some interesting points, which will be picked up in the next chapter. There is a clear distinction between the public sector, wanting to promote The Maldives as an ‘eco friendly’ destination and the private sector stating they have little concern about the environment.

### **Reliance on long haul flights**

As the majority of tourists fly to the Maldives from the Europe there is a reliance upon aviation to transport tourists to the country, *“99 percent of all tourists who come to the Maldives, come by air” Mal Pub 1*. As the number of resorts is increasing, more islands are being developed further from the main international airport at Malé. Tourists want to get to their destination as quickly as possible, therefore internal flights were increasing in numbers. After arriving in the Maldives *“almost 60, 65 percent of the tourists do travel by air to their resorts” Mal Pub 2*, which adds to the carbon emissions of both the tourist and the country.

### **Types of tourist**

A number of the respondents discussed the generating regions of tourist coming to the Maldives. Whilst they are still concentrating on the established European markets of UK, Germany, Italy, France, they were now looking at new market areas, *“emerging markets like China, Russia, Middle East and India, India come out very strongly as one of the supporting because of the close proximity” Mal Pri 2*. Some of the tourist destinations were at the very exclusive end of the market, but it seemed that the resort owners were becoming more aware *“that nowadays people are very particular about spending. Most of them are coming on all inclusive packages and they are not going to go just throwing money around” Mal Pri 9*. This highlights that resort owners are aware that tourists are now looking for ‘value for money’ and these types of packages can create economic leakage from the country through foreign direct investment.

Tourism is the main stay of the Maldives economy and there are very few options for diversification. The public sector has an ambitious development plan that is well

communicated through the Tourism Master Plan. The private sector seems concerned about the pace of development and is forthright in their observations. There was a similar split when the public sector suggested that the Maldives was an environmentally friendly destination, but the private sector contradict this. The profile of the tourist visiting the Maldives is changing and there are now more price sensitive, all inclusive tourists visiting, a feature which usually emerges as destinations reach the maturity stage on the destination life cycle.

### 5.2.5 Theme 2 Government regulation and incentives

#### Incentives

Incentives were utilised in the Maldives. The one that was referred to was the President's award: *"the President of Maldives has several awards that he gives away to the public at large for good environmental behaviour and programmes"* Mal Pri 8. All the respondents were aware of this and there was evidence in some resorts that the award had been received (see Figure 5.2.7).

Figure 5.2.7 Examples of the Presidents award from the Banyan Tree Resort



Source: Researcher

#### Taxation

The Maldives, as already mentioned in section 5.2.2 has three tourism taxes. This was mentioned by a number of respondents *"the tourism industry is already very heavily*

*taxed” Mal Priv 6.* Although the taxes did not seem to be hypothecated<sup>33</sup>, this was picked up by the private sector, who indicated that *“what we need to do is to allocate more funding from the national budget to environmental management” Mal Pri 8.* The Researcher gleaned the impression that the private sector was critical of the lack of government funding being put into supporting the tourism sector. This was probably quite a topic of conversation between the two, as one public sector respondent was very defensive, stating *“there is no environmental initiative that has not been funded, because of a lack of money” Mal Pub 4.*

### **Regulation**

Both the public and private sector respondents were keen to inform the Researcher about the Environmental Impact Assessment (EIA) that was required by investors before they were granted planning permission; *“you can’t get through a project unless the EIA are approved.... So it’s very effective system” Mal Pub 5.* Whilst the private sector discussed the EIA they were more critical, it’s *“how they implement it is the question” Mal Pri 7.* One private sector member was puzzled that actions linked to climate change had not been enshrined in legislation *“there has not been any action taken regarding these things” Mal Pri 9.*

### **Enforcement**

The major issue that respondents wanted to discuss within this theme was lack of enforcement by the government. These quotes illustrate: *“there is legislation, but you need to do more in terms of enforcement” Mal Pri 8.;* *“The government I should say is not very forceful and they cannot be because the islands are so scattered inspection for them is very, very difficult”, Mal Pri 9* and *“we would like the government to be more responsible in terms of enforcing environmental regulations” Mal Pri 3.*

This was not only expressed by the private sector, but also by the public sector: *“this is one of the areas where there is lacking in the, from a government perspective, the enforcement and oversight” Mal Pub 2.* Two members of the public sector suggested that

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33 Hypothecation of tax is where the tax collected is earmarked for a specific purpose, in this instance tourism or the environment.

the reason for poor enforcement was lack of resources, *“but there is little or less capacity within the tourism ministry to try to oversee it and effectively enforce it, this is the problem” Mal Pub 2* and *“It’s a whole question of the capacity, the amount of development process that the Maldives is undergoing and we don’t have that capacity at all.” Mal Pub 5*

Both the private and public sector identified the problem of lax monitoring and enforcement. They were also in unison about the solution: *“the private sector, they should have self-regulatory initiative, also they are doing a lot to safeguard the environment as it is in their interest of safeguarding what they sell.” MAL Pub 4* and *“The government should formulate policies on these things and leave it to us to take care of what is happening” Mal Pri 9.*

There was a very clear process in place for investors to gain permission to develop resorts. Government benefited enormously from tourism taxation (27.9 percent of tourism receipts in 2008), although this was not directly fed back into the tourism sector. There was recognition by both the public and private sectors that once government had granted permission for development, the government did not monitor or enforce regulations, which will be picked up in later discussions.

## **5.2.6 Theme 3 Tourism and climate change**

### **Tourism Master Plan**

The strategic direction was outlined in the Third Tourism Master Plan. The Maldives are working from that plan now. Both the public and private sector respondents were very knowledgeable about the plan and this was transferred very effectively between main players in the tourism sector. However, *Mal Priv 10* was frustrated by the tourism policy *“I have had so many master plans I have heard about it and my only concern is that, stop making more resorts and stop destroying reefs”*,

### **Climate change was not reflected in the tourism documentation.**

The Master Plan does have an environmental section, which states that an environmental impact assessment must be undertaken before investors are allowed to develop the resorts. This was noted by *Mal Pub 6* *“we have incorporated certain environmental actions and in*

*the planning we have divided the sector to such a point to six different areas and one of the areas we are specifically concentrating on, environment*". However, when the Researcher reviewed the Master plan, climate change had not been integrated except for one sentence (see UN adaptation programme below). Although the Researcher was assured that, *"we have tried to incorporate and reflect climate adaptation into the Tourism Master Plans" Mal Pub 5*, there was no mention of mitigation.

### **UN adaptation programme**

The United Nations have conducted some research in the Maldives and as a result has published the First National Communication of the Republic of the Maldives to the United Nations Framework Convention on Climate Change. The purpose of the document was to establish baseline data and serve as a basis for future actions, in adapting to climate change impacts. Mal Pub 5 suggested that this was *"well reflected in the Master Plan, also that's well reflected in the national development plans"*. However the Researcher found very little evidence of this in the Tourism Master Plan (only one sentence in section 3.4.8, which states that "The Government is also concerned about the impact of global warming on sea levels". The only person to mention the adaptation plan during the fieldwork was one respondent who had been part of the UN working party; this gave the impression that information was not shared across government departments very effectively.

The Third Tourism Master Plan provides a clear indication of the strategic direction that the public sector was keen to pursue. The contents of the plan were clearly understood by both the private and public sectors. However, the issue of climate change was barely reflected within the Master plan and information regarding climate change did not appear to flow effectively between public and private sector respondents or across government departments, again an issue to return to later.

### **5.2.7 Theme 4 Impacts of climate change**

All respondents were able to recount many observations of the impact of climate change that suggested there were already some changes being noticed, and considered to be as a consequence of climate change. This section looks at the trigger that seemed to be the start of the observations and then groups the responses into five key areas, which will be reported in turn.

## **Trigger**

The trigger that changes were happening in the environment seemed to have occurred in 2004 with the Tsunami *“Because up until then we were rather happy or rather complacent, now certainly a lot of people are very, very conscious of it.” Mal Pub 1.* However, one respondent felt that *“very few people believe the sea level is rising and the way the scientific way of thinking because the local people they don’t know much about it, I don’t think locals worry about that because I say ninety-five percent locals they have no clue, not what’s going on” Mal Pri 6.* The point that the local adults had limited awareness of climate change was made on a number of occasions. Generally, it was considered that the *“the next generation will be more aware of the climate changes” Mal Priv 2.*

Only one respondent stated that he was unable to identify any impacts attributable to climate change, *“Nothing significant has been observed at this moment, but we know that there are theoretical risks,” Mal Pub 4.* This respondent was the Head of Tourism Policy for the Maldives and this response may be influenced by a concern it would effect future tourism arrivals if he acknowledged that changes were being observed.

## **Beach erosion**

A frequent observation was the problems that resorts were experiencing with beach erosion; one respondent commented, *“erosion is part of like everyday thing”. Mal Priv 6.* One dive operator who worked in many different resorts stated *“everyday I have seen the sand being pumped, the sand from the lagoons, and the sand from the part of the lagoons that fill up on the beach” Mal Priv 6.* This was routinely observed by the Researcher when visiting resorts. The solution of pumping sand back on to the beach, actually seemed to create further problems as *“the ocean currents and flow are much heavier, so the trend is different now; it is different from what it was ten years ago” Mal Pri 7.* Resorts spent a great deal of time and money trying to readdress the balance *“people can’t really keep up the balance, the equilibrium - state of the beach. So people are forced to maintain the equilibrium state by building dykes, sea walls, and groins so on, so forth and leading to worsen the situation” Mal Pub 5.* The Researcher observed this during the fieldwork; large pumps were put out at night to try to return the sand to the resort beaches.

### **Less predictable weather patterns and monsoons**

Most respondents discussed changes to weather patterns. The Researcher undertook the fieldwork in July, which should be the rainy season *“now it’s totally different you cannot say that June, July is going to be rainy because see today in July this supposed to be very rough days but the Maldives is very sunny these days”* Mal Pub 4. The respondents suggested that the weather in July in previous years was not as hot as it was in July 2008.

The peak tourism season in the Maldives is during Christmas, but of great concern to the resorts was that *“one of the wettest months has been December [2007] which for the last few years, but before that it was not a rainy season”* Mal Pri 1. The perception was that tourists visited the Maldives to have predictable sun. This was key to their tourism product and meant that tourists were prepared to pay more for their holiday. If this could not be guaranteed it could deter tourists.

### **Tidal surges**

Respondent noted that between *“June till November we have a very, very challenging period because of the wash, the waves are too strong and also we get a swell comes and wash the beach away”*. Mal Priv 6. There was acknowledgement that whilst they observed these surges, *“in the sea level, we don’t know how scientific or how we could prove it, the surges are much greater than what was in the past”*. Mal Pri 7. Another problem linked to the tidal surges, was that the mangroves, a natural defence mechanism were being *“washed away, so the problem is worse”*. Mal Priv 6.

### **Change of habitat**

Two private sector respondents stated that there were changes to the habitats of marine life. Tuna used for tuna production had *“moved from the normal fishing grounds where they used to be, fishermen are very worried”* Mal Pri 2. The Maldives is a key area for exporting live fish for aquariums. Apparently there has been a movement of these fish from the south to the north, so and there was anxiety that *“these species might be completely gone in ten years”* Mal Pri 6.



### **Coral bleaching**

The majority of respondents reported that the quality of the coral was deteriorating. *“I feel really sad to see the changes over the past twenty years, 1990 I started working which I was like a young boy at that time and I used to see beautiful coral garden and now you don’t see any” Mal Pub 5.* A key reason that tourists travel to the Maldives is to experience the beautiful coral reefs and there was a sense of sadness as *“the popular dive sites are not the same as like a couple of years before” Mal Pri 6* and *“we see a lot of dead coral.” Mal Priv 7.* The Researcher went out on three snorkelling trips during the research collection stage and was disappointed with the overall quality of the coral.

Respondents in the Maldives were in the most part able to recall and illustrate changes that they felt were connected with climate change. The Researcher was informed that there was a gap between the local people who lived on islands not connected to the tourism industry and those interviewed. Interestingly, the private sector provided many examples, of changing habitat, coral bleaching, beach erosion, tidal surges and less predictable weather patterns, whereas the public sector was more reticent to do so.

### **5.2.8 Theme 5 Roles and responsibilities of developed and developing countries**

The respondents were more muted in their discussion of cause and effect than might have been expected given all respondents were able to identify changes that might be resulting from climatic change. There was recognition that the Maldives had done little to contribute to the global problem and there was significant worry that tourists would stop flying to the Maldives, these issues are examined below.

#### **Maldives is not a major emitter**

The Maldives *“lack major industries” Mal Pub 3,* so they do not consider themselves a major emitter of greenhouse gases. The vast majority of the locals live a very simple lifestyle and are not dependent upon fossil fuels, *“many of them are not using air-conditioners or things like that and so the carbon footprint that they have is comparatively less”. Mal Pub 1.*

Both public sector and private sector respondents noted *“We have not, I mean made the amount of greenhouses here, the... rich countries have” Mal Pri 4*. It was *“the big countries, that get a bad effect to the environment and the climate change, I mean it comes from the bigger countries than Maldives”*. *Mal Pri 3* and *“we have to also consider the fact that it’s not all countries, who is in this creating all of problems,” Mal Pub 1*. Therefore, it was a commonly held view that the Maldives had done little to create greenhouse gases, but they were one of the first countries to experience significant impacts from anthropogenic climate change.

### **Kyoto Protocol**

There was a general irritation that the USA had not signed the Kyoto Protocol *“they are the biggest emitters and they are doing nothing”*, *Mal Pri 4*. There was a clear understanding and support of the *“principle of common but differentiated responsibilities, Mal Pri 7*; and most respondents returned to the point that the average Maldivian emitted very little to contribute to global warming.

### **Helplessness of the situation**

One member of the public sector suggested that the developed world recognised the problem but were not taking suitable actions; he stated, *“we have got a strong voice, we have and I think people do take into account, but I don’t see the actions. So that’s a sad part of it”*. He was a spokesperson for the Maldives on this issue, *“I am really working for the nation, for the survival of my people, I feel really kind of, really emotional, if you have really known the facts, the reality for the people it’s everyday business for our people having to deal with this. I have seen people crying, losing their way of living, their infrastructure they have homes, schools in a lot of islands” Mal Pub 5*. He continued to explain that the Maldives was using a great deal of money to respond to respond to the infrastructure problems, but they could not do this long term, as *“no-one understands what is going on. We will go into more poverty, there is nothing; we are not going to improve” Mal Pub 5*.

In many ways the respondents were quite reserved in pointing a finger of blame at the West, probably in case there were repercussions and tourists stopped coming for holidays. As these quotes illustrate *“they should come and enjoy the country” Mal Priv 2* and, *“we*

*can't tell people not to fly to long haul destinations but we do not want people to stop flying to our destination we have to find other ways of offsetting what, the fuel that we burn because aircraft obviously heavy users of fuel” Mal Pri 8.*

The respondents did have views on the role and responsibilities of developed and developing countries, but seemed quite uncomfortable overall in voicing them. There was one very vocal spokesperson, but he was used to expressing these views at international conferences. Overall, they were aware that the carbon footprint of local people was very low and they did not want to criticise the tourists’ carbon footprint in case they stopped travelling to the islands.

### **5.2.9 Theme 6 Adaptation initiatives**

There were more adaptation initiatives discussed and observed during the fieldwork in the Maldives in comparison to the other case studies. These have been drawn together into eight key areas, which are examined below.

#### **Wall around Malé**

In 1991 the capital island of Malé was very severely flooded. The Japanese government provided international aid and built a sea wall all the way around the Malé at a cost estimated to be USD 13 million per kilometre (Japanese Aid, 2001). As the Figures 5.2.8 to 10 show it does impinge upon the aesthetics of the island, but it provides much needed security against the sea for the local residents.

Figure 5.2.8 View of wall at Malé from Malé International Airport



Source: Researcher

Figure 5.2.9 Malé sea wall



Source: Researcher

Figure 5.2.10 Malé inner harbour



Source: Researcher

### **Over water lodges built at a higher level**

The respondents reported that the height of over water sea lodges is being increased over time. Whilst this is not written into government regulations, both private and public sector respondents provided examples of where this was happening. *“Maamingili island with some over water lodges when they are building the rooms they’ve increased the height” Mal Pub 7*. One resort manager expressed concern that the lodges were now too high and tourists had complained that they were not able to sit and dip their toes in the water, but also recognised, they needed to be at this height to deal with the tidal surges that they experienced. Figure 5.2.11 below shows the height of seating areas.

Figure 5.2.11 Seating area on high stilts, Paradise Resort



Source: Researcher

### **Coral no longer used in construction**

One of the respondents worked with the construction industry and went into a great deal of detail about the construction process and how it was changing. Twenty years ago coral was one of the main construction materials used, but now the developers not only imported other construction materials, but also went to great lengths to protect the reefs. An illustration was that at a recent development the location of some over water lodges meant that the coral reef would be damaged by foundation footings, *“I wouldn’t do that. I said, no this is not possible. They moved a cluster of rooms from about half a kilometre because we advised them” Mal Pri 7.* Local people were also being discouraged from using coral for construction. Figure 5.2.12 below shows how the board walk is created across the coral reef and the supporting structure has been carefully positioned to minimise damage.

Figure 5.2.12 Boardwalk structure over coral reef



Source: Researcher

### **Use of mangroves**

One respondent was keen to share a problem that had arisen on one of the resorts that had removed the natural trees that formed around the island, as they obscured sea views for the tourist. The consequence was that the beach became polluted with sea grass, *“they couldn’t get rid of it and the resort opens with many unhappy visitors” Mal Pri 7.* Apparently, it took the resort three years to resolve the problems; the solution was to reinstate the mangrove. Other islands have learnt from this costly experience and they now work with the existing island features.

### **Pumping of sand to reinstate beaches**

As previously, mentioned beach erosion is a major problem for many resorts. All the resorts the Researcher visited had to pump sand back on to the shore line from the sea, due to erosion. The frequency varied, but some were pumping sand on a daily basis, others a few times a month. Sand bags were used to try to ameliorate the problem, but the sand bags were rather unsightly on idyllic tropical islands. Figure 5.2.14 should have been elevated above the sand as in Figure 5.2.13, but due to the sand movement, was now at surface level.

Figure 5.2.13 Sand bags on beach



Source: Researcher

Figure 5.2.14 Boardwalk



Source: Researcher

### **Manmade coral garden**

After the 2004 tsunami, when so many of the coral reefs had been damaged, a number of research projects explored stimulating coral growth with the use of electro pulses. This proved successful and a number of coral gardens are being developed using this method, as the Researcher observed in Figure 5.2.15. As identified in Theme 4, there has been more coral bleaching recently. The respondents were keen to highlight this project as they felt it might go some way to getting the corals back to a standard that the tourists would want to explore, they were very focused on satisfaction of the tourist and not the broader environmental issues associated with coral decline.

Figure 5.2.15 Artificial coral garden



Source: Researcher

Respondents were keen to encourage education of tourist and locals as a means of adaptation.

### **Locals**

The local people who worked in tourist resorts were increasingly educated in energy management and environmental issues, this was seen as a perk of the job. *“I would really say that because of tourism, the awareness actually increased in the country because many of the tour operators and the operations in the resorts, they actually focus on this environment aspects” Mal Pub3.* This was reinforced by the private sector as well, *“they educate the staff about the importance of the energy, climate change, all these things” Mal Priv 6.* Figure 5.2.16 shows members of staff who worked at the Banyan Tree resort; they worked at the Diving Centre, but also were involved in a Stingray project.

Figure 5.2.16 Feeding Stingrays



Source: Researcher

## Tourists

The resorts also play a very important role in raising awareness of environmental issues. When the tourists arrive on an island they have a briefing session that informs them about what they can do and what they should not do. As a result, *“before they actually start their stay in the island they know that we are very concerned with the environment” Mal Pub 3. One resort manger stated. “We always tell them not to break corals, not to trample on corals and they are not to pick shells and things like that, and if they do, we fine them heavily. We fine them \$500 if we see them breaking coral; we have not had to do that, that is the fine that we impose on them. Mal Pri 9.* These statements tend to refer to general environmental issues, while the Banyan Tree resort also gave guests the opportunity to attend climate change lectures, see Insight 5 below. Tourists from Europe were keen to attend talks in the education series, but a couple of resort managers noted that *“the Chinese and Korean market were not as interested, so we need to tap into that market” Mal Priv 10.* Each day at the Banyan Tree resort a couple of the staff fed the sting rays, which was used as a means to discuss marine diversity and the health of the coral reef see Figure 5.2.17. The Banyan Tree was particularly keen on encouraging the education of the tourists, but this was the exception not the rule, as other resorts that the Researcher visited did not have similar education initiatives.

Figure 5.2.17 Stingray feeding



Source: Researcher



### **Insight 5: Banyan Tree Resort**

The Researcher spent some time on one of the Banyan Tree resort<sup>34</sup> in the Maldives and found that the Directors were very environmentally aware and keen for this to be reflected in their guests' visit. These were two of the initiatives:

#### **The Green Imperative Fund, GIF**

Every guest who stayed at the Banyan Tree was given the option of paying two dollars a day to the Green Fund. As the room cost was around a thousand dollars per night and normally people stay for about a week or ten days, the amount requested was minimal. Approximately ninety nine percent of people donate to the Green Fund and the company contributes nine dollars for every dollar donated. The money is used to help fund community projects in the field of health, education and the environment. The resort was responsible for suggesting suitable local projects every three months, which have included building a school, conservation of reefs, conservation of turtles etc.

#### **Lecture series for tourists**

The Banyan Tree has a lecture twice a week for the guests. The environmental manager gives a presentation about climate change and the environment, including projects involved in the protection of the environment that were being undertaken by the team on the resort. Sixty to seventy percent of visitors come to the lectures.

*Based on information by Mal Pri 10*

One respondent who worked for the Maldives Tourism Board stated they were very focused upon the *"little things that we can do to adapt to the climate change because we cannot change the climate change we are too small"* Mal Pub 4. However, this appeared to be placing the responsibility upon the private sector, rather than co-ordinating adaptation measure through the public sector.

Within this theme, the respondents were able to identify quite a number of adaptations that were occurring because of changes to the climate. The adaptations could be split into those that were that were reactive, such as the wall around Malé and those that were more proactive such as education of tourists and residents. The public sector appeared to be

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<sup>34</sup> There are currently sixteen Banyan Tree Resorts throughout the world, predominantly, in Asia. Two of these, Madivaru and Vabbinfaru are in the Maldives.

involved in initiatives that were more reactive, whilst the private sector included proactive initiatives such as the pumping of the sand but were also involved a proactive initiatives such as the lecture series.

### 5.2.10 Theme 7 Mitigation initiatives

The respondents were asked to elaborate on any mitigation actions that they were involved in, although there were relatively few and tended to focus on long haul flights and cost saving initiatives. Figure 5.2.18 shows the vulnerability of the Maldives to climate change, due to the low elevation of the islands. Over eighty percent of the land area is less than 1 metre above the mean sea level (UNEP, 2005), so it only takes a relatively small change in sea levels to compromise these islands. According to recent studies accounting for observations of rapid ice sheet melt (Greenland and Antarctic) have led to greater and more accurate estimates of sea level rises than in the IPCC AR4 projections. There is an approaching consensus that sea level rise by the end of the 21st Century will be between 1-2m above present levels (Simpson *et al*, 2009:p10) . This means that by the end of the century more than 80 percent of the Maldives could be submerged.

Figure 5.2.18 An atoll



Source: Assiz Ahmed

#### Dependence on long haul flights

Due to the location of the Maldives and that the most important generating markets are in Europe (section 5.2.2), the Maldives is reliant upon long haul flights. This was acknowledged by one of the public sector respondents, *“long haul flight is a problem, although they contribute less to the environment than other transport modes. I am very sure that if tourists stop coming to Maldives it will be a problem for us, we cannot survive,*

*so we definitely need them to come” Mal Pub 6.* This problem was universally recognised, but there were few solutions offered, Mal Pub 3, suggested that they should *“focus more on the nearby destination because many of the long haul flights people are questioning about this”.*

### **Tourist guilt**

The issue of tourist feeling guilty was not mentioned by any of the private sector organisations. The head of Tourism Development did comment *“We do not want tourists to risk feeling guilty to come to Maldives, the little, little impact that tourist may have on environment by travel into Maldives that would be offset by the things that people in the Maldives can do when they are well off.” Mal Pub 4.* However, there did not seem to be many initiatives in the community to encourage carbon reduction.

### **Third generation planes**

One response from the public sector was to address the concern about long haul flights. The Researcher was informed that the aircraft currently in use to transport tourists to the Maldives are of the latest generation, so more fuel-efficient. *“Fortunately for us all the regulatory carriers who come here also have a very young fleet like for example, Singapore Airlines who are an extremely young fleet” Mal Pub 1.* There was recognition that tourists might be interested in their carbon footprints when flying to the destination, but *“we don’t necessarily correlate that information and provide it” Mal Pub 2.* They had, however, just requested that the airlines provide the government with the information.

### **Little evidence of alternative energy**

A number of private sector respondents mentioned the use of renewable energy. There was recognition that this was a longer term solution, as this respondent observes, *“We are thinking more of adapting, thinking about adoption of alternative energy for example. There are two basic issues facing us at the moment, one is a heavy dependence on fossil fuels of which we have very little control at the moment but we think clean energy would be cheaper in the long run and also better for us” Mal Pri 8.* Seven of the respondents discussed the increasing cost of diesel and concerns over peak oil they were anxious about price volatility and the security of supply of fossil fuels. In reality, very few renewable energy sources were observed during the fieldwork. There was one heat transfer system,

that exchanged cold water from deep in the ocean to operate the air conditioning and most resorts used heat exchange solar panels. One liveboards operator stated that *“we have solar panels on the wall, so when the liner is idling we use solar panels on the boat, then we can manage” Mal Pri 4*. There appeared to be pockets of good practice, but not as widespread as one might expect.

### **Fuel efficiency and cost saving**

The private sector was keen to discuss energy and cost reduction, as *“what is happening is because of that the costs have increased exponentially, they have to charge the guests more” Mal Pub 3.*, This was reflected in the private sector too, *“fuel prices are going up, our company has reduced using the electricity in the night” Mal Pri 1*. Some of the resort managers outlined the methods used to try to encourage guests to be more fuel conscious. One resort used key gadgets that stopped the electricity when the door was locked. However, he had not found it very effective *“people are on the beach all the time, they don’t want to lock their room and carry the key with them, so what do they do? What they do is just put the key into the slot and runaway” Mal Priv 9*. Another resort used an information booklet to ask them to be energy aware; exchange towels only when necessary and reduce their water usage etc. As *Mal Pri 10 reported*, *“we use the sea water and then we use reverse osmosis to separate the salt and water, we then send the salt back into the ocean and use the water”* which was clearly an energy intense process.

Only one resort was able to affirm that they produced a carbon audit *“every three months there is a questionnaire that we have to fill in and send it to head office and they will give marks”*, *Mal Pri 10*. The results were shared with the staff at the resort and each quarter they tried to improve on the previous quarter. This information was not shared with the tourists.

The Maldives are dependent upon long haul flights and they are very vulnerable to the effects of climate change. Although there was an awareness of mitigation actions in the Maldives, the initiatives outlined in this section were projects that were already being pursued mostly due to the expense of fuel and security of supply and not to try to mitigate greenhouse gases. Given, the severity of the situation to the Maldives, it was surprising

that were initiatives were not being undertaken. The private sector appeared far more involved in mitigation within the Maldives than the public sector.

### **5.2.11 Theme 8 Consideration of climate change in decision-making**

The respondents had quite different responses to this area of questioning, with the public sector stating that climate change was always part of their decision-making, whilst the private sector gave it little thought.

#### **Private sector**

This area of questioning seemed to surprise the private sector respondents and cause them to be quite reflective, but be very honest in their responses: *“Even though I know there is a problem, I don’t usual think about this problem I am more concerned about running a little bit of buck for myself and my family” Mal Pri 1.* Another indicated his feeling of helplessness, *“to be very frank, we are taking it very casually, there is nothing serious that we can do about climate change” Mal Pri 9.* Even the resorts that had produced good environmental practice did not routinely consider it *“I don’t think of climate change, it still hasn’t hit me, but coral bleaching, mass bleaching of corals has hit me very hard”.* Mal Pri 10.

#### **Public sector**

One private sector response was particularly damning of the public sector *“I don’t think it is a factor in any decision-making for government, other than a lot of noise to be honest” Mal Pri 7.* In contrast, the public sector stated that it was always in their decision-making *“Everyday because tourism is developing so quickly, everyday there are developments happening. So the government is making decisions continuously on that one, on a daily basis” Mal Pub 4.*

The responses provided a complete contrast in this area. The private sector indicated that climate change was not always at the forefront, whilst the public sector suggest that it was. There was no indication of climate change programmes being initiated by the public sector during the fieldwork, which would seem to suggest that the issue was not strongly embedded in the decision-making process as the public sector would like to suggest; this is an area for more discussion in the next chapter.

## 5.2.12 Theme 9 Perceptions of stakeholder groups

As in the previous case, towards the end of the interviews the respondents were asked to provide a numerical score to a few short questions. Firstly, how optimistic or pessimistic they were about the future of tourism in the Maldives in 50 to 100 years time. The results are shown in Table 5.2.17.

Table 5.2.17 Optimism of the future of tourism in the Maldives

Optimistic	1	2	3	4	5	Pessimistic
Private sector	4	3	1	1	1	Private sector
Public sector	2		3	1		Public sector
	6	3	4	2	1	

Source: Researcher

Although no definitive answer was obtained, the answers were insightful.

### Optimistic

Those who were optimistic stated that the reasons for this were that *“it is good now that there are things that we can do to make a difference Mal Pri 8. Mal Pub 6* also suggested that Maldivian people are very adaptable and that the country would be very different in the future *“it may not be like this there may be only rooms or bungalows seen here without land”*. There was a certain amount of confidence because some of *“The world’s biggest hotel chains like Ritz Carlton, and Conrad, they’re investing millions of millions of dollars in making Maldives a happening place, so I don’t think that these people will come just for fifty years” Mal Pri 3*. The Director of Tourism in the public sector was *“optimistic that it will be the economic activity, it will bring a good living to the people, so society would prosper. If you look at the technology development maybe wonders can happen even now we have got underwater restaurant, maybe we after fifty years maybe there will be few underwater hotels”*. Mal Pub 4.

### Pessimistic

There were a number of respondents who were concerned about the future, mainly due to the pace of development. This is seen in the following statements: *“At the rate that we are going, I think it is going to be a disaster because as I said, we are growing too fast.*

*Carrying capacity is now too much”. Mal Pri 9. Moreover, “in fifty years time I think at the rate that we are going, we are going to go down, we have reached maximum capacity The Maldives, the beauty would be gone” Mal Pri 10.*

The results illustrate that the overwhelming majority of the respondents are optimistic about tourism in the Maldives in 50 to 100 years. Those expressing reservations tend to be concerned about the pace of development and whether carrying capacity is being exceeded. Secondly, respondents were asked to provide an assessment of the vulnerability of the Maldives to climate change, the results are presented in Table 5.2.18.

Table 5.2.18 Vulnerability of the Maldives to climate change.

Not Vulnerable	1	2	3	4	5	Very Vulnerable
Private sector			2	2	6	Private sector
Public sector			1	3	2	Public sector
			3	5	8	

Source: Researcher

All the responses to this question were grouped into the ‘quite vulnerable’ to ‘very vulnerable’ range. The respondents were very aware that *“Maldives is very vulnerable because due to the nature of the islands we are low lying islands” Mal Pri 9.* One public respondent went further and suggested, *“We are the most vulnerable country on the face of the globe, there is no question about that” Mal Pub 5.* His colleague observed, *“we are not a victim at the moment but we have the potential to be a victim”, Mal Pub 4.*

One respondent thought that the Maldives was very vulnerable and should be used as *“an example of to others, the Americans, to the Europeans, to China for what they are doing, as anything could happen here.” Mal Pri 7.* There was also concern that local people were not as aware of the potential problems as *“people don’t know much about it and I think the authorities should do things to educate the people about the climate change and all these things” Mal Pri 6.*

Unsurprisingly, the respondents considered the islands vulnerable but did not want to be perceived as victims. However, they did want the rest of the world to consider the

consequences of climate change to the Maldives and reduce their carbon footprints. Thirdly, respondents were asked to assess the ability to adapt to climate change and these results are shown in Table 5.2.19 and 5.2.20.

Table 5.2.19 How adaptable is the public sector?

Not adaptable	1	2	3	4	5	Very adaptable
Private sector		8	2			Private sector
Public sector			5	1		Public sector
		8	7	1		

Source: Researcher

Table 5.2.20 How adaptable is the private sector?

Not adaptable	1	2	3	4	5	Very adaptable
Private sector		2	2	4	2	Private sector
Public sector			1	5		Public sector
		2	3	9	2	

Source: Researcher

### Public sector perceptions

One respondent thought, *“we have not really crossed that threshold where we know exactly what we ought to be doing. But at the same time the consciousness is significant enough for us to understand the problem.” Mal Pub 2.*

There was a suggestion that *“we need to really look at is, is the government pushing or asking the private sector or the new resorts to actually implement a greener agenda” Mal Pub 3.* This gave the impression that they wanted to encourage more environmental actions, but did not want to have to enforce them. This was supported by another public sector respondent stating, *“we [public sector] have been the champion of the adaptation programme but not of the implementation. Why? We do not have the capacity; we do not have the resources, so that is what we are calling up for the international community. Come and do the work”, Mal Pub 5.*

### Private sector perceptions

The results indicate that the private sector is considered more adaptable to climate change than is the public sector. Private sector respondents were quite outspoken, the belief was *“it is the private sector that is leading the industry”, Mal Pri 9.* The key reasons for this



were that they were customer focused and we *“understand the product“ Mal Pri 2*. As the resorts are already having to respond to changes from global warming *“we have to respond to it, it’s happening now” Mal Pri 10*. They were also protecting their asset, *“It’s more in the rupees and cents at the end of the day for us. Mal Pri 1*. The private sector respondents were also concerned that due to the geographic spread of the population there were still many locals who were unaware of climate change and the public sector should be addressing this *“they should spend some money to educate them about the climate change” Mal Pri 6*.

### **5.2.13 Maldives summary**

Tourism is the mainstay of the economy in the Maldives. There are no viable alternatives for diversification and it can be seen from the economic consequences of the tsunami that global shocks can have a significant repercussion for the Maldives economy. This is a particularly pressing issue since as identified in section 5.2.2, the government is dependent on the revenue generated through tourism. Climate change is an external shock that the Maldivian Government cannot control, similar to the tsunami and SARS. It is extremely vulnerable to the impacts of climate change and already some changes are being observed.

The public sector was keen that the plight of the Maldives was placed in the global arena. This was very apparent from the interviews at Ministerial level within the Government; they were zealous in the message that the ‘international community’ must help the Maldives. However, the government has very few regulations to protect the environment and are undoubtedly pursuing a strategy of rapid tourism development, as outlined in Figure 5.2.10.

There were many adaptations to the climatic changes that were reported and observed partly because resorts and government had limited options, they had to introduce reactive adaptations such as pumping the sand back to create beaches to maintain the status quo. There were also some small mitigation projects, but all of these were initiated by the private sector. The public sector did not appear to be very pro-active in driving these initiatives; most were implemented at a local level within the resorts and were probably triggered by cost reduction.

Whilst the public sector claimed that climate change was always part of their decision-making, this was not reflected in the initiatives observed. Tensions were detected about the role and responsibilities of the public and private sector respondents, as the government received generous income from tourism, but was not seen as being adaptable or providing particularly effective co-ordination of the sector.

### **Issues to carry forward**

There are a number of anomalies within the case of the Maldives, as it is extremely vulnerable to climate change and there is evidence of them having to make adaptations, but the onus is being placed at the feet of the private sector to take responsible action to combat the impacts of climate change. The public sector are focussed on raising awareness within the international community. A tentative explanation could be that there is limited government intervention to allow the private sector to ‘make hay whilst the sun shines’, but this would seem to contradict the messages given to the global audience, this will be examined in more detail in the next chapter.

## 5.3 THE SEYCHELLES

### 5.3.1 Tourism context

The Seychelles is a series of archipelagos in the Indian Ocean, north east of Madagascar, 4 35 S, 55 40 E as Map 5.5 illustrates. Table 5.3 provides key facts about the Seychelles.

Map 5.5: Seychelles



Source: greece-Map.net

Table 5.3. Key facts

Capital:	Victoria
Population:	88,340 (July 2010 est.)
Climate:	tropical marine; humid; cooler season during south east monsoon (late May to September); warmer season during north west monsoon (March to May)
Total area:	455 square kilometres
Coastline:	491 km
Extreme elevations:	lowest point: Indian Ocean 0 m; highest point: Morne Seychellois 905 m
Religion:	Roman Catholic 82.3 percent, Anglican 6.4 percent, Seventh Day Adventist 1.1 percent, other Christian 3.4 percent, Hindu 2.1 percent, Muslim 1.1 percent, other non-Christian 1.5 percent, unspecified 1.5 percent, none 0.6 percent (2002 census).
Language:	Creole 91.8 percent, English 4.9 percent (official), other 3.1 percent, unspecified 0.2 percent (2002 census).

Source: CIA 2010

### **Political context**

A lengthy struggle between France and Great Britain for the islands ended in 1814, when they came under British rule. Independence was achieved in 1976 and the next two decades were dominated by a rather laissez faire Socialist coalition government between the Seychelles Democratic Party (SDP) led by James Mancham and Albert Rene's Seychelles People's United Party (SPUP). James Mancham decided that the best way to achieve economic growth was through tourism and he travelled around the world promoting the islands to the rich and famous. Whilst wealth was flowing into the islands the SPUP felt it was not being evenly distributed, so in 1977 Albert Rene led a bloodless coup (African History, 2010). There were numerous attempts at holding power during the 1970s, but there was no effective government and the Seychelles began to face growing international criticism and the threat of withdrawal of foreign aid. This was brought to a close with a new constitution and free elections in 1993. President Albert Rene, who had served since 1977, was re-elected in 2001 but stepped down in 2004. Vice-President James Michael took over the Presidency and in July 2006 was elected to a new five-year term. Whilst there is now a stable government, the economy is in turmoil and the International Monetary Fund are actively involved in the planning and budgeting process (CIA, 2010).

### **The tourism product**

The key 'pull' factors for the Seychelles are based around the natural environment with 115 granite coral islands. The 41 Inner Islands constitute the oldest mid-oceanic granite islands on earth, while a further 74 form the 5 groups of low-lying coral atolls and reef islets that are the Outer Islands (Geography of Seychelles, 2010). There is a diverse and unique eco-system including many endangered and endemic species of flora and fauna, which provides a beguiling tropical destination for tourists and is reflected in the listing of two UNESCO World Heritage Sites. These aspects of the tourism product are expanded upon below.

### **The natural environment**

The Seychelles is a haven for wildlife, in particular birds and tropical fish. Due to the islands' relative isolation (1600km off the east coast of Africa) and the comparatively late

arrival of humans, many of the species are endemic to the Seychelles. The central islands (including Mahé, Praslin, and La Digue) are granite and the outlying islands are coral atolls. The granite islands are frequently used as the promotional image for Seychelles tourism as they provide pristine golden sandy beaches, typified by Figure 5.3.1.

Figure 5.3.1 A granite island scene typical of the Inner Islands



Source: Researcher

### **Wildlife**

There are many reasons for wildlife enthusiasts to be attracted to the Seychelles including common mammals such as fruit bats, geckos and small snakes. Almost every island seems to have some rare species of bird, such as the magpie robin and the black parrot, so ornithologists are a key target market. There are over 3000 species of insects, which include giant millipedes and palm spiders. One of the features of the national flag is the giant tortoise (see Figure 5.3.2) and these are found all around the islands. There are over 80 endemic plants species including the cocoa de mer palm and this is the reason for one of the World Heritage Site designations. There are areas of virgin rainforest where pitcher plants are found, and all the islands have many species of orchid, hibiscus and frangipani adding to the attraction. In addition to the land species there are many interesting tropical fish, coral reefs and other marine species that attract divers from around the world (Nature Seychelles, 2010).

Figure 5.3.2 Giant tortoise



Source: Researcher

### 5.3.2 Key tourism indicators

Table 5.3.1 below shows an overall steady growth trend in tourist arrivals. The first official recording of tourist arrivals was in 1982, of 47,280. There is an inbuilt maximum carrying capacity of 200,000 tourists per annum which is set out in the tourism strategy (Vision 21, 2000).

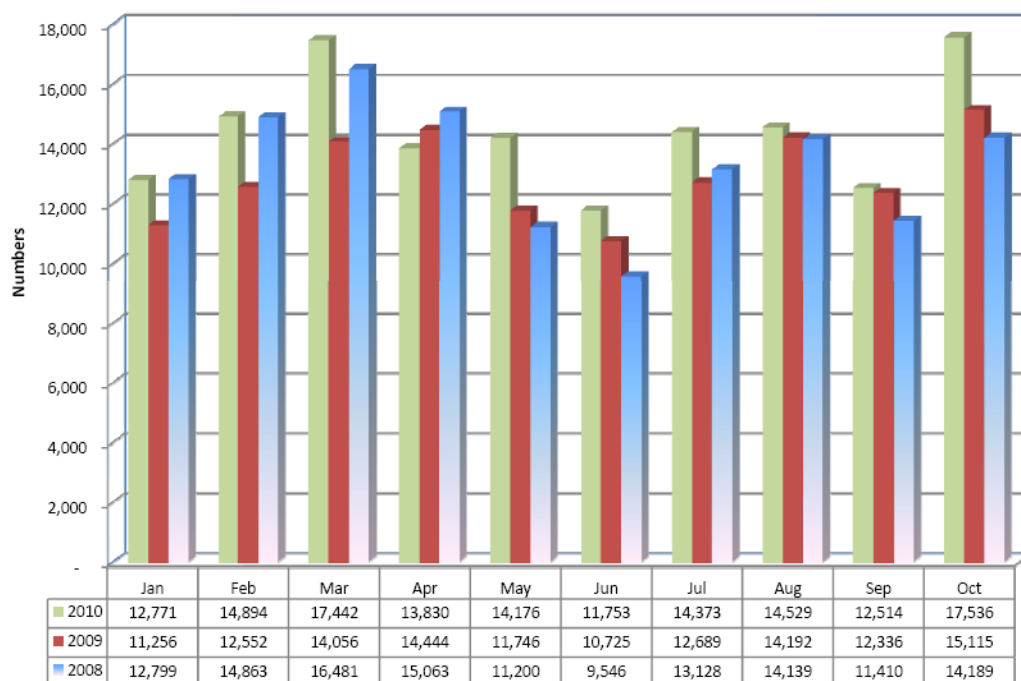
Table 5.3.1 Inbound tourist arrivals

	Units	2003	2004	2005	2006	2007
Visitors	('000)	127	126	135	151	171
Tourists (overnight)	('000)	122	121	129	141	161
Same-day visitors	('000)	---	---	---	---	---
Cruise Passengers	('000)	5	5	6	10	10

Source: UNWTO, 2009

As the number of tourists increases there is a growing level of discussion as to whether this limit should be increased or not. One growth area is the expansion of cruise ship tourism, which the Seychelles Tourism Board (STB) state 'will be pursued on a selective basis, permitting cruise ships with higher spending passengers, but not permitting cruise stops to the extent that they generate excessive pedestrian congestion' (Vision 21, 2000). Figure 5.3.3, shows the latest arrival data available, with 2010 showing continued growth despite the global economic crisis.

Figure 5.3.3 Visitors arrivals to the Seychelles, Jan to October 2008 -10



Source: Visitor Statistics October 2010

### The generating regions – the major markets

The tourism sector in the Seychelles is heavily dependent upon the European market, which accounts for almost 80 percent of tourist arrivals. The major generating countries within Europe are France, the United Kingdom, Italy, Germany, Switzerland and the Scandinavian countries.

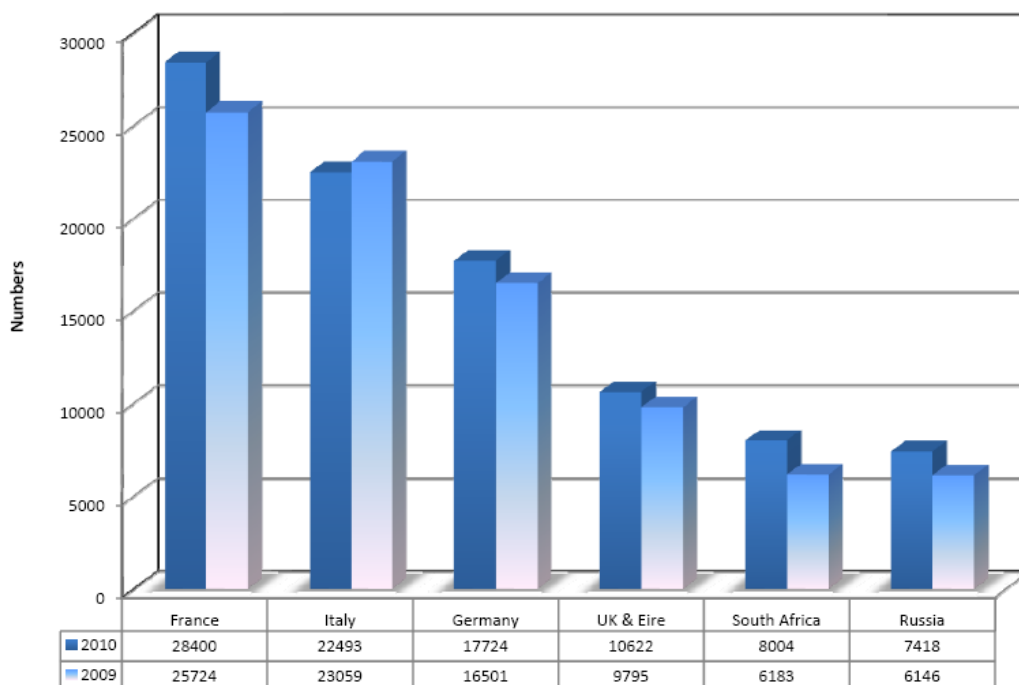
Table 5.3.2 Arrivals by region

	Units	2003	2004	2005	2006	2007
<b>Africa</b>	(‘000)	14	13	12	13	17
<b>Americas</b>	(‘000)	3	4	4	3	4
<b>Europe</b>	(‘000)	100	99	104	114	130
<b>East Asia and the Pacific</b>	(‘000)	2	2	3	3	4
<b>South Asia</b>	(‘000)	1	1	2	2	2
<b>Middle East</b>	(‘000)	2	2	4	5	5

Source: UNWTO, 2009

There is a steady increase in tourists going to the Seychelles from the former Eastern Bloc countries and this market is becoming increasingly important as Table 5.3.2 and Figure 5.3.4 indicate. Within Africa, most of the tourists come from South Africa, Reunion and Mauritius.

Figure 5.3.4 The Seychelles leading markets 2009 versus 2010



Source: Visitor Statistics October 2010

### Transit route

The overwhelming majority of tourists reach the Seychelles by air, as it can be seen in Table 5.3.3 so ensuring good relationships with international airlines is essential for the growth of the tourism market.

Table 5.3.3 Arrivals by means of transport used

	Units	2003	2004	2005	2006	2007
<b>Air</b>	(‘000)	119	117	125	137	159
<b>Rail</b>	(‘000)	---	---	---	---	---
<b>Road</b>	(‘000)	---	---	---	---	---
<b>Sea</b>	(‘000)	3	4	4	4	2

Source: UNWTO, 2009

There is one international airport, Seychelles International Airport, based at Mahé. There are 13 domestic air services within the Seychelles, which enable tourists to island hop quickly. There is also a well-developed pedestrian ferry service that provides good links between the main islands and tourists can charter private ferries. As the islands are so small most tourists do not hire cars for prolonged periods, instead they tend to hire and tour for a day. This means that buses are regularly used by both tourists and locals to



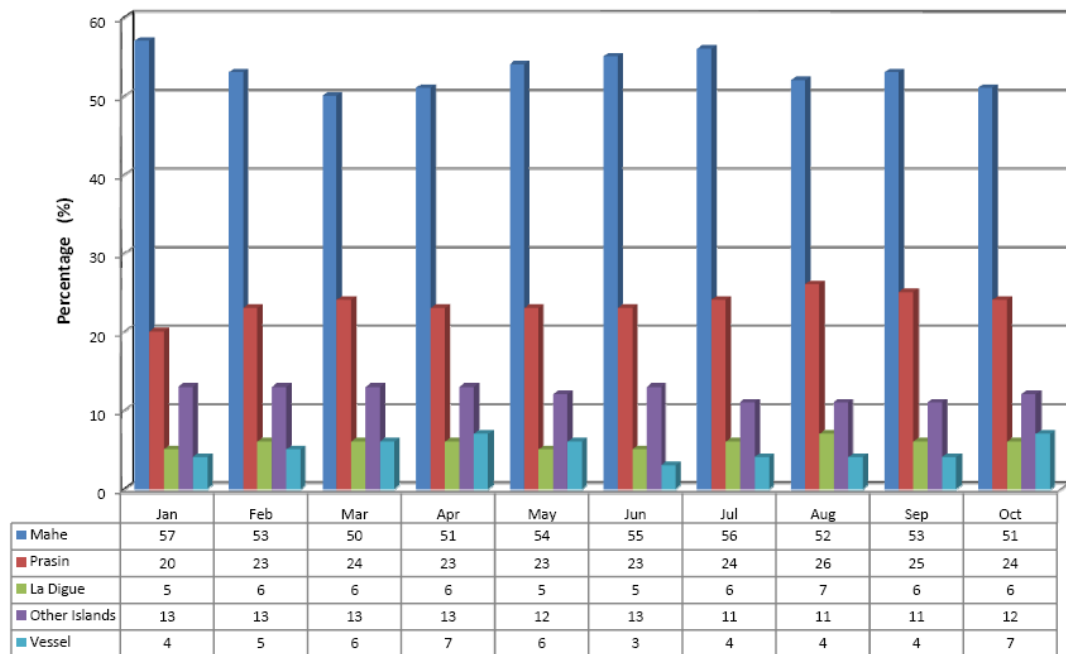
transport them around the islands. The frequency and information about the bus service is good, although much of the stock is rather antiquated, maybe not living up to the high quality image that the destination pursues.

Car hire is covered by the Investment Promotion Act (1994), which encourages domestic investment in the tourism sector and prohibits non-Seychellois from entering the market. It also restricts the number of hire vehicles that an investor can own to 30. This policy seems to be successful with many small operators entering the market and very little economic leakage.

### The typical route that tourists take within the Seychelles

The typical tourist route within the Seychelles takes the tourist to three main islands, Mahé; Praslin and La Digue (as can be seen in Figure 5.3.5) and allows them to visit some Marine Parks, National Parks and World Heritage Sites. An increasing number of tourists stay on yachts or private boats.

Figure 5.3.5 Visitors stay by location



Source: Visitor Statistics October 2010

As international tourists arrive on Mahé the first few days are normally taken up by exploring the capital Victoria. Time is usually spent in the Beau Vallon area on the beaches and taking a trip to Sainte Anne Marine National Park and popular diving sites.

The next stage of the route is to sail over to Praslin and spend some time on this island. There are more dive and snorkelling sites here but also the Vallee de Mai World Heritage Site. Tourists will often undertake day trips to Curieuse Island to observe the sea birds and Cousin Islands to see the giant tortoises.

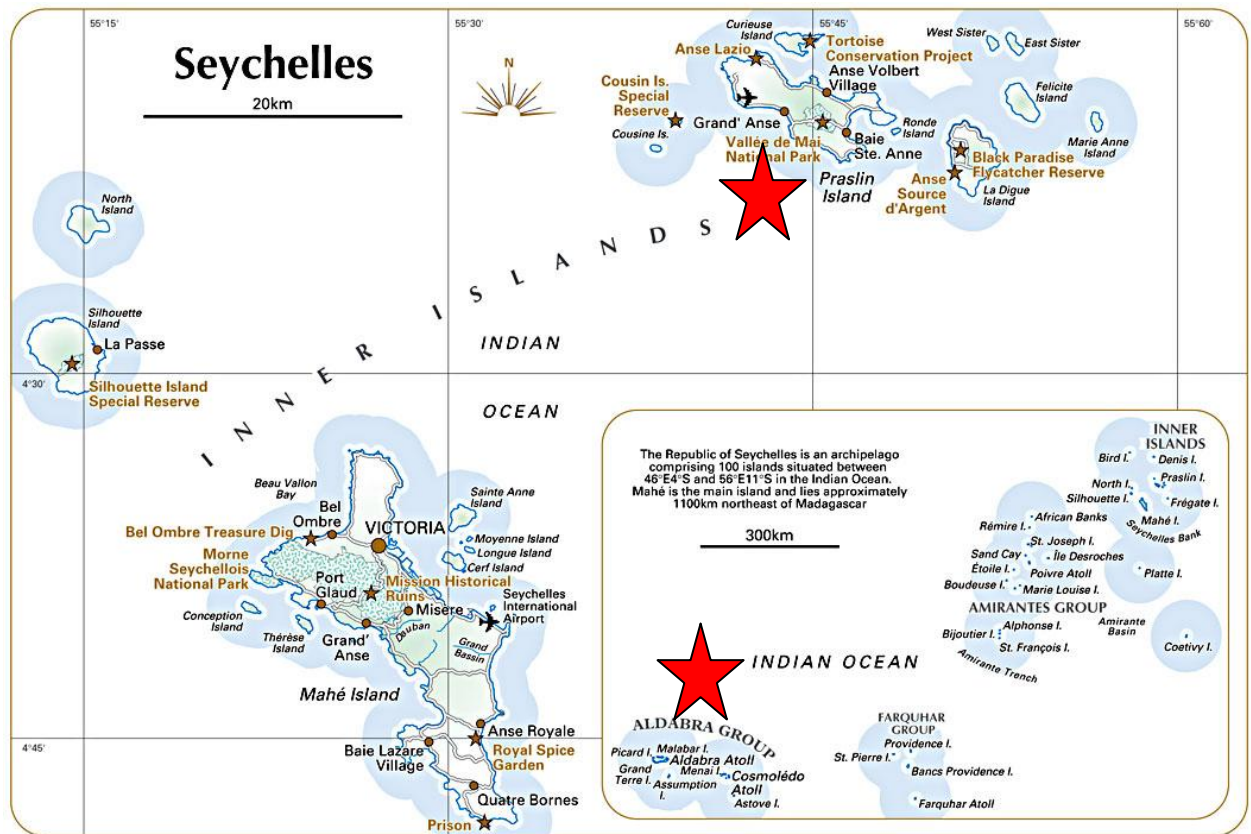
From Praslin most tourists head for La Digue, which has a very different feel, like going back fifty years, an archetypical paradise island. There are few cars and it contains Anse Source d'Argent, the beach with dramatic granite rocks that appears in most promotional material about the Seychelles (Figure 5.3.1). Finally, tourists return to Mahé to start the journey home.

### World Heritage Sites

There are two properties inscribed on the World Heritage list, both for Natural reasons.

- Aldabra Atoll (1982) Criteria: (vii)(ix)(x) (see footnote 2)
- Vallée de Mai Nature Reserve (1983) Criteria: (vii)(viii)(ix)(x)

Map 5.6 Properties inscribed on the World Heritage List (shown by red star).



Source: Wildlife Adventures, 2010

Aldabra Atoll (Figure 5.3.6) lies 1000km from Mahé and is actually closer to Madagascar. The site consists of four raised coral atolls, which are rich in wildlife, such as giant tortoise, green and hawksbill tortoise, flamingos, frigate birds etc.

Figure 5.3.6 Aldabra Atoll



Source: Seychelles Island Foundation

The reserve is managed by the Seychelles Island Foundation and has been extremely well protected as visitors are only allowed by written permission. During an interview with the Director of Seychelles Island Foundation, it became apparent that access had mostly been restricted to scientists and a few specialist tourists. There are some ideas for very limited ecotourism development, but this is still under discussion.

Vallee de Mai, as previously mentioned, is on Praslin and houses the cocoa de mer palm (see Figure 5.3.7), which is only one of two places in the world where the plant grows naturally. There are a number of tourist routes through the forest and written interpretation is used to inform visitors. There is also a small entrance fee that the Seychelles Island Foundation uses to pursue its conservation objectives. Between 41 percent and 48 percent of visitors to the Seychelles will visit Vallee de Mahé (UNEP, 2010).

Figure 5.3.7 Cocoa de mer at Vallee de Mai



Source: Researcher

In addition to the two WHS there are currently seven National Parks (Table 5.3.4 and Map 5.6), designated by government to help protect and enhance the natural environment of the Seychelles. There is a good record of designating protected areas and 45 percent of the total land mass is within a protected area (UNEP, 2010).

Table 5.3.4 Seychelles National Parks

Park	Feature	Activities
<b>Aldabra Marine reserve</b>	Raised coral atoll, tidal lagoon, birdlife, marine turtles, giant tortoises	Diving, snorkelling, scientific study
<b>Aride Island Marine Nature Reserve</b>	Granite island, coral reef, seabirds, fish life, marine turtles	Bird watching, snorkelling
<b>Cousin Island Special Reserve</b>	Granite island, natural vegetation, hawksbill turtles, seabirds, lizards	Bird watching,
<b>Curieuse Marine National Park</b>	Granite island, coral reef, coco de mer palms, giant tortoises, mangrove, swamps, marine turtles, fish life	Diving, snorkelling, walking
<b>Morne Seychellois National Park</b>	Forested peaks, mangroves, glacia habitats	Hiking, botany, bird watching
<b>Praslin National Park Vallee de Mai</b>	Native forest, coco de mai, other endemic palms, black parrot.	Botany, bird watching, walking
<b>Ste Anne Marine National Park</b>	Forested islands, coral reef, varied marine ecosystems, and marine turtles.	Boat trips, snorkelling diving

Source: Researcher

## The economic importance of tourism to the Seychelles

Tourism is the most important pillar of the Seychelles economy, both through direct and indirect contributions to the domestic economy (GDP) and through inflows of foreign currency (Balance of Payments), including tourism receipts and foreign direct investment. At present, the Seychelles government use a conventional national accounting system that assesses the direct contribution of tourism to the economy (Table 5.3.5).

Table 5.3.5 Seychelles GDP by broad productive sectors for 2008

	<b>GDP percent</b>	<b>Employment percent</b>	<b>Foreign Exchange Earnings percent</b>
<b>Agriculture, Forestry and fishing</b>	15	17	
<b>Tourism</b>	22	30	<b>70</b>

Source: World Bank, 2010,

The problem with Table 5.3.5 is that it only shows the direct contributions and does not take into account any of the value added that is generated from the industry, so the Seychelles is in the process of adopting the Tourism Satellite Accounts (TSA) to provide a more reliable and comprehensive set of indicators that will reflect the true value of tourism to the Seychelles. As at the moment the data in Table 5.3.5 significantly under represents the values of tourism to the economy. Table 5.3.6 is the UNWTO assessment of tourism GDP, which is significantly higher. It has been difficult to find up to date economic data about the Seychelles; the International Monetary Fund<sup>35</sup> is currently assisting the Seychelles and at the current time economic data is either not available or not very transparent.

Table 5.3.6 Related economic indicators

	<b>Units</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
<b>Gross Domestic Product (GDP)</b>	Percent	36	36	37.2	41	<b>50</b>
<b>Exports of goods</b>	Percent	90.2	85.0	76	76	<b>93</b>
<b>Exports of services</b>	<b>Percent</b>	<b>78.2</b>	<b>78</b>	<b>72</b>	<b>7</b>	<b>77</b>

Source: UNWTO, 2009

<sup>35</sup> After years of debt which resulted in the government defaulting on bond repayments, the IMF agreed to provide \$26million standby agreement. By September 2009, the economy was improving (Mintel, 2009)

Interestingly, the UNWTO data for 2007 records that tourism contributes 50 percent of gross domestic product, so it appears that there is a stronger reliance upon tourism for an economic income stream, but also that the true value of both the direct and indirect impacts of tourism are now being monitored through TSAs.

The UNWTO data in Table 5.3.7 shows that tourism receipts in the Seychelles continue to grow and the amount spent on travel is increasing. This may reflect the increase of private jets and yachts. Passenger transport decreased in 2007, perhaps suggesting that tourists are staying at one destination during their stay at the Seychelles rather than touring around the islands, as suggested in the typical tourist route.

Table 5.3.7 Tourism expenditure in the country

	Units	2003	2004	2005	2006	2007
<b>Tourism receipts (money spent in the country)</b>	US\$ Mn	258	256	269	323	<b>366</b>
<b>Travel</b>	US\$ Mn	171	172	192	228	<b>278</b>
<b>Passenger transport</b>	US\$ Mn	87	84	77	95	<b>88</b>

Source: UNWTO, 2009

### The purpose of visits to the Seychelles

The vast majority of trips to Seychelles are for leisure purposes as Table 5.3.8 demonstrates.

Table 5.3.8 Arrivals by purpose of visit

	Units	2003	2004	2005	2006	2007
<b>Leisure, recreation and holidays</b>	('000)	110	108	116	128	<b>147</b>
<b>Business and professional</b>	('000)	6	7	7	7	<b>8</b>
<b>Other</b>	('000)	6	6	6	6	<b>6</b>

Source: UNWTO, 2009

This is collaborated with the latest statistical data, which shows 90 percent of visitors arriving in October 2010 were on holiday, whilst 7 percent were on business or combining business with a holiday (Visitor Statistics, October 2010).

## The types of tourists that visit the Seychelles

Holidays in the Seychelles are very expensive, with the cheapest accommodation being approximately £100 per person per night and the most expensive running into thousands of pounds, so this restricts the types of tourists that are able to go to this exclusive destination. Many competing destinations offer unadorned luxury at a lower price. The distinguishing features of the tourists that go to the Seychelles are that they are looking for a high quality, diverse natural environment. They are not looking for luxurious trimmings, but for a well-protected natural environment that has an abundance of different flora and fauna. These tourists tend to be well educated, with high incomes that enables them to travel to exotic places to pursue their interests. Therefore, a high proportion of these tourists would fall into the allocentric classification (Plog, 1974). However, the increase of cruise tourism will increase the mid-centric to psychocentric tourists, which could be a concern as these tourists often spend less, so have a lower economic value to the destination.

## Accommodation

In Table 5.3.9 it can be seen that the number of overnight stays in all types of accommodation have increased over recent years, but that the average length of stay has been decreasing since 2006, which generally means there is lower economic value. However, looking at the latest data the average length that a tourist stays has increased. 143,818 visitors arrived during the period January to October 2010, which was 11 percent above the 2009 level. The average length of stay of these visitors was 10.5 nights compared to 10.2 nights in 2009, representing a 14 percent increase in the number of visitor nights spent in Seychelles (Visitor Statistics October 2010).

Table 5.3.9 Accommodation

	Units	2003	2004	2005	2006	2007
<b>Overnight stays in hotels and similar establishments</b>	('000)	825	798	809	932	<b>1,095</b>
<b>Guests in hotels and similar establishments</b>	('000)	---	---	104	114	<b>135</b>
<b>Overnight stays in all types of accommodation establishments</b>	('000)	1,233	1,208	1,248	1,378	<b>1,597</b>
<b>Average length of stay of non-resident tourists in all accommodation establishments</b>	Nights	<b>10</b>	<b>10.04</b>	<b>9.9</b>	<b>9.2</b>	<b>9.0</b>

Source: UNWTO, 2009

Table 5.3.10 shows that the hotel stock is slowly increasing, but there is still significant opportunity to maximise the economic value of tourists, as the maximum occupancy rate is only 56 percent. There is some seasonality of tourists that will effect this data, as the peak arrival months are October to May with July to September being the off peak period, the tourism season is clearly linked to the weather patterns

Table 5.3.10 Tourism Industries, Hotels and similar establishments

	Units	2003	2004	2005	2006	2007
<b>Number of rooms</b>	Units	2,440	2,480	2,420	2,530	<b>2,710</b>
<b>Number of bed-places</b>	Units	4,930	5,030	4,920	5,140	<b>5,460</b>
<b>Occupancy rate</b>	Percent	51.00	51.00	44.00	51.00	<b>56.00</b>
<b>Average length of stay</b>	Nights	---	---	---	---	---

Source: UNWTO, 2009

Whilst the Seychelles possess many natural advantages for a tourism destination, the increasingly competitive nature of international tourism makes it essential that they improve the range and quality of tourism accommodation and services to ensure they are able to increase tourist satisfaction and to continue to secure premium prices.

### 5.3.3 Tourism Policy

#### **The structure and organisation of tourism in the Seychelles**

The planning and co-ordination of the tourism industry in the Seychelles is dominated by the public sector. The Seychelles Tourism Board (STB) sits within the Ministry of Tourism and Transport, and these organisations have been both encourager and regulator, which is a difficult role to fulfil. All hospitality establishments undergo rigorous monitoring to gain an annual licence to be able to stay open; this has a broad remit covering health, safety and environmental standards. Within Vision 21<sup>36</sup>, there was a clear understanding that tourism policy developments in the Seychelles should have greater private sector involvement. Central to this approach is the Seychelles Tourism Advisory Board (STAB) of which the membership is mostly private sector and which was established in 1999 to advise on all aspects of the tourism industry (two members of the STAB were interviewed during the fieldwork). Also in 1999, the Seychelles Tourism

<sup>36</sup> Vision 21 is the government strategy and incorporates tourism targets



Marketing Authority (STMA) was established to market and promote tourism to the Seychelles. A high proportion of the population works within the tourism sector, but few senior managers are Seychellois. So the Seychelles Hotel and Tourism Training College was established to emphasise productivity and service quality through apprenticeship, pre-service and in-service training and to increase representation of Seychellois in management roles.

The STB produced Vision 21, Tourism Development in Seychelles 2001 – 2010, which encompasses the basis of the development of tourism within the Seychelles. The Vision was: *Tourism in Seychelles shall continue to be developed to the highest standards for the optimum social and economic benefit of the Seychellois people while maintaining a commitment to the protection and conservation of the natural environment and biodiversity.*

*The central tenants of the Vision are:*

- *Tourism in the Seychelles will be expanded gradually, with facilities, services and infrastructure developed to a higher quality level and more activities provided for tourists.*
- *Tourist markets will be broadened to include more nationalities and both general and special interest tourists, and access will be improved to reach more market areas.*
- *Expenditure per tourist day will be increased and there will be more value-added in the country, which will enhance economic benefits to the Seychelles.*
- *Tourism will be developed on a sustainable basis and not exceed carrying capacities, and the unique land and marine environment and cultural heritage of the Seychelles will continue being protected and conserved.*
- *Seychellois will continue being sensitised to the importance of tourism and providing good service standards to tourists, and given opportunities to work in tourism at all levels (STB, 2000).*

Vision 21 has now been superseded by a central government integrated planning document, ‘Strategy 2017: creating our nation’s wealth together’ (STB, 2000), this incorporates all key economic sectors, of which tourism is one. Whilst the tourism sector

has been integrated into the national plan it still has the same ethos and concentration on sustainable tourism development.

The Seychelles government keeps a very tight rein on tourism development, which is consistent with their adopted limits to carrying capacity and commitment to environmental protection. However, a large amount of the hotel stock is now very dated and does not compare well with other competing destinations and yet tourists pay a premium price. The Seychelles Tourism Board recognises this problem and is trying to address it in a number of different ways. Firstly, they are looking for new investment that can provide excellent five star accommodation. Mintel 2009, reports that Raffles, Shangri-La and Emirates are opening new properties in 2011.

Secondly, the government are also encouraging existing hotels and resorts through incentives to upgrade their accommodation and facilities. They use annual monitoring of hotels to ensure minimum standards are being met and if not it is government policy to remove, demolish or completely reconstruct resorts, within the tight environmental regulations that exist. Inevitably at times this causes some conflict between the public and private sectors. A key action point of Vision 21 was to use a new hotel classification scheme to try to reinforce the importance of quality within the facilities and service in the hotels, but due to many problems this has still not yet been introduced (STB, 2000). Strategy 2017 has recognised that this target has not yet been achieved and identify the development of a classification the eco credentials for hotels.

The next section uses the nine themes identified in 5.1.3 to present the findings collected during the fieldwork in the Seychelles. Table 5.3.11 provides a summary of the roles of respondents interviewed during the data collection.

Table 5.3.11 Summary of respondents interviewed in the Seychelles

Respondent code	Informant Position
	Blue – Public sector Purple – Private sector
Participant Sey Pub 1	Island Development – policy maker
Participant Sey Pri 1	Director Medium Local Dive Operator
Participant Sey Pri 2	Director Large Independent Tour Operator
Participant Sey Pub 2	Ministry of Environment – policy maker
Participant Sey Pub 3	National Tourism Organisation – policy maker
Participant Sey Pub 4	National Tourism Organisation – policy maker
Participant Sey Pub 5	National Tourism Organisation – policy maker
Participant Sey Pri 3	Director Large Independent Tour Operator
Participant Sey Pub 6	National Tourism Organisation – policy maker
Participant Sey Pub 7	Ministry of Environment – policy maker
Participant Sey Pub 8	Seychelles Meteorological Dept – policy maker
Participant Sey Pri 4	Director Medium Independent Dive Operator
Participant Sey Pri 5	Director Medium Independent Yacht
Participant Sey Pri 6	Director Small Independent Yacht
Participant Sey Pri 7	Director Large Independent Hotelier
Participant Sey Pub 9	National Tourism Organisation – policy maker
Participant Sey Pub 10	National Tourism Organisation – policy maker

Source: Researcher

The fieldwork in the Seychelles took place during September 2008. Two weeks were spent on the islands. The majority of the time was spent on Mahé the administration island, but a total of 5 nights were spent in Praslin, La Digue and Fregate islands. During the time on Praslin, the Vallee de Mai Nature Reserve WHS was visited. Whilst on Mahé two day trips were taken to Silhouette and Ste Anne islands.

## Fieldwork findings

### 5.3.4 Theme 1 Importance of tourism

Respondents provided an insight into how they perceived the importance of tourism within the Seychelles. Firstly, economic aspects were discussed, but the discussion continues to look at issues to do with protecting the environment and concerns over the ageing infrastructure.

#### Economic impact

All the respondents were united in their understanding of the importance of tourism to the Seychelles, with most of them able to quote specific data. As *Sey Pub 3*, succinctly put it *“Tourism today contributes some twenty-three percent, twenty-two to twenty-three percent of the GDP. Close to twenty percent of the labour, employment, close to sixty percent of our foreign earnings. This is how important it is to Seychelles and that is the direct contributions now if you look at the receipts and multiply effects see how very, very important it is”*. There was an awareness too that there were few available options for diversification *“we don’t have minerals and things like that, agriculture – we don’t have the land, fishing would need too much investment, so it will always remain our main economy and so that’s why we have to be very careful with the way forward” Sey Priv 3*.

#### Leakage

There was a concern that much of the money they made through tourism was going out in terms of leakages, mostly because of the services that they needed to import, such as resort managers and staff - *“now having close to fifteen, twenty percent of our labour force within the tourism industry is foreign labour” Sey Pub 3*. This was particularly relevant as new foreign investors were being courted to develop within the Seychelles and there was concern this would result in further economic leakage.

#### Employment

There was awareness that increasingly the resorts were needing to use foreign labour, so the tourism department had started a hospitality training school to try to provide suitably skilled staff (as mentioned in section 5.3.3) to fill these positions and reduce the leakage from the economy. The private sector were particularly vocal about this *“Seychellois*

*people must be put in the forefront and it is the only way that we will keep our local colour”, Sey Priv 7.* There was evidence that Seychellois were employed in the industry as Figures 5.3.8 and 5.3.9 show.

Figure 5.3.8 Local woman preparing Creole food.



Source: Researcher

Figure 5.3.9 Local Seychellois band entertaining tourists at an evening market that was organised specifically for tourists



Source: Researcher

### **Protection of the environment**

The environment was frequently mentioned as being the main motivation for tourists coming to the Seychelles, *“the tourists comes here because of the beautiful scenery, because of the greenery, not only for the beach but also the biodiversity and the marine”, Sey Priv 4.* The tourists that the Researcher talked to during the fieldwork all supported this. The majority seemed to be actively interested in the flora and fauna of the Seychelles

and even those who came for a beach type holiday were being stimulated to find out more about the local birds, etc.

### **Tourism development**

At the time of the fieldwork, tourism was developed on eleven islands. STB had approved proposals for hotel development until 2014. An additional five islands were to be released, where there was currently no tourism development. Therefore, in total the plan is to have tourism development on sixteen out of a hundred and fifteen islands. *“So it still respects the fifty percent conservation ideal that we want or protected area label that we want the nation to have. So I know of nowhere else in the world where half the territorial extent of a nation is actually under conservation” Sey Pub 6.* Not all respondents were convinced that this level of development was at a suitable pace *“As an industry we believe we are running probably a bit too fast” Sey Priv 7.* The problem has occurred as the Seychellois economy is failing and the government need to raise additional finance, which they feel they can do through tourism development using foreign investors, as illustrated in Insight 6.

In the current tourism plan the projection was by 2010 there will be 200,000 visitors. In the 2017 strategy, they were looking to increase this to 360,000 visitors and this is what the government were hoping to be the limit. All the respondents seemed to consider that *“we are reaching maximum limits that is a disturbing picture”, Sey Pub 3.*

#### **Insight 6: Investment in the Seychelles**

Over the last five to ten years the Government has been trying to encourage foreign experts and financiers to invest in the tourism sector within the Seychelles. Until this time the majority of the bed stock had been owned by local Seychellois who managed small guest houses and three to four star hotels. The policy of encouraging foreign direct investment was a concern for many in the tourism sector as it was thought that local people would be squeezed out of the market in favour of foreign investors.

Provided by Sey Pri 4

### **Older infrastructure**

The hotel stock overall was fairly dated, especially given the prices that were charged, so there had been some stagnation within the tourism sector. The Researcher experienced this as the price for the room in a small family run hotel was £140 per night. The room, although clean, had a mismatch of furniture and décor from the 1950s, the electrical equipment was temperamental, and no food was included. The private sector was aware that tourists staying in other destinations such as the Maldives and Mauritius considered they were not getting value for money in the Seychelles, *“our hotels are getting old, we are getting complaints, so we need to encouraging foreign investment, Sey Pri 7.*

### **Limits for growth**

Tourism has not grown particularly rapidly in the Seychelles and there has always been a policy that has limited growth, through strict building regulations and the requirement for local Seychellois to be involved in the investment. There was a common understanding that these self-limiting factors have actually been beneficial, as Sey Pri 1 explained *“we would have seen not such a nice tourism development as we have now without these policies, they’re more concerned in keeping things in-tact”*. Hence, there was a clear message on the type of tourism development that the Seychelles wanted *“we don’t want mass tourism, with the ripple effects of environment and social problems that would arise” Sey Pub 2, we need “to conserve not over develop the country”, Sey Priv 3. “So there will be definitely a limit as to how much development we can go for”, Sey Pri 4.*

### **Investment**

The President had recently agreed a resort development with a large global organisation. The resort would have 300 rooms, which was on the large side compared to current developments that have less than 100 rooms. There was considerable concern that whilst we *“needed to do something to attract investors, maybe they went too far on the other side but they did the deal”*. Sey Pri 4. The lease for the resort was for 99 years and some of the private sector commented *“it is as if it [the land] has been sold but we should make it shorter and renewable more often” Sey Pri 7.* The key concern of the stakeholders was that the *“investors are being given, to be quite honest, far better concessions and better terms of operating a business than local residents are, and that’s an issue”, Sey Pri 4.*

### **High end tourism**

There was a common understanding that the Seychelles would focus on high quality tourism, as the tourism sector want tourists “ *who can spend a thousand dollars a night, but we won’t allow someone to come if he can spend only two hundred dollars a night*” *Sey Pub 1*. This was mirrored in the private sector too “*With tourism you get the returns that you want but not through volume, through a higher spending visitor*” *Sey Pri 5*. The Seychelles are able to charge higher prices due to the idyllic environment, as seen in Figure 5.3.10.

Figure 5.3.10 Sunset at Anse Kerlan



Source: Researcher

The Seychelles is in a unique position to adopt a tourism strategy which is based on high quality tourism that enables good protection of the environment. Tourism in the Seychelles has grown comparatively slowly given the growth of long haul destinations, so there has been some complacency. The trigger for more development has come from the financial crisis within the Seychelles and pursuing selected tourism development is seen as a solution. There is a consensus that high end tourism must continue not mass tourism. There are two main concerns in the private sector: that new investors may receive preferential trading conditions and that tourists are voicing concern over value for money. The public sector is cautious about carrying capacity and levels of development.



### 5.3.5 Theme 2 Government regulation and incentives

#### Regulations

There were stringent regulations to gain planning permission to develop a resort. This included the investor conducting a full environmental impact assessment. The development process was rigorously monitored to ensure compliance with the permission permitted. If all aspects of the planning conditions were adhered to an operating licence would be issued. The STB was starting to question and push investors into the use of renewable energies on all new builds. *“I think it should be compulsory for any organisation private or public that has the potential the possibility of providing alternative energy, of saving energy to come up” Sey Pub 1.*

#### Taxation

The Seychelles used taxation in a number of different ways. For example it gained revenue by putting import taxes on cars and fuel. One respondent felt that *“It is just another way of raising money as far as I can see, I don’t really think there is a green agenda behind it” Sey Priv 4.* On the other hand, Sey Pub 3, commented that *“I think Seychelles at the moment everybody’s complaining that we give too much tax breaks to the investors”.* Whilst the government used taxation, the motivations behind taxation were not clear, whether the priority was to increase revenue or change behaviour with incentives and enforcement of regulations.

#### Incentives

The respondents had different impressions about incentives, some reported that they approved of incentives and considered it was *“better to encourage people” Sey Priv 7.* Whilst others felt that *“leave it up to the private sector, but the private sector is not going to be interested in doing this because if it does not have any direct benefit back to them or any returns that they going to get from this, they not going to be interested in it” Sey Pri 2.* There were considered to be a lot of incentives in the tourism sector and take up of the schemes was good. There was a specific programme in place for tourism, *“so any capital investment, either start-up or renovation programme meant investors were exempted from all importation and duty taxes” Sey Pub 3.* The idea behind these incentives was to encourage local investment and there was concern that the foreign investors would be given the same terms.

## **Enforcement**

Enforcement of the regulations was taken very seriously. Once an operating licence had been granted STB would conduct *“two or three inspections done per year at least from our side, we normally do it with the Ministry of Health and Department of Environment so we inspect them one for renewal license and then we do spot checks that we just turn up at your hotel and say we want to inspect the premises” Sey Pub 3*. Whilst the public and private sector appeared to work well together, the Researcher picked up underlying deference from the private sector about these inspections. From time to time, a number of the resorts had had operating licences revoked, there seemed a tacit understanding that this was in the pursuit of raising both environmental and general standards in the industry.

## **Renewable energy sources**

There had been some pilot studies at a governmental level looking at the feasibility of renewable energy in the Seychelles. The key modes had been wind energy which had not been very successful and solar energy. The plan was to encourage the public utilities to *“fulfil a larger scale electricity production from renewable sources” Sey Pub 8*. Then to encourage NGOs and businesses to consider the use of renewables, but these projects were at an early stage and still needed to be backed by government.

Very few hotels or houses had solar panels and there had been two companies go into bankruptcy trying to sell solar panels, so there was some criticism aligned to the government that that they did not support the businesses by *“drop the duty by fifty percent” Sey Pub 6*, so take up of the solar panels was very slow.

## **Eco labels**

STB had been conducting research into the development of a set of eco tourism labels. The idea was to have a sustainability label criteria that reflected a harmonised standard for a classification or star rating for hotels. The project was at an early stage, with negotiations underway with the operators. STB did not want it to be a compulsory scheme, *“voluntary may be better because then you know they are committed to it” Sey Pub 3*. The STB doesn't intend having fees for it because it didn't want there to be a profit objective. It is planning to have a *“good strong marketing exposure of it for that, people will see the benefit of being part of this label” Sey Pub 3*.

The Seychelles government uses incentives, taxation and regulations to encourage pro – environmental behaviours. The private sector is resigned to the enforcement of building and operation regulations and views this as a means of ensuring quality within the sector. STB takes enforcement very seriously and is trying to integrate encouraging investors to use renewable energy into this process. Central government is exploring alternative energy options, although this seems to have been a bit of a stop / start project. STB is acutely aware that one of the key motivations for tourist to visit the Seychelles is the natural environment and is researching the use of eco labels, which might be a compulsory or voluntary initiative.

### **5.3.6 Theme 3 Tourism and climate change**

Although, there were a number of initiatives regarding tourism and climate change there were no direct references to tourism and climate change within the formal tourism documents. The position of STB was outlined, with reference to *“tourism and climate change is not being directly addressed at the Seychelles Tourism Board level. I think it’s rather still more involved on the level of the Ministry of Environment, the Planning authority; so I think tourism is aware but not, does not necessarily have the capacity to really work with this information and I think it is where the other departments come in” Sey Pub 2*. However, there was a recognition that this was not enough *“I think it’s relatively fragmented but we have recognised that and want to change. Sey Pub 3*. A decision had been made to increase representation on these central government committees so that they could *“build capacity where there is no capacity with regards to tourism expertise” Sey Pub 2*. The tactic was to ensure that the tourism sectors views and requirements were taken into consideration by ensuring that a member of STB was included in relevant meetings at a governmental level.

#### **Partnership workshops**

The private sector was complementary about the public sector and suggested that they were kept well informed. One respondent described having attended, *“one or two seminars and workshops that I’ve been to and heard about climate change. It is happening they are becoming more aware” Sey Priv 2*.

### **Environmental awareness**

The issue of climate change was regarded as being a fairly new one. The Researcher was frequently informed by both public and private sector stakeholders that the Seychellois people are *“environmentally conscious for many, many years, I think we have grown with that, it has been more inbred inside us and the way we do things rather than taught” Sey Pub 5*. The impression given was that the environment was subconsciously considered most of the time. Although the governmental policy makers were perceived as being remote, in that they did have awareness of the issues but they were not on the *“front line, in the sense that they are not faced with the problems on a day to day basis” Sey Pub 1*.

There was no direct evidence that climate change had been included in formal tourism documentation, but there was evidence that it was a current issue and being actively discussed and considered. The respondents were keen to suggest that the Seychellois had an affinity with the natural environment which would help them to address the challenges of climate change.

### **5.3.7 Theme 4 Impacts of climate change**

Respondents were able to identify many different potential impacts of climate change, but they were cautious enough to state that they were assumptions and observations and may not be attributable to climate change.

### **Road encroachment**

On both Mahé and Praslin there was evidence of the sea encroaching roads. Most respondents had anecdotes of this *“each time we have high tides, it’s covering most of our coastal roads and you find a lot of erosion happening where you used to park your cars” Sey Pri 3*. The government had been spending a lot more money *“on coastal rehabilitation and reconstruction” Sey Pub 7*. Figure 5.3.11 illustrate the points being made, sand is on both sides of the road, left after high tide. The Researcher also observed evidence of land slides on both Mahé and Praslin and respondents collaborated that landslides were happening more frequently (see Figure 5.3.12).

Figure 5.3.11 Road encroachment at Machabée



Source: Researcher

Figure 5.3.12 Landslip on Praslin



Source: Researcher

### **Beach erosion**

There was quite a lot of evidence that there were changes to the sea currents and as a result beaches were suffering erosion. *“We have got an island down in the south, called Algargram with zero development on it and we’ve noticed that now something like twenty-five kilometres of beach have simply vanished. There is a cemetery that used to be about twenty metres inland and half of the cemetery is already gone” Sey Pub 7.* One extreme illustration of this was made by Sey Pub 1 who spent considerable time in the outer islands, *“erosion on islands which have not human interaction, where there’s in fact islands where we don’t even have habitation and not had habitation for the last two hundred years. I have seen islands, small islands completely disappear. Just, they are underwater now, I have seen other sand banks built where there was never a sand bank before” Sey Pub 1.* The Researcher was shown photographic evidence to illustrate this too, where resorts had approximately 30 metres of beach between the building and hotel, more recent photos showed only approximately 10 meters of beach.

### **Tidal increases**

A respondent who worked on cruise liners and kept diaries of the weather and tide information stated *“I have noticed that the tides in my view tend to be higher than what they were before. We need to go in certain places at high tide and in my diary I’ve got everyday there is the tide for everyday of the year, but sometimes it shows you a tide of one point eight and I look at the level of the tide and this cannot be one point eight, it must be two point one or two point two. So these are some of the signs of things that are to me not right” Sey Pri 5.* The Researcher was informed that high tide levels at Beau Vallon were

increasing; as Figure 5.3.13 below shows, the tide is very close to the hotel and apparently it used to be about 30 meters away at high tide.

Figure 5.3.13 Beau Vallon



Source: Researcher

### **Changing weather patterns**

All the respondents commented on changes to the weather and the lack of predictability of the Monsoon. *“I have noticed, I could up until about five years ago, I could literally tell you when the north-westerly season was going to start. When the south-easterly season was going to start, what the wind speed was likely to be what the bird patterns were going to be, the migration patterns, fairly easily up until about five years ago” Sey Priv 1.* Many respondents referred to changes in the precipitation patterns, *“this period there not supposed to be heavy rains, it’s very light rain with strong winds, but we have had some heavy rains comparable to our very rainy season, so we have had and these are abnormal downfalls which we are flooded by” Pub 3.*

### **Storm intensity**

There was an unexpected wind storm during the fieldwork work period, which resulted in roofs of houses on Praslin and Mahé being blown off. The storm materialised very quickly and there was genuine shock in the respondents at the ferocity and damage caused. *“I have never seen the sea between Mahé and Praslin so rough” Sey Pub 4* and *“Things like this which I am not used to seeing” Sey Pri 5.* Some tourists were also reported as being disappointed with the quality of the beaches, due to seaweed being left on the beaches after storms (see Figure 5.3.14 and Figure 5.3.15).

Figure 5.3.14 Vegetation from sea on beach



Source: Researcher

Figure 5.3.15 Anse Cachée after storm



Source: Researcher

### **Drought**

Being small islands, the Seychelles do experience problems with water and it is a precious resource. The water for Mahé is collected in La Gogue reservoir, but they are finding that *“it is not big enough to collect enough water when there is rain due to the intensity and then two years ago a major problem with it. We have pictures people walking in the streets with buckets to try and bring some water home” Sey Pri 6.*

### **Coral bleaching**

Many respondents had noticed detrimental changes in the coral. One went as far as to say that he would not come to the Seychelles to dive, he *“would go the Great Barrier reef or Red Sea” Sey Priv 6.* A dive operator was very concerned that *“we’re ahead with dying corals due to higher water temperature” Sey Pri 1.*

### **Impacts on the ‘tourism product’.**

The private sector gave very pertinent insights into how the impacts above were altering the tourism product. Apparently, Italian tourists are not very keen on rain and book at times when there is no rainfall expected. However, *“for the past three four years maybe five years, things have changed and we having rain or we having weather changes quickly, just like that” Sey Priv 2,* this has resulted in a considerable number of Italians returning home early, *“I have recorded a high number of people leaving early” Sey Priv 3.*

The rougher seas has meant that boat excursions are having to be cancelled, as visibility is impaired. One company has a semi-submersible, for tourists to see below the water *“we*

*used to bring the clients out, the corals were very vibrant and there were a lot more fish around, nowadays there's less because the environmental problems" Sey Pri 2.*

The tourists complain that these excursions are not *"value for money" Sey Priv 3*, so they are changing their product and taking tourists to see islands where Robinson Crusoe had allegedly been shipwrecked.

Respondents were all able to cite multiple cases of changes to their climate. They were cautious enough to question if these impacts were as a direct result of global warming, but they were conscious that something was happening and *"happening in fast enough manner to become noticeable because generally speaking something changes very, very slowly it would be more difficult to pick up, but no it is evident" Sey Pub 1.*

### **5.3.8 Theme 5 Roles and responsibilities of developed and developing countries**

#### **Developing world not responsible but having to pay the price**

Only two of the respondents made comments about having to deal with the impacts of climate change. The point was made that the carbon footprint of the average Seychellois is low compared to that of an average European, *"we do very little and yet we cop the consequences of it" Sey Pri 7.* There was only one comment made about the lack of action to address the problems of climate change *"The US with their kind of ideology will carry on doing what they want until they achieve what they want" Sey Pub 3* Generally there was no anger or frustration conveyed in these comments, only one respondent made a barbed comment, behind humour *"it's not a bad thing to put the guilt factor on you people in Europe, make you feel a bit guilty that we are suffering because of your lazy lifestyles and your abundance of wealth". Sey Pri 7*

#### **Long haul essential**

The main generating regions for tourism to the Seychelles are from Europe, so the respondents were very aware that long haul flights were essential to bring tourists and there were no other viable options. Whilst the Researcher was conducting the fieldwork, a German Professor did some media interviews in Germany encouraging Germans to travel



locally to Sylt Island<sup>37</sup> and not go to the Seychelles, in this way they reduced their carbon footprint. This had really upset and concerned STB as *“we have already been singled out and this is now being referenced, more people will get on this bandwagon, we need a plan in the Seychelles, how we will offset, because today an European gets in an aeroplane and flies nine hours to get here, he doesn’t think. He doesn’t even bother to think that he is burning five hundred kilograms of CO<sub>2</sub> to get here to go back home. But I don’t know in six months a year’s time, the way Europe is now really forcing the issue, but we need a plan, at the moment we don’t have a plan” Sey Pub 6.*

### **Bad publicity**

A few years before the fieldwork was undertaken, Stephan Gössling (a tourism academic) went to the Seychelles and conducted some research and wrote a paper for Ecological Economics journal (2002). STB had put a great deal of energy into setting up interviews and data. One of the respondents was very indignant as the article was, *“black and white, you can do in Seychelles what you want, you because of your dependency on long haul flights you will never be sustainable. Then he was recommending regional travel, our next region is Africa I mean who is going to be able to afford a sustainable tourism in the context of what is being looked at here in Seychelles on the continent.” Sey Pub 2.*

These two articles (about Sylt and Ecological Economics) had shocked the tourist sector in the Seychelles. The public sector were very concerned, whilst the private sector did not think that majority of tourists considered their carbon footprints when undertaking a long haul flight. *“They do complain that they have such long flight and they are tired but they don’t talk of environmental issue”, Sey Pri 2.* One public sector respondent suggested that tourists might be hypocritical in what they say and do *“I think a lot of people are still doing the same things they used to do ten years ago, and doing it maybe even more, whilst shouting long haul travel is creating global climate change”. Sey Pub 5.*

One private sector respondent talked about the issue of carbon offset funds and concluded *“I mean that is a stupid philosophy. I mean it is like telling the guy, you can go and steal but it is OK because we going to do something else therefore carry on, have no worries”*

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<sup>37</sup> Sylt is the fourth-largest German island and the largest North Sea island. Sylt is situated at 9 to 16 km off the mainland. It has one UNESCO WHS for mud flats. (Island Sylt, 2010)

*Sey Pri 1*. Whilst other respondents thought there was mileage in providing a carbon offset programme.

The public sector was extremely concerned about the publicity that was being given to the issue of tourism, climate change and long haul flights. They were cautious in their approach to the subject and subsequent discussions, as they considered they were starting to respond, but had not been given a fair hearing by a previous Researcher. The private sector did not express the same level of concern, partly it seemed because they had not had to deal with the direct repercussions of bad publicity.

### **5.3.9 Theme 6 Adaptation initiatives**

In the Seychelles, there was no formal adaptation programme, but there had been quite a number of adaptations that were happening, albeit in a fairly ad hoc manner. Both the public and private sector had had to start adaptation initiatives due to the climate changes they had experienced.

#### **Changes to planning policy**

The building regulations had been amended to take increasing level rises into consideration. The private sector could provide illustrations of resorts that had experienced problems *“a typical case is Bird Island they had built very close to the sea front and then when the bungalows started getting washed away then they had to move further inland and build further inland. Sey Pri 3*, so they were accepting that the regulations had changed. Now *“you have to build about twenty-five metres from the high water mark. That is in the policy now” Sey Pub 5*. The public and private sectors were very aware of the regulations and considered that the regulations were in place to protect the assets of the investor. The other change to the building regulations that had been brought in was *“one percent of your total budget for construction of the hotel is going for the environment to protect that area, to make sure that the infrastructure in that area improves” Sey Pub 5*. This is linked to the section below on beach vegetation and will be examined in more depth there. Figure 5.3.16 demonstrates an overflow for a new sewage system and that the government were placing pressure on the operator to improve the soft landscaping.

Figure 5.3.16 Overflow and soft landscaping



Source: Researcher

### **Reclamation of land**

One method of dealing with beach erosion and sea level rises has been the reclamation of land. A number of accounts were provided that indicated that height had been increased to ensure the areas were not as susceptible to flooding. *Sey Pri 5 recounted “Twelve years ago the finished level of the reclamation was about two point two metres and the latest reclamation project when the issues of global warming and sea level rise and so on came up, the finished level of the reclamation was about three point something metres”*. Figure 5.3.17 provides an example of the level of the reclaimed land.

Figure 5.3.17 Reclaimed land Mahé



Source: Researcher

### Groins built to protect coast

Where beach erosion problems have been experienced on the three main islands the government has *“put some groins out in the sea” Sey Pub 3* as can be seen in Figures 5.3.18 and 19 show that this was a frequently used method on many of the islands.

Figure 5.3.18 New groins Praslin



Source: Researcher

Figure 5.3.19 New groins Mahé



Source: Researcher

### Jetty extension

On a smaller resort island near Mahé, a new hotel manager wanted to add an additional section to the landing jetty. The changes made resulted in different currents and tides which resulted in the jetty no longer reaching the island and standing in the middle of the sea. A number of attempts had been tried to resolve this problem, they had *“dug inside the channel and put some rock armoury outside of the beach to protect it” Sey Pub 3*. The wind then brought the water inside the channel and it removed all the sand. Consequently, it has eroded the island itself and they have lost approximately eighty metres of the coastline. Now the sea is quite close to the hotel and they are trying to use even larger rocks to protect the buildings. Many respondents mentioned this, as the issue was very visible and the engineers that had overseen the original project were not local, (the inference being they did not understand the issue, as a local would). The addition of sea groins can cause beach erosion, so by rectifying one problem (as in the previous section) sometimes another can be caused.

Figure 5.3.20 Harbour Sainte Anne



Source: Researcher

### **Beach vegetation**

Respondents from both the public and private sectors gave many examples of resort managers removing beach vegetation *“It’s too easy for foreign GMs<sup>38</sup> and foreign establishments to come in and see what is the dream”, Sey Priv 7*. The managers wanted their guest to have undisturbed panoramic views of the sea, so they tended to remove all the trees and vegetation to provide this idyll. However, *“what we found is that if you leave the coastal vegetation at the front, then that will also break the force of the water” Sey Pub7*. Figure 5.3.21 illustrates the vegetation on the beach. Due to the many examples that were provided about the removal of vegetation, resorts now need to spend one percent of their construction budget on soft landscaping (see Figure 5.3.22), where large rocks have been placed at the base of trees to protect the vegetation and provide a break during storm conditions.

Figure 5.3.21 Natural vegetation on beach



Source: Researcher

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<sup>38</sup> General Managers  
Chapter Five

Figure 5.3.22 Soft-landscaping carried out at resort



Source: Researcher

### **Changes to the ‘tourism product’ – more indoor activities**

The private sector respondents provided illustrations of changes they have needed to make to the tourism product as a result of climate changes. A dive operator now had to use different reefs due to *“very bad visibility it also causes the corals to get a silt layer which is very bad for the corals” Sey Pri 1*. Changes to the rain patterns meant that hotels had to include indoor activity rooms and this had not been the case five years ago. One of the tour operators was conducting training to *“sensitise the staff” Sey Pri 3* to enable them to provide activities that tourists could undertake when the weather was not so good, such as quizzes and cooking demonstrations.

This section illustrates a number of adaptation initiatives that were reported and observed during the fieldwork. The government is having to implement major construction projects to provide suitable sea defences. Whilst this has been happening for some time, it is having to revisit many of the projects and increase heights or add more groins. The private sector is also having to make adaptations, but they tend to be on a smaller scale such as adaptations to the product and more work to maintain the quality of the beaches.

### **5.3.10 Theme 7 Mitigation initiatives**

Respondents were aware of mitigation and gave the impression that at a policy level there was political backing. There was a climate change technical officer employed in the President’s Office and the government had set up the Sea Level Rise Foundation to encourage education in schools, and to support young people taking relevant degrees, so that the human capacity to tackle climate change was increased within the country.

### **Renewable energy - government actions**

As previously mentioned there was little evidence of renewable energy being used during the fieldwork. However, there were *“a number of government projects that were encouraging the use of new technologies” Sey Pub 8*. The focus was on improving the efficiency of the supply of electricity, by adopting wind and hydro power. These projects were at an early stage. However the public sector were concerned about the cost of renewable energy at a national level as *Sey Pub 6 illustrated, “renewable energy is still more costly than burning fossil fuel even at the price that it is today. You see for small countries like ours, we’ve not a lot of reserves, it’ll be ideal to do it you know, but photovoltaic energy, wind energy, today per kilowatt hour production it’s still two times in some cases three times more expensive”*. Some of the private sector were critical of the government actions *“I would say there wasn’t sufficient drive from the part of government to reduce greenhouse gasses and reduce energy consumption because all of our electricity comes from diesel”, Sey Priv 5*.

### **Renewable energy - private sector actions**

Even though the government was at an early stage of exploring renewable energy, the lack of adoption of renewable energy technologies by the private sector frustrated some respondents who would question *“what are you doing to reduce contribution to the greenhouse gasses, he [an investor] told me, look we are not running renewable energy plant, we are thinking of developing a hotel” Sey Pub 3*. This led the public sector to believe that the private sector is looking at the monetary benefits short-term. As a result of this type of encounter the government were in the process of changing the building regulations, so that new developments were going to be required by law to invest in some renewable energies, as the prevailing belief was that the *“tourism industry can probably absorb these costs” Sey Pub 6*.

### **Criticism of Maldives project**

An interesting point was made about a showcase project in the Maldives that was using sea water to operate the air conditioning units in the resort. One of the public sector respondents had been on holiday to the island and was extremely critical of the endeavours being made *“I said this is not, this is going nowhere towards providing alternative source of energy for the islands this is just, if you like this is an educational tour or treat it as an*

*educational tour, don't say that you are involved in alternative energy, no it's not, it's not the way it is done" Sey Pub 1.* This demonstrates how difficult it can be to adopt new technology, without being criticised of green washing.

### **Energy reduction and costs**

The private sector were very aware of the increasing cost of fuel and were keen to reduce energy costs wherever possible as *"everything is becoming so expensive" Sey Priv 3.* The normal measures were both mentioned and observed during the fieldwork, such as having central energy management systems, key card systems that shut off the electricity when guests are not in their rooms, etc. Sey Pri 7 made a salient point that it was not just about energy management systems, it was more important to have *"education programmes so these measures become habits"*.

### **Carbon offsetting scheme**

There was no formal offsetting scheme implemented or endorsed by the government, but some consideration was being given to a possibility that if passengers purchased a ticket *"with Air Seychelles and for each ticket that you buy, it's a green ticket, and someone will plant a tree for you somewhere in Seychelles" Sey Pub 7.* However, this was still at discussion stage.

The Seychellois public were involved in a United Nations plant a tree scheme *"Plant a Billion Tree campaign which is going on and we started, My Tree Our Seychelles campaign at the beginning of this year where tourists and the public, anybody can plant a tree, if they want to. Of course we know that the difference that we can make on little Seychelles is very small but it's the spirit, it's the idea that we want to convey to people that every little bit you do contributes to the overall contribution that we can do to change attitude and also improve the climate" Sey Pub 7.* So some global schemes have been adopted and national schemes targeted at tourists mitigating the carbon from long haul flights were being considered. Figure 5.3.23 shows a banner promoting a UN tree planting project to off-set carbon.



Figure 5.3.22 UN banner on Praslin



Source: Researcher

### **Tourist awareness**

Whilst respondents were discussing the issue of mitigation many respondents returned to their concern that tourists might stop long haul flights, citing the German article as encouraging German tourists to holiday locally. A number of respondents returned to the issue that they felt *"the Europeans who come here, which is our main market, are very conscious people about the environment"* Sey Priv 7, so the discussion often led to the best ways to educate the tourist. One respondent considered that tourists are *"definitely more receptive because of being in a different environment"* Sey Pub 2 and advantage should be taken of this to encourage changes of behaviour.

### **La Digue project**

The smallest of the three main islands that most tourists go to is La Digue. It is only very small, approximately 3km long and 2km wide and it is also the least developed of the tourist islands. There are limited roads and transport options involve ox cart, bicycle or car (see Figures 5.3.23 and 24). One project that is currently being undertaken is to remove all the cars from the island and making the resorts as carbon neutral as possible, so it could become a showcase of good practice in the mitigation of greenhouse gases.

Figure 5.3.23 Tourists are encouraged to cycle



Source: Researcher

Figure 5.3.24 Ox-pulled coach used to transport tourists from the ferry to accommodation



Source: Researcher

Whilst there was no all-embracing scheme to pull in the mitigation projects that were being undertaken in the Seychelles there was considerable interest in pursuing the greater use of renewable energy at both a governmental and resort level. Both the public sector and private sector were deterred from the take up of renewable energy investment due to the initial heavy cost that was required. Both sectors were keen to pursue energy reduction and carbon offsetting schemes.

### 5.3.11 Theme 8 Consideration of climate change in decision-making

There was a marked distinction between the public and private sector in this theme.

#### **Climate change is embedded within decision-making in the public sector**

The public sector suggested that over the last five years environmental considerations have increased in dominance, *“especially with regard to building projects” Sey Pub 1*. Another respondent stated that with the recent discussion stimulated by media coverage *“then definitely climate change comes into the equation” Sey Pub 7*. One respondent stated that the issue of climate change was *“embedded it’s very much sort of linked to personalities”*, *Sey Pub 2*. There was recognition that whilst it was becoming more important in decision-making, it was not always reflected in *“black and white and policy documents”*, *Sey Pub 2*, but this is an area they intended to improve. This commitment was reflected by a member of STB, who claimed *“now it’s one of the first issues I personally consider” Sey Pub 3*. The respondent sat in on the planning authority meetings and was hoping to use his influence to encourage the private sector to integrate renewable energy into their resorts, so that the industry can be seen to be mitigating against the carbon used in long haul flights. There was also more evidence in the actions of STB that climate change was frequently considered in the planning process, but it was not yet reflected in the tourism documents.

#### **Limited consideration of climate change by the private sector**

The respondents were very honest in their assessment of where climate change came within their decision-making process. *Sey Pri 2 stated, “it’s not at the forefront, it’s there, we know it’s an issue”*, but then she continued to explain the issue is only starting to come into their consciousness, so she would need more time to understand it and how to incorporate it into her organisation. One of the key tour operators said that it tended to be stimulated by *“when we getting our complaints coming in because of you know, like weather changes” Sey Pri 3*. A resort manager considered that she needed to *“push it, up as a body, more in the front than where it is” Sey Pri 7*.

The public sector seemed to consider the issue of climate change far more than those in the private sector, who were only starting to consider it and only if the issue created a problem

for the tourists. So the public sector was being more pro-active, whilst the private sector was more reactive to the issue of climate change.

### 5.3.12 Theme 9 Perceptions of stakeholder groups

As in the previous cases of Sri Lanka and the Maldives, towards the end of the interviews the respondents were asked to provide a numerical score to a few short questions. Firstly, respondents were asked to identify their levels of optimism in tourism in the Seychelles in 50 to 100 years, Table 5.3.12 presents the results.

Table 5.3.12 Optimism for the future of tourism

Optimistic	1	2	3	4	5	Pessimistic
Private sector		4	3			Private sector
Public sector	1	8				Public sector
Total	1	12	3			

Source: Researcher

Overall, the stakeholders were optimistic about the future of tourism in the Seychelles. The public sector was more optimistic than the private sector. The main reasons that the public sector gave were that the issue of climate change was being taken into *“consideration and deliberations by the council of ministers you can, you feel that there is always someone who asking a question, well what about environmental effect” Sey Pub 1*. So it appeared that the issue was being driven by government. One of the members of STB had confidence in tourism due to the historical tourism planning that had preceded *“we are structurally expensive, but we offer something very different from a lot of our competitors” Sey Pub 3*.

The private sector suggested that the Seychelles will become more *“exclusive because we have already resorts that are full, that are exclusive at this point in time that are full almost everyday and also these people are travelling business class or they coming in by private jet” Sey Pri 2*. So they predicted favourable demand conditions, but they did have a few reservations. Firstly, the new generating markets included the Arabs and the Russians, they are high spending tourists, and have *“even greater the expectations” Sey Pri 3* and wanted *“everything being fast tracked, not wanting to wait, not wanting to ride in a coach wanting to have their own private planes” Sey Pri 2*. Secondly, the tour

operators were very aware of this, as the infrastructure required updating in some instances, so they were cautious about the future outlook. Thirdly, from an investment perspective the private sector were worried about the new foreign investors that were being attracted to the islands, *“if they don’t get the returns that are pre-set on their investment they get very edgy and they want to go and they want to sell. The future of tourism will remain with the Seychelles man. I think when the Seychellois base is strong and operating well, well consolidated; they will be the base of the country’s tourism industry” Sey Pri 7.*

Therefore, the private sector had greater confidence in the future of tourism. They had concerns over the changing needs of the tourist and how new investors would adapt to business operations in the Seychelles. Next the perceptions of the respondents were sought to the vulnerability of the Seychelles to climate change; the results are shown below in Table 5.3.13.

Table 5.3.13 Vulnerability of the Seychelles to climate change

Not Vulnerable	1	2	3	4	5	Very Vulnerable
Private sector			2	2	3	Private sector
Public sector				2	7	Public sector
<b>Total</b>			<b>2</b>	<b>4</b>	<b>10</b>	

Source: Researcher

Not surprisingly, the majority of the respondents thought that the Seychelles is very vulnerable to the impacts of climate change. The respondents commented that any island state was vulnerable and they only had *“small population, construction is not to withstand any cyclone that might happen” Sey Pri 7.* The tourism sector was perceived as extremely vulnerable as *“most of the hotels are located along the coast”*, so the tourism sector would be affected early on. This question also seemed to make the respondents more reflective about the situation *“We have very little control of what happens globally, we can only be messengers in this whole thing, trying to lobby but nothing much in a practical impact” Sey Pub 3.*

As Table 5.3.13 shows, the public sector suggested greater vulnerability than the private sector, this could be as they had greater awareness of the issue.

Finally, the perceptions of the respondents were sought regarding the ability of the public and private sector stakeholders to adapt to climate change. Table 5.3.14 and Table 5.3.15 below present the findings.

Table 5.3.14 How adaptable is the public sector?

Not adaptable	1	2	3	4	5	Very adaptable
Private sector	1	2	4			Private sector
Public sector			2	7		Public sector
<b>Total</b>	<b>1</b>	<b>2</b>	<b>6</b>	<b>7</b>		

Source: Researcher

Table 5.3.15 How adaptable is the private sector?

Not adaptable	1	2	3	4	5	Very adaptable
Private sector		2	4	1		Private sector
Public sector			5	4		Public sector
<b>Total</b>		<b>2</b>	<b>9</b>	<b>5</b>		

Source: Researcher

The public sector scored as being reasonably adaptive. A number of the respondents referred to cultural issues within this question and suggested that *“we’ve grown up in a society where there’s a lot of safety nets, security system that health system, whatever, school system everything is free so people expect all the time, they think that the government is like my parent” Sey Pri 5*. The Researcher was given the impression that the public sector had a paternalistic attitude and was rather bureaucratic in its dealings with the private sector. On the other hand *“I think the government has been very receptive to a lot of what the private sector says” Sey Pub 7*, giving the impression that the two sectors were working together more.

There was more consensus about the adaptability of the private sector, *“I think they’ve been very good at doing things, but very often when they are at the doorstep they hesitate for good reasons, very often related to resources, availability things like that” Sey Pub 2*. This view was reflected by the private sector too *“We are totally guilty. We have to*

*accept it, we pressure then hold back because we see it's not a money making deal" Sey Pri 7. This last quote encapsulates quite a lot of what was reported by both the public and private sector respondents. "The only thing I would say is I think the private sector today feel that they are recognised or fully recognised by the government in terms of their inputs, their contribution, they are certainly consulted more and more with a view to changing a law, cancelling a concession or whatever it maybe. So I think there is a new dynamism" Sey Pub 6*

Whilst the private sector were perceived as being more adaptable the Researcher was informed that the sectors were working much more in partnership and both had started to see the long term benefits of a more collaborative rather than confrontational approach.

### **5.3.13 Seychelles summary**

Tourism is a mainstay of the economy within the Seychelles, but there are limited opportunities for diversification. However, given the current economic pressures, the government are keen to maximise the economic benefits from tourism at the moment. The economic wellbeing of both the tourism sector and the country is dependent upon the world economic situation as issues such as SARS and the Gulf Wars have reduced tourism arrivals in the past and climate change could have this effect in the future. The Seychelles is trying to diversify into other sectors such as agriculture and fishing, which would result in less economic dependence upon tourism.

The organisation of tourism is well advanced and there is general recognition that tourism planning, supported by a strong government presence in the areas of regulation and enforcement have paved the way for more sensitive development in the future. There was however, concern about the new investors coming to the Seychelles and whether the same rules would apply to them as the current investors. Concentrating on 'high end' tourists and the insistence that local people invested in tourism had helped to ensure the economic benefits of tourism to flow through the country, but there was an awareness that some of the hotel stock was dated and tourists were questioning 'value for money'. There was evidence that the public and private sector communicated about the issue of tourism and climate change and that it was a current issue, beginning to be considered in decision-making.

Both the public and private sectors had undertaken climate adaptation initiatives. There was no co-ordinated approach to mitigation. Both the public and private sector were active in mitigation initiatives; the public sector were involved in UN projects to raise awareness and the private sector were implementing energy saving activities that could be for cost cutting reasons too. The perceptions of the public and private sectors appeared to be reasonably aligned with regard to the future of tourism and adaptive capacity of the sectors.

### **Ideas to carry forward**

There was greater cohesion in the responses between the public and private sector stakeholders than in the previous case studies, which might be because there are close links between the environment and culture. Both were aware of the problems and were having to undertake adaptation and mitigation actions to respond to the effects of climate change, but this appeared to be being conducted in a pro-active manner. There was clearly more discourse on the issue of tourism and climate change and this appeared to be being reflected in the policy decisions and gradually being transferred into documentation.

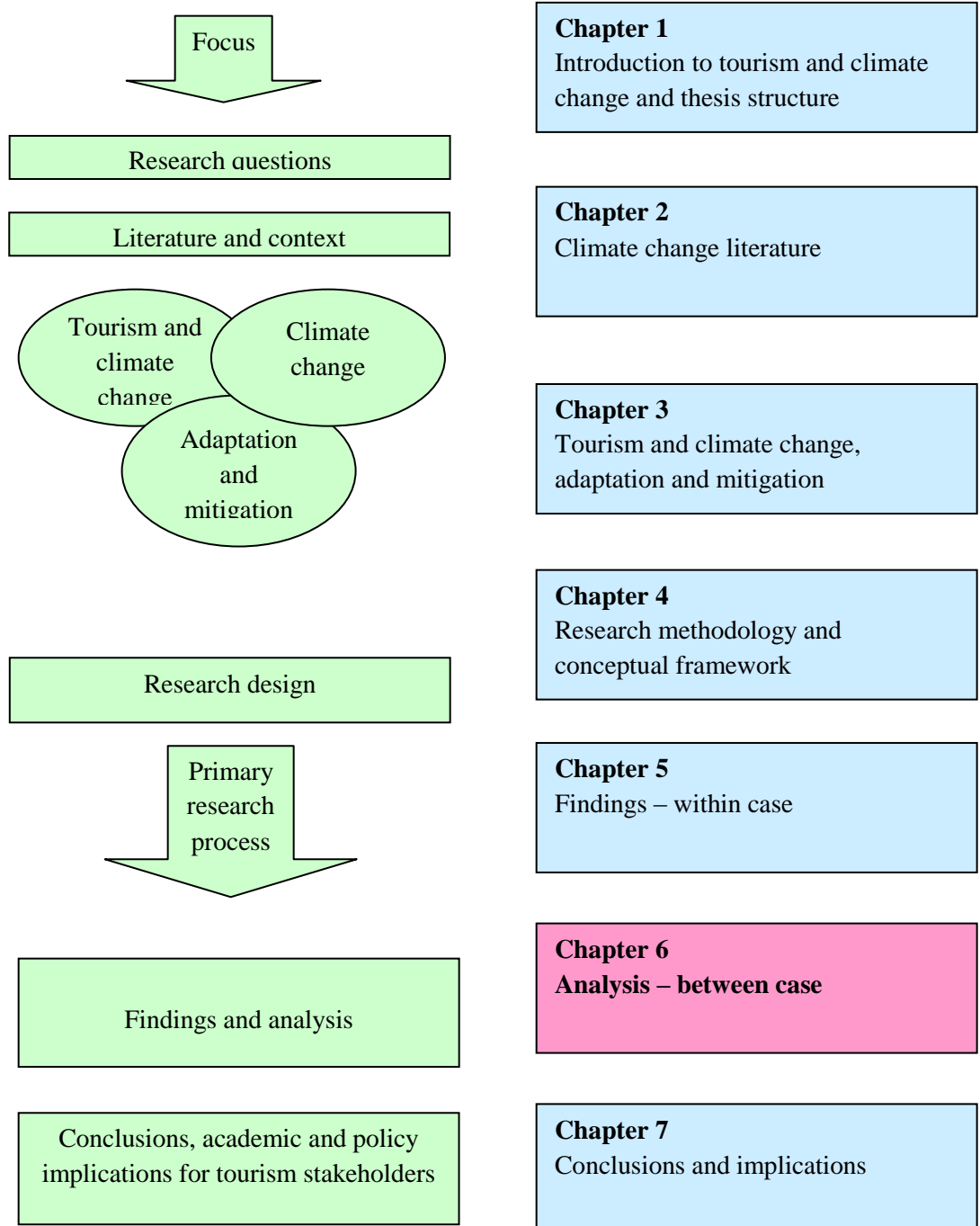
The types of tourists that are attracted to the Seychelles are ‘high end’ and are likely to be more wealthy and educated than mass-market tourists (Poon, 93). This raises a dilemma, will they be more sensitive to the impacts of long haul flights and as a result be more likely to fly less? This would have a detrimental impact on the Seychelles economy. Having more ‘high end’ tourists, means they should understand more complex messages, so maybe the Seychelles government could be communicating a carbon reduction plan that still allows for long haul and the all-important revenue that tourists bring and use this to invest in mitigation and adaptation projects. This would allow the Seychelles to continue protecting the natural environment, whilst at the same time exploring diversification options. One project that could be explored would be to look at alternative energy sources and reduce the reliance upon diesel, which could have a greater impact on the carbon footprint of the Seychelles, than tourists stopping flying to the Seychelles.



## **Chapter conclusion**

*This Chapter has taken each of the three Indian Ocean Island tourism destinations (Sri Lanka, the Maldives and the Seychelles) and provided a detailed examination of the secondary and primary research findings. A common framework has been used for the analysis to enable comparison of the findings which will prove useful in the next Chapter that presents the between case analysis, to examine the similarities and differences in the destinations knowledge of climate change and responses to it.*

# Chapter Six Between-case analysis



## 6.0 INTRODUCTION TO THE CHAPTER

*This Chapter follows on from the within-case findings Chapter. A comparative case analysis is developed to provide an examination of the responsiveness of island tourism destinations in the Indian Ocean to respond with the challenges of climate change. The scientific evidence presented in Chapter Two along with the tourism and climate change literature in Chapter Three are used to inform the analysis. The Chapter is influenced by social constructionist methodology, which provides a new insight and facilitates the emergence of different themes within the analysis. It commences by revisiting the conceptual framework, the research questions, the methodological stance and a case comparison. The sections that follow introduce the new themes, namely, contextual factors, the ability to predict the impacts of climate change and environmental consciousness within each tourism destination. The final section presents a model that provides an insight into the factors that enable and inhibit the actions of private and public sector stakeholders in their responsiveness to the impacts of climate change.*

The first section of this Chapter pulls together key information about each of the case study destinations and uses this to provide a comparative summary, highlighting the similarities and differences. This data is then used to indicate where each of the tourism destinations is on the Tourism Area Life Cycle (TALC), which provides an insight into the management of tourism within the destination and its future growth potential. This is of importance in understanding the impact of climate change on the destinations and provides an insight into the challenges stakeholders face in addressing the issue.

Table 6.1 Summary case comparisons

	Sri Lanka	Maldives	Seychelles
<b>Population – 2010</b>	21,513,990	395,650	88,340
<b>Political and economic stability</b>	Cessation of the civil war 2009. Still some unrest and FCO still recommend against travel in northern districts	New democratically elected president in October 2008. Maldives in process of transferring from LDC to an emerging country status.	Stable democracy. The economy is in a poor state and is currently needing support from the IMF
<b>Basis of core tourism product</b>	Natural environment, flora and fauna Cultural heritage	Natural island idyll Dive locations	Natural environment, flora and fauna
<b>Protected areas</b>	8 UNESCO WHS 10 National Parks	0 UNESCO WHS 0 National Parks 25 Marine Protection Areas	2 UNESCO WHS 8 National Parks
<b>Experience of tourism</b>	Organised tourism began in early 1980's	Organised tourism began in early 1970's	Organised tourism began in early 1970's
<b>Tourism arrivals in 2008</b>	438, 475	694,718	132,818
<b>Main generating regions</b>	Europe (UK and Germans) and South Asia (India)	Europe (Italy, UK and Germans) and East Asia and Pacific (Japan)	Europe (France, UK, Italy and Germans) and Africa (South Africa, Reunion and Mauritius)
<b>Types of tourists</b>	Some allocentrics that come to discover the flora, fauna and cultural heritage. Some mid-centrics that come for sun, sea and sand holidays	Some high end tourists in exclusive tourism resorts, but the majority would fit into the mid-centric group.	High end tourists with high disposable income, generally well educated, mid-centric tendencies.
<b>Modes of transport used to get to destination</b>	Air (99.9 percent) Sea (0.01 percent)	Air (100 percent)	Air (97 percent) Sea (3 percent)
<b>Involvement of tourism stakeholders</b>	Greater involvement of the private sector began in 2007 through the establishment of four sub groups of SLTB.	Greater involvement of the private sector began in 1998	Greater involvement of the private sector began in 1999.

	<ul style="list-style-type: none"> <li>• Sri Lanka Tourist Development Authority (SLTDA)</li> <li>• Sri Lanka Institute of Tourism and Hotel Management (SLITHM)</li> <li>• Sri Lanka Tourism Promotion Bureau (SLTPB)</li> <li>• Sri Lanka Convention Bureau (SLCB)</li> </ul>	<ul style="list-style-type: none"> <li>• Maldives Tourism Board (MTB) – strategic co-ordination</li> <li>• Maldives Tourism Promotion Board (MTPB) – Marketing and promotion</li> <li>• Maldives Tourism Training Board (MTTB) – human resource development</li> </ul>	<ul style="list-style-type: none"> <li>• Seychelles Tourism Advisory Board (STAB) of which the membership is mostly private sector.</li> <li>• Seychelles Tourism Board (STB)</li> <li>• Seychelles Tourism Marketing Authority (STMA).</li> <li>• Seychelles Hotel and Tourism Training College.</li> <li>• Seychelles Hospitality and Tourism Association (SHTA) represents the private sector.</li> </ul>
<b>Tourism economic indicators</b> <b>2008 used as a base year.</b>	<p>The tourism industry is the 6<sup>th</sup> most important contributor to national GDP at 2 percent.</p> <p>Receipts per tourist per day (US \$76.6)</p>	<p>Tourism is the key industry and accounts for 55 percent of national GDP.</p> <p>In 2008 tourism receipts totalled 692.32 million dollars.</p>	<p>The World Bank state that tourism is the predominant sector. The government state the third most important contributor to GDP.</p> <p>World Bank (2010) suggest 22 percent of national GDP and the national government suggest 12 percent.</p> <p>In 2008 tourism receipts totalled 305.22 million dollars.</p>
<b>Tourism infrastructure</b>	<p>Public sector infrastructure needs significant investment such as improvement to roads and transportation system.</p> <p>Private sector investment being sought and encouraged.</p>	<p>Good air links and these have recently been upgraded.</p> <p>Significant foreign direct investment in tourism being sought.</p>	<p>Good air and sea links to the islands. Reasonable roads on key tourist islands.</p> <p>Foreign direct investment recently secured for resort development, which is a significant move away from the previous policy of encouraging local ownership of tourism assets.</p>

Source: Researcher

## **Stage of the destination in the Tourism Area Life Cycle**

Figure 6.1 illustrates the stages of the destinations in Butler's Tourism Area Life Cycle (1980) and this is explained in the section below.

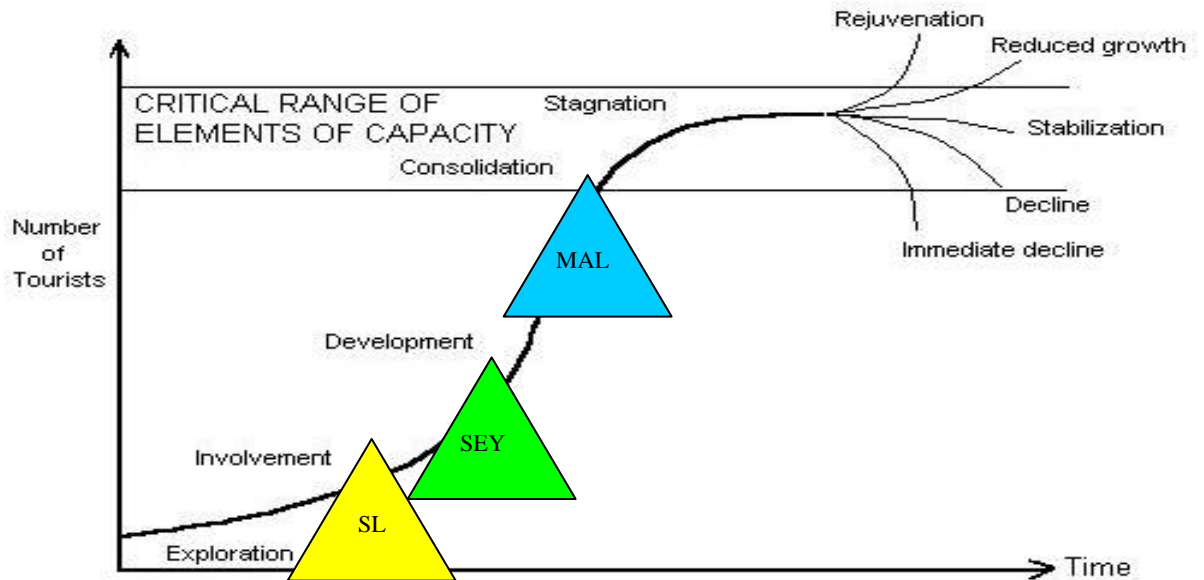
Sri Lanka is at the late involvement stage about to go into the early development stage. It is highly likely that it would already have progressed further into the development stage had it not been for the civil war. Now that the civil war is officially over, it is anticipated that there will be an additional 20 percent growth in tourist arrivals, forecasting approximately 800,000 tourists in 2010 and 2011 (Strategic Marketing Plan 2008). This level of development would require substantial involvement by both the public and private sectors at a regional and national level, and this may not be in keeping with local preferences (Butler, 1980). Tensions about the type and pace of tourism growth surfaced when the stakeholders discussed the future growth levels and whether to target alternative and mass tourism (section 5.1.4).

Tourism in the Maldives has developed very rapidly, evidenced by the growth in tourist beds from 280 beds in 1972 to 23,464 beds in 2008 (Maldives Third Master Plan, 2006). Therefore, it has accelerated through the life cycle to an advanced development stage, increasing both tourist numbers and tourist resorts. Butler (1980) suggests that a tourism destination exhibits some aspects of the consolidation stage as the visitor numbers exceed the local population (tourist arrivals number 694,718, the Maldivian population is 395,650); marketing and advertising are used extensively to extend the visitor season (seen by the work of Maldives Tourism Promotion Board (MTPB)) and old facilities are regarded as second rate (older resorts have been decommissioned and are being made available for new investors). In section 5.2.4, a number of the private sector stakeholders, particularly local residents working in the resorts, suggested that the pace of growth of tourism was too fast.

The Seychelles has developed tourism over a similar period of time to the Maldives, but has always had clear limits to the growth levels they wished to achieve and has kept to them. As a result tourism in the Seychelles is still at the early developmental stage. Butler (1980) characterises this phase as using heavy advertising in tourism generating regions and this is undertaken by Seychelles Tourism Marketing Authority (STMA), and with

natural attractions being developed, which is seen in the progress being made to open up the WHSs to visitors. In addition, Butler (1980:7) observes, “As the stage progresses, local involvement and control of development will decline rapidly”. This was reflected in the views of the private sector respondents, particularly through Seychelles Hospitality and Tourism Association (SHTA), who had significant reservations about the role of new foreign investors (section 5.3.4).

Figure 6.1 Case study destinations mapped on the Tourism Area Life Cycle



Source: Butler (1980), adapted by the Researcher

### Emergence of themes

The findings that emerged in the previous Chapter from interviews, participant observation and secondary data show there are both similarities and differences within the destinations regarding the issue of tourism and climate change. Sri Lanka is concentrating most of its attention on the Earth Lung project and mitigation; the Maldives has had to introduce more adaptation actions and the Seychelles is responding in a more balanced way, using some mitigation and adaptation actions to respond to the effects already observed. The themes below were used in Chapter Five to provide an insight into the particular responses to climate change of each destination:

- Theme 1 The importance of tourism and the country's reliance on tourism;*
- Theme 2 Government regulation and incentives;*
- Theme 3 Tourism and climate change documents;*
- Theme 4 Ability to predict the current and future effects of climate change;*

- Theme 5 The role and responsibilities of developed and developing countries;*
- Theme 6 Adaptation initiatives;*
- Theme 7 Mitigation initiatives;*
- Theme 8 The degree to which climate change was considered in decision making;*
- Theme 9 Perceptions of stakeholder groups.*

During the analysis of fieldwork and secondary data, it became apparent that there was some overlap within some of the themes and also within the conceptual framework that was based upon the literature reviews. Concepts identified in the conceptual framework at a macro level included the primary factors within the destination region, such as the economic and geographic factors, and appeared to be important in the response of the destination to the impacts of climate change. However, this did not provide the whole picture as the respondents were also keen to discuss micro factors such as the actions of their organisations in terms of mitigation and adaptation. The Researcher began to understand that these factors should not be examined in isolation, but required a more holistic approach to provide a deeper understanding of the interplay between different aspects in the context in which the destinations have emerged. Earlier attention should have been paid to Butler (1980) and Mathieson and Wall (1982) who both discuss the *dynamic effect*, that tourism destinations are dynamic and evolve. The recognition of the dynamism within destinations enabled a clearer insight into whether the issue of climate change was embedded in the processes, practices and policies within each tourism destination.

### **Evolution of the conceptual framework**

The conceptual framework has evolved during the thesis. The original framework (Figure 6.2) was developed at the end of the initial literature review and provided a basis for the research design. However, once the fieldwork had been completed and the Researcher began to handle the data it became apparent that an additional component needed to be added to provide a more meaningful understanding of the actions of the stakeholders within the tourism destinations. After some further reading within the field of environmental studies, the concept of environmental consciousness was unearthed. As explored later in this section. The concept's key principle is that the interaction between a person's environmental attitude, knowledge and behaviour influences their responsiveness to an environmental issue, in this instance climate change. Therefore, to gain a deeper understanding of the response of tourism destinations to climate change the environmental

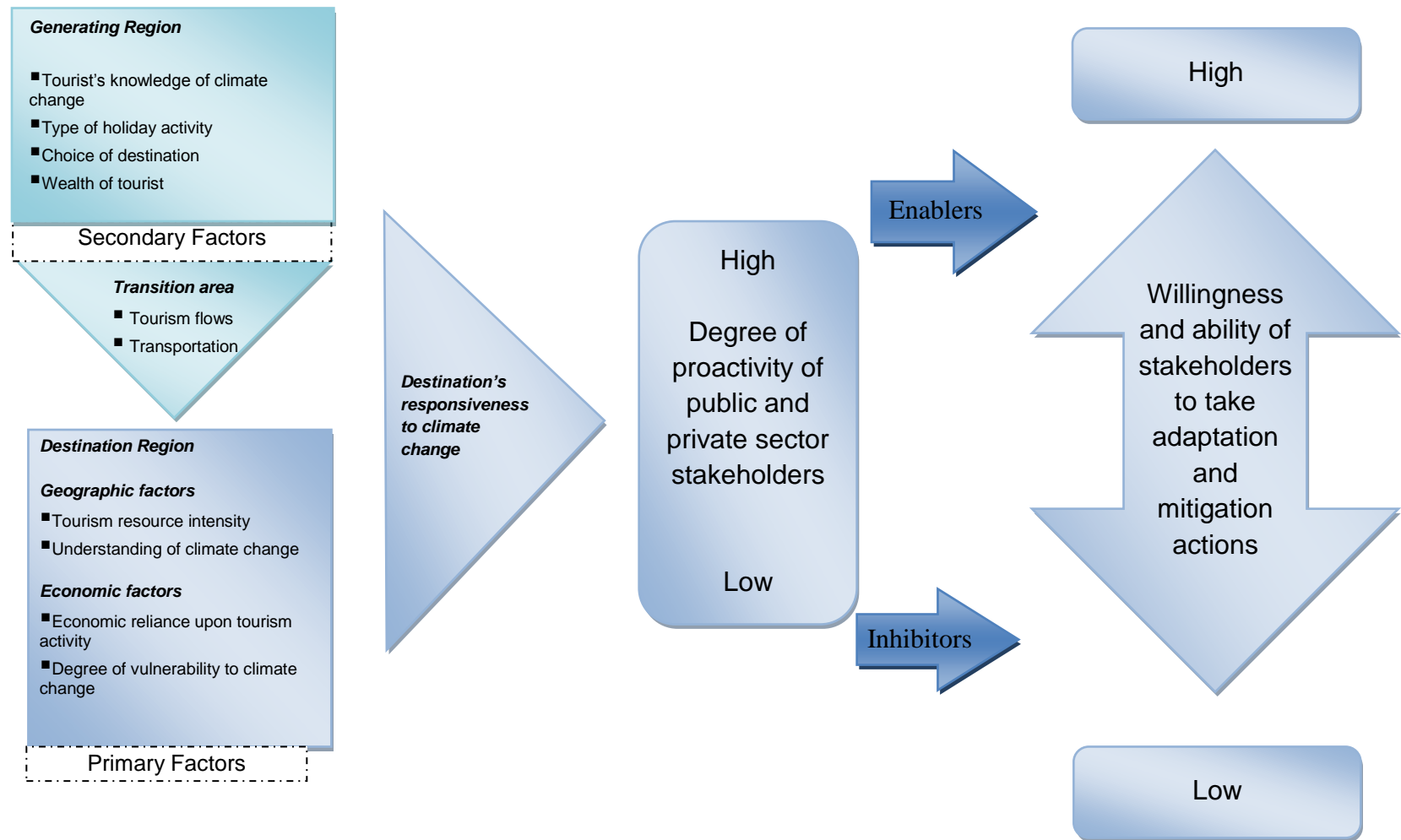


consciousness of the stakeholders needs to be considered. Hence this component was added to the amended conceptual framework. This is shown in the amended framework depicted in Figure 6.2. After establishing the geographic and economic factors (the primary factors) within the destination region, the responsiveness of the destination needs to be examined to gain an understanding of its vulnerability to climate change. However, this did not provide a specific indication of the factors that were being explored, so by examining the attitudes, knowledge and behaviours of the respondents to climate change within each destination the environmental consciousness of the destination can be assessed<sup>39</sup>. This will then provide an insight into the factors that inhibit or enable island tourism destinations in the Indian Ocean to prepare for the impacts of climate change. The addition of the concept of environmental consciousness will also enable a more effective response to research questions two and three, which is examined in the next section.

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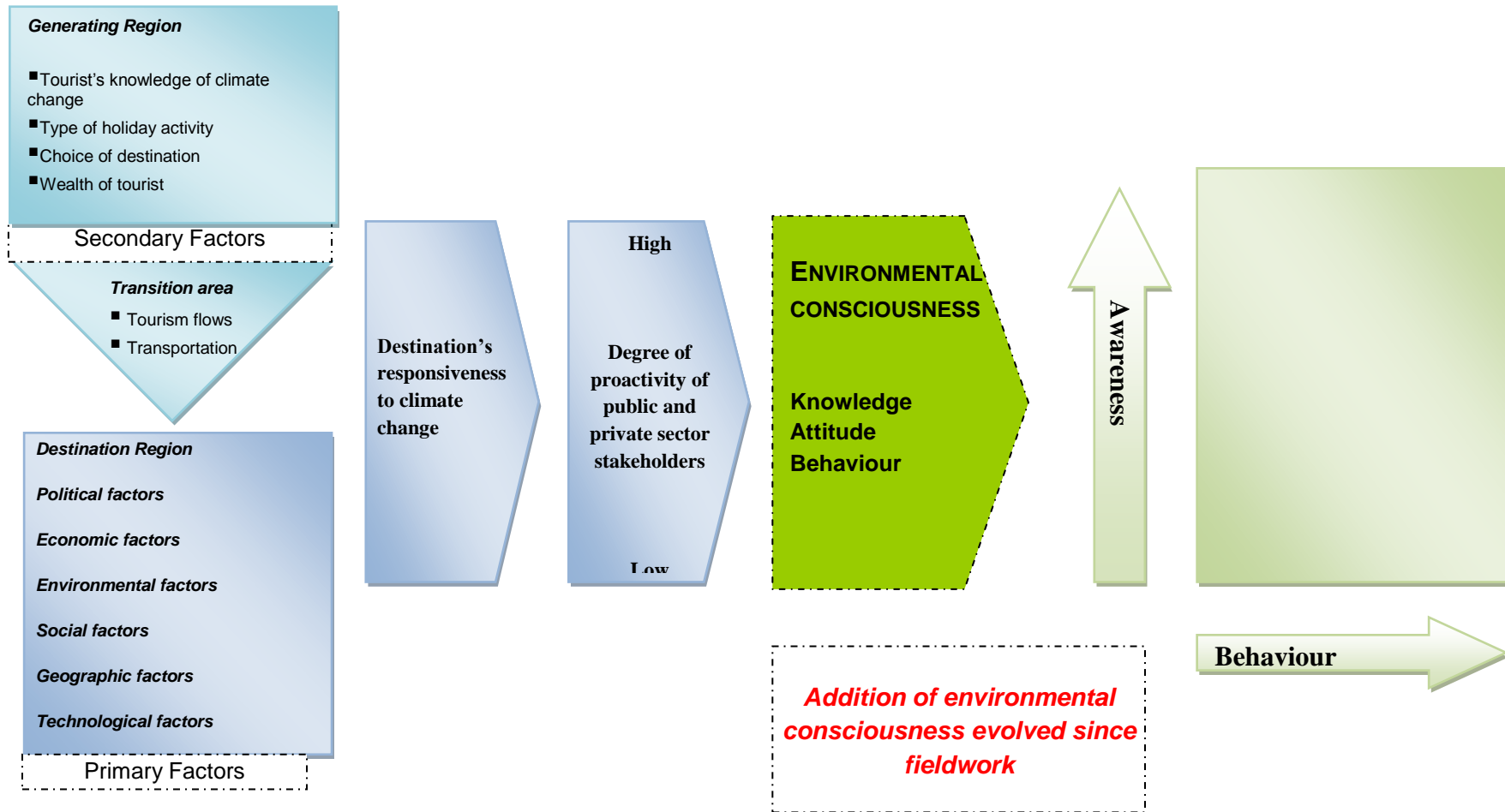
<sup>39</sup> It is the combined environmental consciousness of the stakeholders within the tourism destination that collectively represents the environmental consciousness of the tourism destination.

Figure 6.2 Version 1, original conceptual framework



Source: Researcher

Figure 6.3 Version 2, evolved conceptual framework



Source: Researcher

### **Coverage of the research aim and objectives**

This section reviews the research questions in light of the addition of environmental consciousness to the conceptual framework, starting with research objective one.

Research objective one is to investigate the relationship between climate change and the tourism industry, in particular the predicted effects that climate change will have upon Indian Ocean island tourism destinations. The literature review has provided a good understanding of the relationship between tourism and climate change. In addition, qualitative data was collected that shows that the respondents were aware of the predicted effects of climate change. All respondents were able to provide multiple examples of changes that they observed such as, beach erosion and also voiced their concerns about the vulnerability of their destinations in the future. This has provided an interesting insight into Indian Ocean island tourism destinations, but does not appear to be an important factor in predicting the actions that the stakeholders are undertaking in the destinations. This is explored further in section 6.2.

The second research objective is to establish both the public and private sectors' levels of awareness of climate change within Indian Ocean Island tourism destinations. The public sector and private sector respondents did have different levels of awareness of climate change and this seemed to influence the projects that they have become involved with. This aspect will be explored in the section 6.3 on environmental consciousness when the education levels are examined.

The final research objective is to find out what actions are being taken to mitigate and adapt to climate change by key private and public sector stakeholders in Indian Ocean island tourism destinations. Within each of the destinations there tended to be a different focus in terms of the actions taken by stakeholders. This will be explored in sections 6.3.4 and 6.3.5 on environmental consciousness, particularly in the analysis of attitudes and behaviours.

The data gathered to all three separate research objectives is helpful. However, it is the synthesis of the research data and analysis of the contextual factors (geographic, social and economic) and environmental consciousness (respondents' attitudes, knowledge and

behaviour) that gives an understanding into the factors that inhibit or enable the tourism destinations in their responsiveness to climate change. It will be established, as the discussion develops in the next sections within this Chapter, that these factors are unique, complex and interrelated for each destination. Finally a model will be developed to illustrate the relationships between the factors.

The emerging comparative themes will be explored in detail in sections 6.1, 6.2 and 6.3. However, first insights into the basic theoretical ideas behind environmental consciousness are offered as this was not covered previously in the earlier literature Chapters.

### **An introduction to the concept of environmental consciousness**

The concept of environmental consciousness is derived from the literature of socio-psychology. Some of the early papers emerged in the 1970s and 1980s and discussions appear to have reached a peak in the early 1990s. There is no standard definition of environmental consciousness in the literature and individual Researchers seem to customise the concept to their particular work, for example Demkowski and Hanmer-Lloyd (1994:594) suggest it is an element of the individual belief system, part of the social consciousness and in itself a complex system of values and attitudes. The Researcher defines the concept as the examination of an individual's values and beliefs regarding the environment and how these adjust with continuing education to influence their behaviour towards the environment in a positive or negative manner.

In reviewing the papers, there are some clear messages that emerge. Firstly, all the papers agree that environmental consciousness has three variables: attitude, knowledge and behaviour (Maloney and Ward, 1973; Dispoto, 1977; Crosby *et al* 1981; Arcury, 1990; Schahn and Holzer, 1990; Gruner and Gunert, 1993; Martin and Simintiras, 1995; Diamantopoulos *et al* 1993; and Dembrowski and Hanmer-Lloyd, 1994). The literature on environmental consciousness has been used by marketing academics to gain a greater insight into 'green' consumer behaviour. Secondly, after consensus was achieved about the key features of environmental consciousness, the literature then falls onto two distinct groups; the first of which is those who suggest there is only a weak relationship between environmental knowledge, attitude and behaviour (Maloney and Ward, 1973; Crosby *et al* 1981; Arcury, 1990). These proponents suggest that a strong knowledge of the

environment and a positive environmental attitude does not necessarily lead to positive environmental behaviour. The opposing argument (Dispoto, 1977; Schahn and Holzer, 1990; Gruner and Gunert, 1993; Martin and Simintiras, 1995; Diamantopoulos *et al* 1994; and Dembrowski and Hanmer-Lloyd, 1993), advocates that there is a strong relationship between the variables and by improving environmental knowledge and attitude it is more likely that people will be more considerate of the environment in their behaviour. Figure 6.4 provides an example of a linear model that is simplistic in nature and shows the relationship between the three variables.

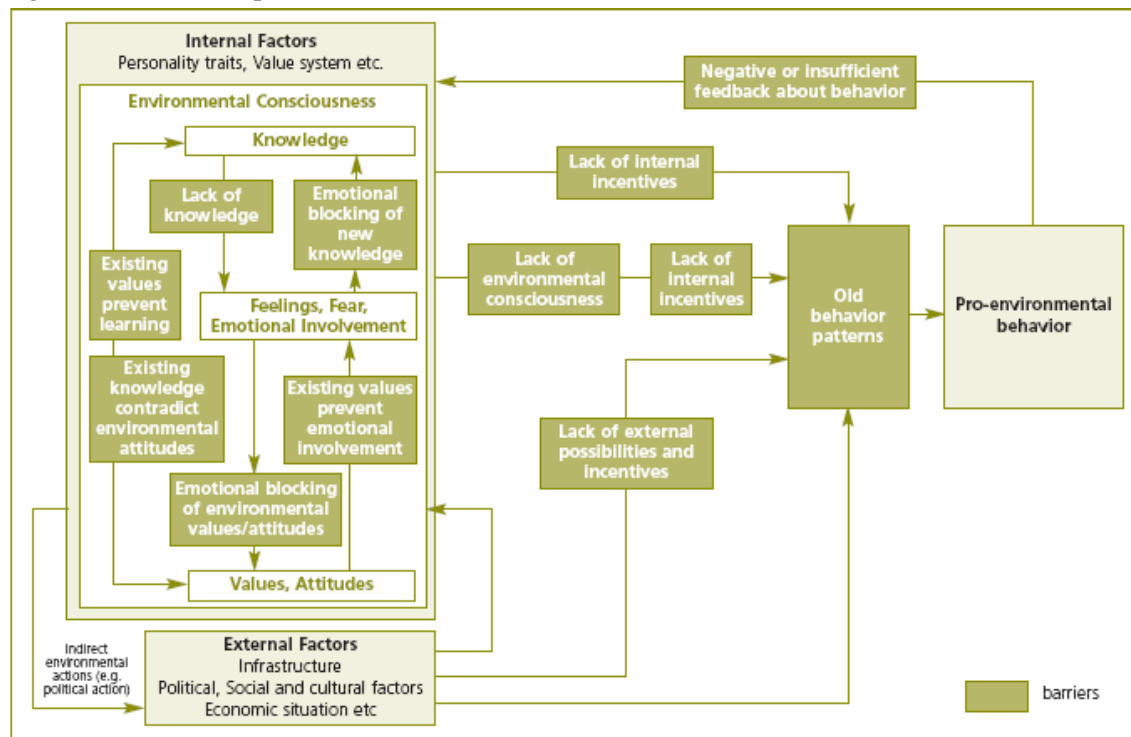
Figure 6.4 Simple linear model of Environmental Consciousness



Source: Kollmuss and Agyeman, 2002

At the turn of the 21st century, the concept of environmental consciousness started to be utilized by policy makers encouraging pro-environmental behaviour in the area of sustainable development. As research developed, it became apparent that the early linear models of the 1970, 80s and 90s (see Figure 6.4), were not adequate in understanding how to change people's behaviour. Research showed that in most cases, increases in knowledge and awareness did not lead to pro-environmental behaviour ( Kollmuss and Agyeman, 2002, Jackson, 2005; Darnton, 2004a and 2004b); this is commonly known as the 'value-action' gap. The model below in Figure 6.5 represents the accepted current view of environmental consciousness. As the attitude and knowledge factors are internal to the individual and developed in formative years, they are not linear (as previously suggested in Figure 6.4), but more complex than earlier Researchers suggested.

Figure 6.5 Model of pro-environmental behaviour



Source: Kollmuss and Agyeman, 2002

Kollmuss and Agyeman's (2002) model (Figure 6.5) identifies the process, factors and barriers for behaving in a more pro-environmental fashion. The darker green areas highlight the barriers that can occur, such as existing values preventing emotional involvement or that existing values about the environmental preventing new learning and thus reducing the environmental consciousness and pro-environmental behaviour.

For the purpose of this research the three components of environmental consciousness will be used, namely attitude, knowledge and behaviour, to allow an insight into the adaptation and mitigation actions of tourism stakeholders in response to the impacts of climate change in their destinations. This model will be returned to in section 6.3.4 and 6.3.5.

The following Table 6.2 provides an interpretivist assessment of environmental consciousness of the respondents within each of the case study destinations, to provide an indication of the collective environmental consciousness of the tourism destination. Table 6.2 is not meant to be a quantitative evaluation; instead, it draws on the data gathered during the fieldwork to provide what the Researcher accepts is a subjectively derived interpretation and assessment.

Table 6.2 was developed by examining each of the nine themes used in the inter-case findings, which enabled the Researcher to offer an assessment of the degree of environmental consciousness (respondents' attitudes, behaviour and knowledge) that was observed or evidenced in each of the destinations. All the data within each theme was examined and a judgement was made about the strength of environmental consciousness exhibited: strong, medium or weak within each theme. A sub grouping was included where there was evidence of specific attitude, knowledge and behaviour being demonstrated. Here too a simple classification was made where three ticks illustrate strong evidence, two ticks some evidence, one tick only a little evidence, through to cells left blank, which illustrate no evidence was collected. The results are summarised in Table 6.2 and allowed the Researcher to start to make tentative suggestions about the level of environmental consciousness present in each of the tourism destinations.

Table 6.2 Indicative summary of environmental consciousness of the tourism stakeholders within each of the tourism destinations.

		Sri Lanka	Maldives	Seychelles
Theme 1 The importance of tourism and the country's reliance on tourism		Weak	Strong	Strong
	Attitude	√√	√√√	√√√
	Knowledge			
	Behaviour	√	√√	√√√
Themes 2 The level of tourism and climate change documentation		Weak	Weak	Medium
	Attitude			
	Knowledge	√	√	√√
	Behaviour			
Theme 3 The type of government regulation and incentives directed at tourism and climate change		Weak	Weak	Strong
	Attitude	√√	√	√√√
	Knowledge			
	Behaviour	√	√	√√
Theme 4 The ability to predict the current and future effects of climate change		Strong	Strong	Strong
	Attitude			
	Knowledge	√√√	√√√	√√√
	Behaviour	√	√√	√√√
Theme 5 Views regarding the role and responsibilities of developed and developing countries		Strong	Strong	Weak
	Attitude	√√√	√√√	√√
	Knowledge	√√	√√	√√√
	Behaviour	√√√		
Theme 6 Adaptation		Weak	Strong	Medium
	Attitude			
	Knowledge	√	√√	√√
	Behaviour	√	√√√	√√
Theme 7		Medium	Weak	Medium



Mitigation initiatives	Attitude	√√√	√	√√
	Knowledge	√	√	√√
	Behaviour	√√	√	√√
Theme 8 The degree to which climate change is considered in decision making		Weak	Weak	Strong
	Attitude	√	√	√√
	Knowledge			
	Behaviour	√	√	√√
Theme 9 Optimistic / Pessimistic		Medium	Medium	Strong
	Attitude			√√
	Knowledge			
	Behaviour			
Theme 9 Vulnerability		Medium	Strong	Medium
	Attitude	√	√√	√
	Knowledge	√	√√	√√
	Behaviour			
Theme 9 The perceptions of the stakeholder groups within destination to climate change.		Weak	Weak	Strong
	Attitude	√	√	√√
	Knowledge			
	Behaviour	√	√	√√

Source: Researcher

On a very simplistic level, Table 6.2 shows of the three destinations that there is greatest environmental consciousness in the respondents of the Seychelles and least in Sri Lanka. This issue of environmental consciousness will be returned to in section 6.2 of this Chapter.

When analysing the findings between the three destinations, the following themes emerged as central in providing an understanding of the differing responses of the stakeholders to climate change:

- Contextual factors: political, social, economic, geographic and technological;
- Predictability of climate change impacts within the tourism destination;
- Environmental consciousness: attitude, knowledge and behaviour with regard to climate change in the tourism destinations.

The next section of the Chapter will provide an analysis within each of the emerging comparative themes, firstly with the contextual factors that make the destination dynamic, then with the ability of the stakeholders to predict the impacts of climate change and finally examining the environmental consciousness of the stakeholders to climate change.

## 6.1 CONTEXTUAL FACTORS

This section explores the contextual factors that emerged within the research data, the factors that make the destination dynamic. These dynamic factors (Bulter, 1980) and Mathieson and Wall, 1982) affect how a destination is responding to climate change. Political, economic, social, environmental, geographic and technological factors will be examined to assess how they are influencing the tourism industries' responses to climate change at each destination. This assessment aims to provide a good insight but may not provide a full account as the Researcher was an outside observer and may not have picked up all the subtle nuances within the respondent's discussions. The contextual factors are unique to each destination and not represented in all of the destinations and respondents from each of the destinations will allocate a different level of importance to a particular issue within the destination.

Therefore, the purpose of this section is to provide a comparative evaluation that explores which of the contextual factors was given a higher or lower importance within each destination. It then goes on to examine why the contextual factors provided different outcomes in the responsiveness of the destination to climate change. To this end an indicative classification is given at the end of the summary of the importance of each factor to each of the destinations.

The classification used is outlined in Table 6.3. During the content analysis the significance of the issue to the stakeholder was assessed through the emotion expressed; the number of times the issue was mentioned and the magnitude the respondents placed on the matter.

Table 6.3 Classification of importance

Critical	The highest level of importance
Significant	Important
Minor	Not as important

Source: Researcher

### 6.1.1 Political

The first contextual factor to be examined is the political context, which examines the influence that government has on the responsiveness of the destination to climate change.

## **Co-ordination of climate change**

Governments demonstrated varying levels of interest in climate change. For example, in Sri Lanka there were no officials with responsibility specifically for co-ordinating climate change at a national level. The Department of the Environment dealt with issues linked to climate change, but the connections between the Department of the Environment and SLTB seemed weak, as there was no regular communication. It appeared that the Sri Lankan government did not seem to be very proactive in this area as SL Priv 5 reflected, *“With government it’s difficult and there are historical reasons why the administration at government isn’t as good as it could be”*.

In the Maldives, again there was no single person with overall responsibility for handling the day-to-day co-ordination of climate change issues. The Head of the Department of the Environment was the self-elected co-ordinator but, as can be seen, he felt pressurised, *“This is the constraints of the capacity. We don’t have the capacity even within my department I have like two other of my colleagues were working on this and I have like two or three in other sectors who need help too. We have a lot of commitments but we don’t have the capacity that’s something that we don’t have,” Mal Pub 5*. The impression given was that all documentation and action related to climate change was sent to this one person, who was already overworked; as a result it was not effectively co-ordinated.

In the Seychelles there was a more co-ordinated approach, the responsibilities tended to be spread out within government departments, but managed through a specific person who was based in the President’s Office. Being located in the President’s Office also gives an impression of the importance ascribed to the role. However, at STB level there was no strong evidence that the issue of climate change had been integrated into the tourism strategy documentation.

In Sri Lanka the only information about tourism and climate change was the paper summarising the Earth Lung Project. During the interview with SL Pub 2 it became apparent that a new structure was being developed within the Tourism Board and one division would include *“one Officer in each to each of the three areas I told you about, the animal, the child and the carbon offset”*. So the organisational structure to support the Earth Lung project was being considered by the Tourism Board, but not yet enacted. In

the Maldives, the respondents thought that climate change was included in the Master Plan, but this was not the case. The NTOs in the Maldives and Sri Lanka had not arranged workshops or discussion groups and did not appear to be entering into effective communication on climate change with the private sector stakeholders. Whilst in contrast, the Seychelles Tourist Board had a series of workshops aimed at the private sector and facilitated by STB to discuss issues related to climate change; although there were no references of climate change in the strategy documentation. Dieke (2008) suggests that tourism policy provides the guidelines and the reference point against which any development in the sector should be evaluated. If this is extended to the area of climate change, then until the issue of climate change is fully embedded in the policy process within the destinations, actions will tend to be *ad hoc* and disjointed and this is likely to result in the tourism sector not being very prepared in their responses to climate change.

### **Protection of environment**

There were marked differences in the approach of the destinations to protection of the environment. At one extreme, there was the Seychelles, where the government had a long history of regulations used to protect the environment. For example, no more than 50 percent of any island could be used for any development, as a result the other 50 percent was kept in pristine condition (Vision 21). There was also clear evidence of resorts' operating licences being revoked *"For a long time they had been the major player and they had, held a significant portion of the room count. But over the years they had been so many hotels opened and when they did not listen to government rules, we closed them down and took their licence away, it was a big shock for them"* Sey Pub 3. In the Seychelles, there are two WHS listings and seven national parks, which illustrate the commitment of the Seychellois government to environmental protection. This was also a point emphasised in the interviews, as this respondent illustrates: *"Climate change is now being looked at as well and was included in our impact assessment of the WHSs and there was also lots of discussion how can we, what can we do, what should we do, so it's the first time last year [2007] that climate change was really built into our management exercises"* Sey Pub 2. This suggests that both historically and currently the Seychellois government is committed to environmental protection and that climate change issues are starting to emerge in the management of these sensitive areas.

Sri Lanka has the most protected areas, with eight WHS listings (six for cultural heritage and two for the natural environment) and six national parks, but there was very little evidence of effective building regulations and only limited enforcement. Respondents were extremely proud of their cultural and natural heritage, but did not attribute having regulations to protect its future prosperity. This could also be an indication of the late involvement stage that Sri Lanka was at too. Although the Researcher travelled extensively in Sri Lanka, there was limited evidence of development of the cultural and natural facilities for improved an improved tourist experience, which concurs with Butler's (1980) indicators of the development stage.

In the Maldives, there were very few protected areas<sup>40</sup>, but investors did need to complete Environmental Impact Assessments prior to being given consent for development. However, enforcement of regulations was poor to non-existent as *MAL Pri 7* observed, *"How they implement it is the question. How it is being monitored is the question right now, whether it is monitored to the best extent, that is the question... there is room of a lot of improvement"*. The government did use what Font and Tribe (2001) classify as 'best performance awards', incentives to encourage good environmental behaviour (section 5.2.5) but the only stakeholder to refer to this incentive had been a recipient this gave the impression the incentive was weak.

So, each destination appeared to place a different level of importance on the natural environment, the respondents in the Seychelles were very aware that it was the environment that made the islands unique and protected it. In Sri Lanka respondents were very proud of the natural environment and were keen for areas to be listed, but seemed to have limited capacity to respond to their aspirations of environmental protection. At the other extreme was the Maldives, with 25 Marine Protection Areas identified, but not one of the respondents made reference to them. The Environmental Impact Assessments seemed to be required to ensure that no flagrant disregard of the rules occurred, but after building permission had been granted there were no checks or inspections conducted to ensure that developers fulfilled the requirements of the plans. In conclusion therefore, the Seychelles appeared to be taking the most pro-active approach, as they had set clear

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<sup>40</sup> The Researcher was not made aware of the Marine Parks during the fieldwork and only came across them when conducting secondary research. No respondents referred to the protected areas and there was no tangible information available about the designation during the fieldwork.

parameters and did enforce them. Sri Lanka tended to be taking a *laissez faire* approach as they had abundant regulations for environmental protection, but the stakeholders did not directly refer to the importance of environmental legislation for protection of the assets. Finally, the Maldives could be classed as adopting a tokenistic approach to the protection of the environment, as they wanted to be seen to be doing the ‘right thing’, but took no actions to enforce regulations once the investors was granted permission for development.

### **Governance**

In Sri Lanka at the time of the fieldwork, the country was in the midst of a long and complex civil war. So clearly, the government’s priority was to curtail the Tamil Tigers and bring to an end the civil war. Consequently, the focus of the respondents was their own and family safety. There was a stoic attitude *“Although we can’t turn our eyes off and say that’s not happening it is happening but at the same time what we do it is not to tremble to that political threat” SL Pub 1*. Clearly, it was very difficult for the respondents to be able to plan beyond the end of the civil war, so whilst there was the Earth Lung project (Insight 3, section 5.1.10) it was not given the highest priority by all government departments at the time. This raises the question as to whether the Earth Lung project was primarily targeted at the tourism sector within the destination region or within the generating region.

The Researcher conducted the fieldwork in the Maldives during July 2008 just before the election for a new President. The impending election was a very topical issue during the fieldwork, as a number of the respondents were keen to inform the Researcher about the corruption in the government, but none of them would go on record. The respondents’ accusations included some of these issues: local people being exiled to prison islands for raising question about the moral principles of the President; government departments having to employ relatives of the President, but these employees then did not turn up to work, so they were seen as ‘ghost employees’; government revenue being siphoned off into personal accounts; and many more. There was a genuine fear within the respondents as they recounted their experiences and they referred to the country as a dictatorship not a republic. At the same time, there was hope that as the ensuing elections were being observed by the British Electoral Reform Society the outcome would be fair. The Researcher was, in most instances, interviewing and talking to educated professional

people, but they still exhibited this fear. Such fear may well suppress the actions of the stakeholders for fear of breaking some of the unwritten rules. This supports the views of Wray (2009), who proposed that there needed to be a functioning democracy for effective collaborative engagement with stakeholders. So lack of a functioning democracy in the Maldives is likely to inhibit the actions of stakeholders in response to the impacts of climate change too.

In contrast the governance in the Seychelles was far more politically stable; the last election was held in 2006, where President James Michel was elected president with 53.7 percent of the vote, the next elections are due later in 2011 (CIA World Fact Book, 2011). Respondents did not provide any indication of any concerns about the democratic process within the country and the Researcher did not pick up any underlying tensions between the stakeholder groups during the fieldwork. Criticisms were made of and by public and private sector stakeholders, but it was all very transparent.

### **International responsiveness**

When the Researcher attended the UNWTO Tourism and Climate Change conference in Davos 2007 there were representatives from many different countries, approximately thirty of whom produced presentations about how they were being affected by or responding to climate change. Many destinations provided compelling information, such as Fiji and Canada, and all three of the case studies gave persuasive presentations about their concerns over climate change. Sri Lanka launched the Earth Lung Project, the Seychelles raised concerns about long haul flights and the Maldives' key message was to raise awareness of their plight of the Maldives with regard to sea level rise. During the fieldwork the Head of the Environment in the Maldives stated, *“Do they want us to wait until we kind of submerged, that's not something that you can accept”*, *Mal Pub 3*, to reinforce his message. His intimation was that global bodies should be intervening at a faster rate than they currently were; at a later point in the interview, he questioned the limited resources that had been allocated to the Maldives to address the problem. Subsequent to the research data being collected, the Cancun conference took place and the Green Climate Fund was established that will raise and distribute £64bn to poor nations to help them with adaptation and mitigation (BBC, 2011).

This section illustrates that the governments had different expectations re governance; the Seychelles and Sri Lanka were considering various methods inside their country they could execute to respond to climate change, there was greater independence. Whilst the Maldives appeared to want greater intervention from international bodies to help the country respond to the current and future impacts of climate change, this could be seen as developing dependence.

### **Summary**

Drawing together the two areas that government can control, namely, the co-ordination of the responsiveness to climate change and the level of government regulation, there was some similarity across the destinations in their governments' reaction. In the Seychelles, the government had a co-ordinator of climate change working within the President's office, coordinating a response within different departments; this resulted in the issue being perceived as high priority. The designation of protected areas also exemplified that the Government recognised that for tourism the country is reliant upon the image of a pristine environment and that they were prepared to undertake unpopular action when necessary to protect it. The STB was taking a strong leadership role through encouraging engagement of different stakeholders and creating protected areas (both at a National and International level). Although the issue of climate change was not yet included in the national tourism policy, it was starting to emerge within the management plans of the WHSs and this was openly discussed. Within Sri Lanka the government did not take such a dominant role, although areas for protection had been established (both at a National and International level). Although the day to day management of these sites did not take into consideration the impacts of climate change and enforcement of building regulations appeared lax, this could be because the government was distracted in trying to find a solution to the civil war. The Maldives had strict building regulations regarding the EIA, limited environmental protected areas (these were not evident during the fieldwork) and both the public and private sectors were critical of the lack of enforcement of the building regulations and they did not seem to have been adapted to take into consideration the changes predicted with the changing climate.



Both Sri Lanka and the Maldives were troubled with political factors that they could not control, a civil war and lack of democracy respectively. In Sri Lanka, the dominant issue is the civil war, which puts all the other components within the political context into the shadows as it compromised that ability of the country to function effectively and safeguard local people and tourists. In the Maldives, the stakeholders were uneasy about the state of democracy and this was a background issue during the fieldwork, which inhibited respondents and compromised the ability of stakeholders to work collaboratively. These political factors clearly influence the environmental consciousness of the respondents within the destinations and when the attitude, knowledge and behaviour is examined in the next section, these background issues are considered to influence the respondents' actions with regard to the impacts of climate change.

Table 6.4 Indicative classification of the political contextual factors

Indicative classification	Political factors
Sri Lanka	Critical
Maldives	Significant
Seychelles	Minor

Source: Researcher

## 6.1.2 Environment

### Cultural links to the environment

The use of a social constructionist methodology proved very helpful in providing an understanding of the relative importance that the respondents gave to the environment. In two of the case studies, respondents were keen to emphasise the important of the natural environment to their culture. In Sri Lanka, this was identified by *SL Pub 2* “*Sri Lankan culture is very, very strongly linked with this biological diversity and nature*”. In the Seychelles this was articulated by *Sey Pub 5*; “*Seychelles is a clean place, where everybody likes to come, we are an example to the world because people like to see our fantastic land. People do not like to see fumes, people want to walk in a country where the air is fresh, it is good for your lungs and we are related to our environment*” this was supported by *Sey Pub 2* “*it’s [the environment] embedded it’s very much sort of linked to personalities you know*”. In contrast there was not such value given to the environment within the Maldives “*we have never been very much environment friendly anyway*” *Priv 2*. Hence, there was a greater empathy for the environment in the Seychelles and Sri

Lanka, but this was not reflected in the Maldives. This could create a barrier for environmental consciousness in the Maldives as the previous values held by the Maldivians regarding the environment being a functional resource, could impede new learning about the environment (Kollmuss and Agyeman, 2002). Yet all these destinations are reliant upon a pristine natural environment, which is the foundation of their basic tourism product.

### **Use of the environment**

The respondents discourses about the use of the environment also provides a helpful insight into the relative importance they associate with it. Within the Maldives the coral reefs were used as a source of building material. Whilst the public sector stated that investors within the resorts were now unable to use the reefs for building, a number of the private sector respondents disagreed with this, as *Mal Priv 10* illustrates, *“This is crazy and not only do they not care, they are even giving reefs to reclaim and make resorts, now as a conservationist I would really say to the Tourism Minister look here, what we are doing is destroying the environment”*. Although 25 Marine Protection Areas (MPAs) (Tourism Maldives, 2010) had been designated within the Maldives, none of the respondents referred to them and there was no information available about them in the destination, which gives the impression that very limited importance was given to these fragile environments. In Sri Lanka and the Seychelles, fragile environments were given legal protection (both nationally and internationally); this provided a clear designation that these eco systems were fragile and required specialist management. Whilst this quote is from a Sri Lankan respondent, it was also reflective of what was said in the Seychelles *“we always say, tourism is based on environment, if you protect environment we can protect tourism also” SL Pub 4*. In the context in the Maldives, the coral reef had been used for many centuries as a building material for local people and this seemed to be a difficult mind-set to change.

### **Summary**

From the preceding section, it can be seen that the Seychelles and Sri Lankan respondents claimed that their nations had an affinity with the environment and as a result of this, protection of the environment was almost second nature. These claims were substantiated with tangible evidence through the numerous designated protected areas in both countries

(section 5.1.1 and 5.3.1). However, the Seychelles was stronger on enforcement, so gained a higher classification. In contrast, the Maldivians seemed to have historically viewed the natural resources in the environment as components for use in building development and there was less importance given to the designated sites in the Maldives, as not one respondent referred to them and there was no evidence of the communication about its MPAs, not even by dive operators.

Table 6.5 Indicative classification of the environmental contextual factors

Indicative classification	Environment factors
Sri Lanka	Significant
Maldives	Minor
Seychelles	Critical

Source: Researcher

### 6.1.3 Social

#### Attitude regarding developing /developed countries

As far as the Kyoto Protocol, as discussed in section 2.3.1, all the case study countries are classified as non-Annex 1 countries (Appendix 1). They are developing countries and are thought to be especially vulnerable to the impacts of climate change. The IPCC, 2007 (see Figure 2.13) calculates that average Annex 1 country capita, emits 16.1 t CO<sub>2</sub> equivalent per capita, per annum. Whilst the average non-Annex 1 capita emits 4.2 t CO<sub>2</sub> equivalent per capita per annum. Annex 1 countries amount for 19.7 percent of the global population compared to non-Annex 1 countries that amount for 80.3 percent of the population (IPCC, 2007). This illustrates the imbalances within climate change, the respondents in the destinations were clearly aware of the disparity, and different levels of anger and acceptance were attributed to the disproportional contributions and impacts of climate change. The most extreme responses were found in Sri Lanka and the Maldives; very strong reactions demonstrated anger as this quote from *SL Priv 4* demonstrates: “*we need to convey to the west, it’s a human rights issue, because the people who have the bitterness don’t have a voice*”. There was similar reaction in the Maldives, by Mal Pub 5 “*This is not a voluntary thing, this is a moral obligation, this is a commitment, Article 4.3 blah, blah, blah says developed countries must assist, but they have failed*”. These were not isolated responses, and reflect the general feeling that there was an inequity that needed to be addressed. In some instances, the respondents appeared uncomfortable with the Researcher

who was from an Annex 1 country and they did not want to cause offence. Following on from the fieldwork, the Maldives has been promised \$30 million of international donor funds to help achieve a pledge to be 'zero-carbon' by 2020 (Green Futures, 2011).

In the Seychelles, there was not such an emotional response and respondents tended to be factual and pragmatic as Sey Priv 7 reports, *"We can safely say that Seychelles is not guilty of big emissions, we are too small and we can put our hands up and say, not us"*. Within any nation you will always encounter people with different views on issues, but the Researcher has tried to capture the prevailing mood. In the Maldives and Sri Lanka; the impression was given that the Annex 1 countries needed to do more to help to respond to some of the impacts of climate change that were already being observed in their countries (responding to what the UNWTO, 2008 classify as indirect environmental changes). Whilst in the Seychelles, there was no mention of any expectations that international bodies or governments should step in and provide help. The thrust of the responses here were concerned about the implications of climate change on their economy, in particular that foreign tourists would stop travelling there (responding to what the UNWTO, 2008, classify as impacts of mitigation policies on tourism mobility).

### **Time perspective**

Another contextual factor that emerged from the data was the respondents' perspectives to time and this differed between the case studies from short term to long term<sup>41</sup>. In the Seychelles this is evidenced by the relatively limited tourist arrivals 132,818 in 2008; the tourism strategy covers a ten year period and the regulations in place to protect the environment have been in place since the 70s. It is difficult to provide an illustrative growth rate as the Seychelles performance has been inconsistent, from significantly negative growth rates (-7.7 percent) to a maximum of 6.5 percent. (Vision 21, Tourism Development in Seychelles 2001 – 2010). The Maldives had a more frantic pace of development; this is seen by the growth of tourism arrivals (694,718 tourists in 2008) and an average growth rate of 8.3 percent per annum. The strategic plan had a five-year window (Maldives Third Tourism Master Plan 2007-2011).

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<sup>41</sup> Short term 1-2 years, medium term 2-5 years and long term 5 to 10 years, (Johnson and Scholes, 2005)

In Sri Lanka, tourist arrivals were 438, 475 in 2008, with an average growth rate of 7.4 percent on 2007, but this obviously provides a rather distorted picture due to the civil war; without the civil war tourist arrivals would probably have been much higher. The strategic plan focused on the next twelve months with forecast arrivals identified for the next two years (Sri Lanka Tourism Promotion Bureau Strategic Marketing and Country Activity Plan 2008).

The Seychelles appeared to have a more long term perspective and seemed happier to proceed at a slower pace. Tourism in the Seychelles and the Maldives had started in the early 1970s, but arrivals of tourists in the Maldives has now surpassed those in the Seychelles by more than five times, which indicates a fast pace of growth. Tourism in the Maldives is progressing at a rapid pace with a mid-term perspective, whilst Sri Lanka is progressing at an unpredictable pace, with a short term perspective.

Climate change impacts normally occur at a slow pace, such as sea levels rising and increases in surface temperature. When the IPCC predicts these two factors they use a time span of 100 years (as seen in section 2.2.1). The implications of these different perspectives on time are that by having a longer planning span the Seychelles can more easily consider the issue of climate change and integrate it into the tourism planning process in a more effective manner. The Maldives strategic tourism plan uses a mid-term perspective, but forecasts tourism growth at very rapid pace. Could this be to maximise current opportunities before the impacts of climate change manifest more and tourists no longer want to visit? Finally in Sri Lanka, it is almost impossible to plan in the mid to long term when the resolution of the civil war is so recent, so maybe climate change does not appear on their short term planning horizon, which is evidenced by no mention of it within the strategic plan.

### **Alternative tourism**

Respondents portrayed different perspectives about tourism development. As has previously been discussed in Chapter Five, sections 5.1.4 and 5.2.4, both Sri Lanka and the Seychelles recognised that tourism development provided monetary gain that could be useful in conservation and preservation.

During the fieldwork in both of these destinations, respondents also discussed examples of destinations where tourism had not been successful. In one instance a respondent did not want to criticise another neighbouring destination for fear there might be retribution. In Sri Lanka, a number of respondents referred to tourism within the south west of the country, where there had been *ad hoc* tourism growth that in turn had led to unsavoury types of tourism, namely child sex tourism. The authorities really struggled to stop this tourism and felt the reputation of Sri Lanka was tainted. This experience made them very aware of the problems that can ensue, so it appeared to make them more cautious in their approach to tourism development as this respondent illustrated *“we have to be careful the area we develop and end up with, what is the capacity we can take”* SL Priv 6. This supports the views of Hall (1974) in that carrying capacity is not solely concerned with the number of tourists in a particular place, but the activities of tourists also need to be taken into consideration.

Similarly, in the Seychelles some respondents made many references to tourism in Mauritius, they held the opinion that it had grown too quickly and did not provide a unique experience for the tourist. Both public and private sector stakeholders in the Seychelles discussed one of their early tourism resorts, Beau Vallon and the mistakes that had been made, what Butler (1980:7) refers to as the ‘attendant environmental, social and economic problems’.

In the Maldives, the respondents seemed focused on their own destination; very few comparisons or references were made to other tourism destinations. Tourism development had always been centrally planned by the government, in that decisions about the release of resorts were made in conjunction to growth targets in the tourism Master Plans. The local people were segregated from the resorts and women were not normally allowed by their families to work in the resorts. The Researcher was shown resorts that were no longer used for tourism but had been handed over to local people, which was seen as a positive aspect of tourism. Consequently in the Maldives, the positive experiences that the destination had of tourism development influenced its aspirations for future tourism development.

In Sri Lanka respondents wanted ecotourism, as illustrated by *SL Pub 2: 'Sri Lankan culture is very, very strongly linked with this biological diversity and nature, it is reflected very well in the architecture, the structuring, the buildings, the life styles and all of these facets that you can think of in terms of the cultural side. So that's why we want ecotourism'*. In the Seychelles the respondents were keen to have more 'high end' tourism as *Sey Pub 4* explains, *'We could not cope, suppose we were maybe fifty percent cheaper the mass people who would come here maybe we probably would not be able to manage. And the gains from it would be fifty percent less. With the ripple effects of environment and social problems that would arise we would, our tourism would be very short term than the growth that we have seen the development that we have seen would not last'*. Finally, the Maldives public sector referred to pursuing ecotourism as *Mal Pub 4* demonstrated, *'For us it's very important, it's very important for us to actually spread the news that we are an eco-friendly destination, a green destination'*, but the Researcher did not find any tangible examples to support it.

### **Summary**

The Seychelles appeared to have strong cultural links to the environment, which was evidenced by the number of protected areas and their long term perspectives on planning and the environment; they also exhibited a more pragmatic response to the inequalities between the developing and developed world per capita contribution to global warming. The respondents in Sri Lanka also had cultural links to the environment and some significant protection of cultural and natural heritage sites. The Sri Lanka Tourism Board had a short term perspective on planning, but used its previous experiences to inform planning and influence the type of tourism it wishes to develop. The respondents also had an emotional response to the rights and responsibilities of the Annex 1 countries and non-Annex 1 countries. The respondents within the Maldives did not demonstrate a strong affiliation to the natural environment and tend to consider the utilitarian benefits as more important and this could be the reason why there were limited protected areas. The Maldives Tourism Board (MTB) had a mid-term perspective on planning. Respondents here were very emotional about the role of the developed and developing world and there were inconsistencies in the responses to the types of tourism that MTB wanted to develop, they made statements about ecotourism but there was no evidence of it during the fieldwork.

Table 6.6 Indicative classification of the social contextual factors

Indicative classification	Social factors
Sri Lanka	Significant
Maldives	Minor
Seychelles	Significant

Source: Researcher

#### 6.1.4 Economic

##### Financial pressures

All three case study destinations were dealing with different financial pressures. All the destinations were developing countries and were experiencing financial difficulties which resulting in greater pressure being put upon the tourism sector to perform well. In Sri Lanka, tourism contributed approximately 2 percent of GDP (UNWTO, 2009). In the Maldives, tourism contributed 55 percent of GDP (UNWTO, 2009) and in the Seychelles, the GDP gained from tourism was 36 percent in 2003 and in 2007, the contribution was 50 percent<sup>42</sup> (UNWTO, 2009). Respondents from the Maldives reported concerns about changes to their international economic status. Over the last five years, the economic activity within the country had improved this was a result of the United Nations changing the economic status of the Maldives from ‘a least developed country’ (LDC)<sup>43</sup> to ‘a transition to a market economy’. This meant that they would not be given the same amount of financial support from the IMF and the World Bank. Mal Pub 4 was very verbose about this *“we are about to graduate from LDC, how can you expect us to be a graduate and you know, there is no way. It’s like you are dumping again, I mean there is no way that we can be happily be living when no-one understands what is going on. We will go into more poverty, there is nothing; we are not going to improve”*. The respondent was clearly cross that the funding was being reduced, whilst the country needed to spend more on adaptations to climate change, so the financial pressure was great (section 6.3.4). Scheyvens and Momsen (2008:494) identified the Maldives as, “actively playing upon their vulnerabilities while negotiating aid or concessions from Western countries, regional organisations, and international development organisations” and this seems confirmed by

<sup>42</sup> The economic data if that from the UNWTO to ensure comparable data and techniques are used.

<sup>43</sup> LDC have to conform to three criteria, 1, have low economic income - the gross domestic product per capita is less than \$750; 2, a human resource weakness based on nutrition, health and education; 3, an economic vulnerability based on instability of agriculture, imports and exports, economic smallness and population smallness. UN 2011



these observations. It was evident that there were clear contrasts in the Maldives, from the opulent and extravagant resorts developed for the tourists to the overcrowded mainland, Malé, where most residents were working and consuming, to the small local islands where people seemed to live a very simple life; which tourists rarely saw. Interestingly, the Maldives GDP per capita is \$4,600<sup>44</sup>. Given the large tourism receipts, the wealth generated from tourism did not seem to be very evenly distributed within the population.

In Sri Lanka, the economic situation was discussed in a different context. There was pent up frustration that the respondents wanted to maximise the economic benefits from their tourism assets but this was not possible due to the civil war. Travelling around Sri Lanka, the Researcher saw very humble housing with many people living in shacks and tending what appeared to be unfertile land for food. The observed poverty was reinforced by anecdotes from workers in the resorts who often wanted to sell additional services outside the formal channels, for example beauty treatments, local food and drink and excursions.

In the Seychelles, the country was under the guidance of the International Monetary Fund, who were actively involved in the restructuring and management of the national economy. Representatives from the IMF were in the Seychelles when the fieldwork was being conducted and a number of interviews had to be rescheduled to accommodate them. All respondents referred to the visit from the IMF and even taxi drivers talked about the poor state of the economy and asked to be paid in US\$. The government was keen to maximise the economic return from tourism and Vision 21 (2000) clearly articulates this by identifying that the Seychelles will be redefined “as an exclusive and quality tourist destination”, whilst simultaneously “expanding the capacity and increasing yields, taking account of carrying capacity and product quality”. As can be seen in Section 5.3.4 the respondents were concerned that the government had entered into a number of tourism foreign direct investment projects that might compromise the integrity of the tourism strategy. The government tried to gain foreign currency by having rules limiting the amount of local currency tourists could spend so that they had to use US dollars or Euros but it soon became evident to the Researcher that there was a black market in foreign currency. In the Seychelles approximately a third of the respondents from both the public and private sectors were critical of the welfare benefits that were available from the state;

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<sup>44</sup> GDP per capita Maldives \$4,600; Sri Lanka \$4,900 and Seychelles \$21,600 CIA, 2011

they obviously felt that a dependency culture had been created with free education, a health service and good benefits for the unemployed. The remuneration packages and pensions within the public sector were viewed as particularly generous, too. Certainly, when travelling around the Seychelles there was no evidence of the very simple lifestyles observed in Sri Lanka and to a lesser extent in the Maldives, indeed on the contrary the general standard of living appeared to be quite good.

All the destinations had financial pressures but they appeared most acute in the Seychelles as the IMF were involved in the management of the economy. Then the Maldives and finally Sri Lanka, yet this in a reversal of the poverty observed by the Researcher during the fieldwork.

### **Reliance on tourism**

The country most reliant upon tourism for economic gain was the Maldives (55 percent of GDP), then the Seychelles (22 percent of GDP) and finally Sri Lanka (2 percent of GDP). There were very few alternatives for diversification within the Maldives, so tourism (as it can be seen from the GDP) was the main contributor to economic activity. There was limited fishing and fish processing, and this is gradually reducing and tourism increasing. In Sri Lanka, tourism is the sixth most important sector (based on the contribution to GDP). The sector contributing most to GDP is foreign remittances, then textiles and garments; tea; transportation services and rubber based products (Sri Lanka Tourist Development Authority, 2009). Therefore, although the respondents kept emphasising the importance of tourism, this did not match with the economic data. There are viable opportunities for diversification into other industries, but the issue from the perspectives of the respondents was that tourism potential was not being realised, as respondent SL Pri 2 demonstrates *'That's why I feel tourism has a huge potential to play and get the profits'*. As discussed in section 5.1.4 a concern was that local women were working in the Far East to send money back home, and this created social problems as the women lived away from their families and this often led to the breakdown of traditional family units. To reinforce this, the remittance from foreign workers was nearly 27 percent, compared to foreign exchange from tourism being 3.1 percent (Sri Lanka Tourist Development Authority, 2009). The respondents were keen to address this issue by developing the tourism sector so that suitable employment prospects could be created within Sri Lanka.

In the Seychelles, the broad productive sectors were, agricultural and fisheries 15 percent and tourism 22 percent for 2008. It has been difficult to find up to date economic data about the Seychelles; the International Monetary Fund<sup>45</sup> is currently assisting the Seychelles and at the current time economic data is either not available or not very transparent. The data provided by STB in the Vision 21 document was that tourism contributed 12 percent of GDP. But respondents from STB were keen to point out that it did not take into account all the added value that is generated from tourism, the indirect contributions that accrue (Vision 21, 2000). Irrespective of that, this does give an indication that the Seychelles could diversify into other sectors and it need not become more dependent upon the tourism sector as a mainstay for the economy.

### **Economic leakage**

Two of the case studies, the Maldives and the Seychelles, were concerned about economic leakage. Sri Lanka did not mention this issue probably as the country's economic reliance on tourism was considerably less than the other destinations. In the Maldives, the economic leakage is described as 'substantial' (Tourism Year Book, 2009) and occurs for three main reasons: the high level of imports, the repatriation of wages by expatriate workers, the repatriation of profits by foreign investors. Ironically, this problem is being exacerbated given the pace of development, as the vast majority of building materials have to be imported, the majority of investors are foreign and the majority of workers are also foreign, especially the resort managers. The government intends to address this by improving the linkages between sectors, improving the training of the workforce and increasing the tax revenue from tourism. An additional factor to consider in the Maldives is the government's reliance upon tourism revenue which in 2008 was 27.9 percent, but this is a reduction from 37.9 in 2007, probably due to the global economic downturn (Ministry of Tourism Art and Culture, 2009). Given the limited options for economic diversification it would be difficult to recoup this money from other sectors at present.

In the Seychelles, tourism has been planned and developed to try to prevent the problems of economic leakage and yet they had the most critical economic situation. For example, all car hire is franchised through small local operators and preferential benefits are given

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<sup>45</sup> After years of debt which resulted in the government defaulting on bond repayments, the IMF agreed to provide \$26million standby agreement. By September 2009, the economy was improving (Mintel, 2009)

to small investors. However, like the Maldives there is a premium to pay as most goods are imported to the Seychelles and this process in itself creates economic leakage. In section 5.3.4 the respondents are worried that the new investors will increase the problem of economic leakage, particularly in regard to the repatriation of profits.

### Summary

As expected, the economic context of the country was an important aspect in understanding the stance of the public and private sector respondents within the destinations. In Sri Lanka, it was more of a background issue, dimmed by the civil war. In the Maldives, the country had improved its stance in the economic ratings and was being moved from a LDC to a transition market economy, which meant less financial support from the international community and the government were indignant about this as they considered that they required more financial assistance for adaptation to climate change. The problem from economic leakage in the Maldives is likely to increase given the pace and method of tourism development. So the economic issues in the Maldives could be classed as significant. In the Seychelles, as the IMF was involved in managing the economy, the issue was more critical and additional pressure was being placed upon the tourism sector to generate more income for the country. However, in the future, this could exacerbate its economic problems as more control was being given to foreign investors, which would increase economic leakage.

Table 6.7 Indicative classification of the social contextual factors

Indicative classification	Economic factors
Sri Lanka	Minor
Maldives	Significant
Seychelles	Critical

Source: Researcher

### 6.1.5 Geographic

All three destinations are reliant on unique geographic features for their tourism success. Firstly, Sri Lanka has great diversity within its ecosystems that results from having forest cover representing 32 percent of the total land area (NPPD, 2002), this provides ecosystem resilience and biological diversity. The respondents in Sri Lanka were aware of these

assets (Insight 2) and referred to tourism revenue providing income for conservation (section 5.1.4). This finding supports a study conducted by Font *et al* (2001) who suggest that recreation and tourism are one way of raising income to support the sustainable management of forests. However, the forests were also being used for other industries such as fishing and forestry and Silva (2001) identified the on-going pressure from illegal deforestation. The Earth Lung project (Insight 3) had an educational component that made local residents aware of the problems that result from illegal logging.

The Maldives consists of 1,190 small, low lying coral islands. Each separate atoll means that a unique resort can be developed that enables tourists to feel they have their own piece of beach and coral reef during their stay. This can overcome some carrying capacity problems as each resort is designed from the start with a specific occupancy level and the specific requirements for different types of tourists. The Seychelles islands are granite islands and provide idyllic beaches for tourism. Like Sri Lanka there is also high land, which enables temperate rainforest to thrive, which is where one of the WHS is located. Therefore, tourists can visit a range of beaches, as the islands are large enough to have multiple resorts on them and go to rainforest attractions too.

### **Susceptibility to climate change**

The three destinations are located in the Indian Ocean and, as has been explored in Chapter two (2.2), this is an area that is susceptible to the effects of climate change, such as sea level rises and increased temperatures. The most vulnerable country of the three is the Maldives due to “Climate change puts the long term sustainability of societies in atoll nations at risk. The potential abandonment of sovereign atoll countries can be used as the benchmark of the ‘dangerous’ changes that the UNFCCC seek to avoid” (IPCC, 2007a:707). However, all the islands would need to make significant changes to the tourism product to be able to gain the same or increased economic benefits from tourism and these changes will be examined in section 6.3.4.

This section highlights that the islands have derived economic gain from tourism and it is the unique geographic features that have enabled the countries to develop tourism (sections 5.1.1, 5.2.1 and 5.3.1). The predicted impacts that are likely to occur because of climate change will create a dilemma for these countries as the impacts may affect the

geographic features, such as atolls becoming submerged or beaches eroding. The geographic vulnerability is greatest in the Maldives due to the low lying atolls and slightly less critical in Sri Lanka and the Seychelles as summarised in Table 6.8. The destinations need to consider if in the short term, they will attempt to adapt to climate change to maintain the key geographic features that tourists require or do they look for other industries to diversify into and accept that it may not be possible to adapt effectively to continue with tourism in the longer term.

Table 6.8 Indicative classification of the geographic contextual factors

Indicative classification	Geographic factors
Sri Lanka	Significant
Maldives	Critical
Seychelles	Significant

Source: Researcher

## 6.1.6 Technology

### Adoption of suitable technology

The destinations had not really embraced alternative technologies to enable them to counter the impacts of climate change. In section 2.4.1 of Chapter Two, some of the alternative technologies were outlined that can help to reduce greenhouse gases such as the generation of power through wind, water or solar sources. The IPCC (2007a) has high confidence and there is lots of evidence that the stabilisation levels required and included in the scenarios outlined in Chapter Two (2.1) can be achieved through the deployment of a range of new technologies and renewable energies.

In Sri Lanka, there was no tangible or reported evidence that alternative energy sources were being embraced at the individual resort level. But the government had already invested heavily in hydro-electricity for large scale production. Whilst respondents were aware of the options for tourism they were not seen as viable options due to the high costs associated with adoption of alternative energy sources. There was recognition within the Master Plan that high-end resorts required large amounts of energy, but all the resorts relied predominantly upon diesel generators to produce their electricity. In the Maldives, there were some instances of adoption at a resort level, with some resorts using solar, wind

and heat transfer technology. There were a couple of showcase resorts (Sonivan Fushi and Feshdu) using pieces of technology within resorts such as using cold water from deep (500 metres) under the sea to power air conditioning units. Following on from the fieldwork, the President of the Maldives has had 48 solar panels installed on the roof of Mulee Aage, his official residence in Male (Green Futures, 2011).

A point made by a number of respondents in different destinations was that the adoption of alternative technology could provide a showcase of alternative energy sources available and send a clear message to the tourists that are visiting the destination. The Maldives has a couple of resorts (Sonivan Fushi and Feshdu) that installed a heat transfer system to operate the air conditioning. Respondent Sey Pub 1 had recently visited the resort and was critical of the effectiveness of the alternative energy on display, *“Sonivan Fushi I went there, it’s a showcase I said this is going nowhere towards providing alternative source of energy for the islands this is just, if you like this is an educational tour, don’t say that you are involved in energy, no it’s not, it’s not the way it is done”*.

The Seychelles was the only destination to have a central government plan to explore the idea of using alternative technologies to generate large-scale energy. They were not very far down this route, but it was being given consideration as Sey Pub 8 explained, *“If the public utilities company cannot fulfil a larger scale electricity production from renewable sources, then we should explore smaller scale options. But the environmental impact should be examined so that Seychelles are aware and implementing something”*. Private respondents were critical that the government did not provide greater financial incentives to increase adoption rates. There was some evidence of the use of solar panels in resorts and homes, but this was not as widespread as expected. Therefore, in Sri Lanka, there was little evidence of adoption of alternative technology, and little encouragement by the government. In the Maldives, there were some interesting showcases but no co-ordinated approach and in the Seychelles, there was the early evolution of government co-ordination, and some evidence of adoption within the resorts, but this was quite limited.

Table 6.9 Indicative classification of the technological contextual factors

Indicative classification	Technological factors
Sri Lanka	Minor
Maldives	Minor
Seychelles	Minor

Source: Researcher

The research data and subsequent analysis within this section would not have become apparent from conducting literature reviews or distance research, such as sending questionnaires. They have emerged from involvement in the field, through the gaining of trust with the informants and the Researcher listening to their specific narratives in this area. Table 6.10 provides a summary of the indicative classification of the importance of the contextual factors to each of the destinations drawn together from the tables at the end of each section.

Table 6.10 Summary of the importance of contextual factors to each destination

Table 6.3	Political	Environment	Social	Economic	Geographic	Technological
<b>Sri Lanka</b>	Critical	Significant	Significant	Minor	Significant	Minor
<b>The Maldives</b>	Significant	Minor	Minor	Significant	Critical	Minor
<b>Seychelles</b>	Minor	Critical	Significant	Critical	Significant	Minor

Source: Researcher

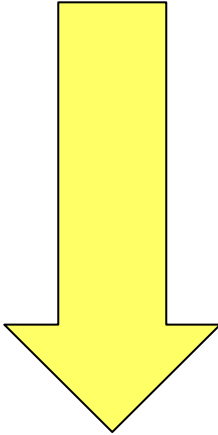
Clearly, each of the contextual factors is unique to each destination and as a result create a very distinctive dynamic background to the decision making process by public and private sector stakeholders and affect their responsiveness to climate change. It is not just the innumerable individual factors that appear to be important but also the interaction between these factors that needs examination. The prioritisation of these exclusive factors to each destination will be examined in the next section.



### 6.1.7 Prioritisation of the contextual factors within each destination

Each of the destinations identified different contextual factors that contributed to their responsiveness to the challenges of climate change. The Researcher used an inductive approach to identify and categorise the contextual factors, using themes that emerged from analysis of the research data, but also the insight provided from conducting research in each of the destinations. During the fieldwork the respondents kept returning to certain issues and as a result these contributed to the prioritisation within a theme. Some of the contextual factors were identified as being more pressing than other factors and it was this level of importance that has been reflected in the analysis from the earlier section 6.0 that has enabled the Researcher to produce the Tables 6.11, 6.12 and 6.13 below.

Table 6.11 Sri Lanka's prioritisation of contextual factors

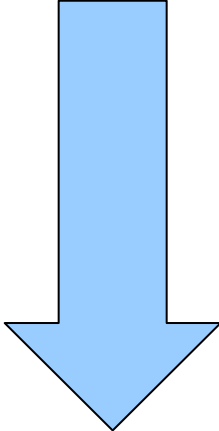
<b>Sri Lanka</b>	<b>Most important contextual factors</b>
	<b>Political</b>
	<b>Environment, social and economic</b>
	<b>Geographic technological</b>
	<b>Least important contextual factors</b>

Source: Researcher

Within Sri Lanka, the overwhelming focus was upon working towards a cessation of the civil war. Until there was any resolution of this, the other contextual factors were not as important. There was a vicious circle with tourists being deterred from visiting because of safety concerns, which meant that the economic benefit gained from tourism was suppressed and as a consequence there was insufficient capacity within the country to coordinate an effective response to climate change. Given that the nature of climatic change is inherently slow to become apparent and the civil war was visible on a daily basis through checkpoints on the roads and armed guards, thus it was easy to understand why it

was the most important contextual factor within Sri Lanka. As the environment was identified as being closely entwined with the local culture, this became the next priority. Conservation and protection of the cultural and natural environment was only considered possible with the economic prosperity that came from tourism. The respondents were very aware of this and it added to their frustration regarding the limited tourist arrivals. The respondents also understood that if tourism was operating at full capacity, employment opportunities could be provided for local women and address the problem of them working in the Middle East and the social problems this created. Sri Lanka is the largest island within the study and is in a fortunate position of having a diverse geographic environment that means it provides opportunities for commercial diversification and reduces the island's vulnerability to climate changes. Technological factors were the lowest priority as there was already approximately half the energy generated by alternative energy sources.

Table 6.12 The Maldives's prioritisation of contextual factors

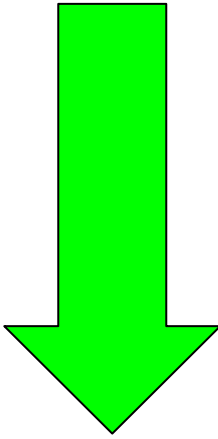
<b>Maldives</b>	<b>Most important contextual factors</b>
	<b>Geographic</b>
	<b>Economic and political</b>
	<b>Technological, social, environment</b>
	<b>Least important contextual factors</b>

Source: Researcher

In the Maldives, the most important contextual factor appeared to be the geographic factors. These were of paramount importance due to the low lying nature of the islands which makes the Maldives one of the most vulnerable countries in the world to climate change and likely to experience the impacts of climate change sooner than competing tourist destinations. The economy was an important factor for the Maldives, transferring from a LDC status to an emerging market economy. The change in economic status meant

a reduction in funding sources, but the Maldives were already having to spend considerable money on adaptation, so it was the resultant squeeze between these two factors that was very much at the forefront of the respondents' minds. The political factor was also important, as it appeared pressure was put on the tourism sector to generate income for government yet it was questionable how much of this income remained with the government, or was lost through corrupt practices. Therefore, respondents were very interested in the impending elections and had high expectations of the electoral reform and greater democracy. An interesting aspect of this case study was that although the Maldives are extremely vulnerable to the impacts of climate change the respondents did not have a strong affiliation to the environment and as a result government did not create many protected areas and were weak with enforcement of regulations. Again, technological factors were quite low on the priorities and there were no resources set aside to examine alternative technologies; maybe the adoption of renewable energies was considered too late in the scale of the impacts that were being experienced, or alternatively, they might have considered that the developed world should be doing more, which the findings seem to indicate.

Table 6.13 The Seychelles's prioritisation of contextual factors

<b>Seychelles</b>	<b>Most important contextual factors</b>
	<b>Economic and environment</b>
	<b>Geographic and social</b>
	<b>Technological and political</b>
	<b>Least important contextual factors</b>

Source: Researcher

In the Seychelles, the predominant contextual factors seemed to be the economy and environment. Recognition was given to the unique pristine natural environment and all the

other issues came after this. The natural environment was given legal protection, to the extent that only 50 percent of the land is allowed to be developed. All the respondents referred to this and showed a high degree of pride in their islands and the environment within which they lived. However, the country was in a very serious financial situation and the IMF was actively involved in trying to restructure the economy and this was very much in the minds of the Seychellois during the fieldwork. The tourism sector had been identified as an area to help improve the economy, hence the respondents, particularly the public sector ones, were very concerned about the implications of this. The Seychellois seemed to have a reasonable standard of living and there were fairly advanced national health, education and benefit systems. This placed pressure on the government to generate income to sustain the lifestyles the local Seychellois expected. Respondents made many links to the environment, showing their respect and appreciation and there was also an awareness of the vulnerability of the islands too, but this was not seen as one of the most important contextual factors. Finally, the government was doing more in the area of exploring alternative technologies than the Maldives at a national level, but there was still recognition that there was little capacity to take this forward in any meaningful way at present.

Having examined the contextual factors for each of the Indian Ocean island tourism destinations, it illustrates that the destinations are continually changing and dynamic in their contexts and thus present a unique prioritisation of their contextual factors.

The next section will establish if the stakeholders in the destinations were able to identify any impacts of climate change.

## **6.2 PREDICTING THE EFFECTS OF CLIMATE CHANGE**

This section examines the differences in the ability of respondents to predict the effects of climate change within the destinations. In Chapter Two, section 2.2, the IPCC (2007) predictions of the impacts of climate change were provided:

- Current climate models predict a global warming of about 1.4 – 5.8°C between 1900 and 2100
- The average sea level is predicted to rise by 18 to 59 cm by 2100
- Regional and seasonal warming predictions are much more uncertain
- Inland regions are projected to warm faster than oceans and coastal zones
- Regionally both increases and decreases in precipitation are projected typically of 5 to 20 percent
- The frequency and intensity of extreme weather events are likely to change
- Rapid and unexpected climate transitions cannot be ruled out

In Chapter Three, section 3.5.3 the UNWTO (2008) identified that the direct effects of climate change that will cause tropical islands significant difficulties will be sea level rise, increased temperature and change in storm patterns, and these will compromise the islands' ability to utilise tourism for economic gain as much of the coastal infrastructure related to tourism will be under threat (Belle and Bramwell, 2005). Clearly, the IPCC uses complex computer modelling to establish these quantifiable predictions and most of the time periods are approximately 90 years hence, so it was not unexpected that respondents would be unable to identify impacts that they attributed to climate change. This study used a social constructionist methodology to gain an insight into the perceptions of the respondents regarding the changes had they observed and attributed to climate change; it does not seek to provide a scientific measurement of the observation of these impacts.

### **6.2.1 Identification of changes**

The respondents in all the destinations were able to identify changes to the environment that they considered to be as a result of climatic changes, as *SL Pub 2 reported*; *"So many things have happened in the last two, three years which people are now recounting or at least there is this basket that you can throw it in and say climate change"*. There was only one exception to this, one of the public sector respondents in the Maldives, who referred to theoretical change and could not identify any instances of current changes, but all other respondents in the Maldives identified multiple changes. A comparative Table 6.4 has been produced to illustrate which impacts of climate change the respondents had observed in their destinations.

Table 6.14 comparative summary of the impacts observed within each of the destinations.

Observation	Sri Lanka	Maldives	Seychelles
Changing weather patterns	√	√	√
Loss of habitat	√	√	
Flooding	√		
Coral bleaching	√	√	
Increase in temperature	√		
Storm intensity	√		√
Coral bleaching		√	√
Beach erosion		√	√
Tidal surges		√	√
Road encroachment			√
Drought			√
Changes to the tourism product			√

Source: Researcher

## 6.2.2 Commonality of changes

### *All destinations identified changing weather patterns*

The most frequently identified change was that of changing weather patterns and this was particularly linked to less predictability of the monsoon season. SL Pub 3 reflected this, *“I could definitely say that the weather has been affected and as a result of the weather being affected, a lot of things can get affected our agricultural output because certain tropical produce does flourish in the sun, extreme conditions is having a negative effect”*. All destinations, discussed this in detail highlighting that the monsoon seasons had been as regular as clockwork in their childhood, but now they were unable to foresee when the season would change, and the type of weather that would manifest within the Monsoon, which then had implications for predicting the tourism season. As tourists are often attracted to the destinations for sun, sea and sand holidays less predictability in the weather might mean the price of holidays needs to be reduced and occupancy levels fluctuate more.

### *Two of the destinations identified the following changes:*

#### **Habitat loss**

Loss of habitat was observed in Sri Lanka (see Insight 2, the Dwarf Lizard, *Lacerta andreanskyi*) and the Maldives (tropical fish section 5.2.7). Both of these observations had

had a direct implication on the ability of locals to maintain their livelihoods. In Sri Lanka eco-tourist tour operators needed to know where particular species were, so they could take tourist to see them. Respondents in Sri Lanka reported change in habitat of the Common Palm Civets (*Paradoxurus hermaphroditus*, Pallas). In the Maldives, live tropical fish are exported and these fish were no longer as easy to find and there were reports of many dead fish being found in the coral reefs where they had previously been found. These are illustrations of what the UNWTO (2008) classify as indirect environmental change impacts, which have associated economic consequences.

### **Coral bleaching**

Coral bleaching was mentioned in Sri Lanka and the Maldives. Tourists come to these destinations for snorkelling and diving purposes, so the operators had noticed higher levels of dissatisfaction with the quality of the marine life, particularly the coral. A dive operator in the Maldives commented *“When we started in '92 it's like beautiful, everything's alive every dive people will say, wow it's great it's nice but since 1998 we have start seeing, coral bleaching I think it's been damaged it's getting worse not getting better”* Mal Pri 2. Mather Viner and Todd (2005), suggested that coral bleaching is likely to occur in South East Asia first and by 2020 this will be a regular occurrence each year, so these reports may be supporting their prediction. Coral can regenerate after bleaching incidents, but it takes 6-10 years for new corals to establish and this cycle of bleaching / regeneration can have severe implications on the attractiveness of the destination to the tourist.

### **Storm intensity**

Sri Lanka and the Seychelles reported greater storm intensity and resultant damage that was caused to infrastructure as *Sey Priv 5* recalled: *“Monday this week, I took the ferry from here to go to La Digue the Sunday was dead calm, Monday morning was dead calm we took off from here at 9 o'clock behind the islands of St. Anne and so was calm a little bit of white horses starting to appear, half way through it was a virtual cyclone, it was blowing this at ninety kilometres an hour and from nothing at all before. I mean it was, I have never seen the sea between Mahé and Praslin so rough. And when we got to La Digue roofs of houses had been blown off, the roof of the school was blown off, there were trees all across, I said it was unbelievable”*. These types of impacts were not mentioned in the Maldives. The UNWTO (2008) identify greater storm intensity and caution on the

increased costs to tourism destinations as they will require additional emergency preparedness, and higher operating costs with increased insurance and expensive energy back-up systems etc (UNWTO, 2008). This illustration from the Seychelles demonstrates the infrastructure damage and this will also increase insurance premiums for tourism businesses.

### **Tidal surges**

Travel Research International (2003) identifies the impacts of tidal surges as salinisation of aquifers, which is a major concern for small islands that are often dependent upon one source for fresh water, as was seen in the aftermath of the tsunami in 2004 in the Maldives (5.2.0). A yacht operator in the Seychelles observed *“But it is only now you notice that it’s started. So this is a sign to me of that there is something which is unbalanced somewhere. Another, some other signs which again is based on my observation, maybe I am more conscious of it today than I was before, I don’t know, but I have noticed that the tides in my view tend to be higher than what they were before. I mean I have got it, because I deal with boats and so on, I mean I operate also a landing craft that we need to work on the tide. We need to go in certain places at high tide and in my diary I’ve got everyday there is the tide for everyday of the year, but sometimes it shows you a tide of one point eight and I look at the level of the tide and this cannot be one point eight, it must be two point one or two point two. So these are some of the signs of things that things are not right to me”*. The Seychelles and the Maldives seemed particularly susceptible to tidal surges and beach erosion.

### **Beach Erosion**

Beach erosion was a particular problem to the Seychelles and the Maldives. In the Seychelles (5.3.7) the majority of respondents identified sections of beach disappearing. In the Maldives adaptation action was required each day to make sure there was enough beach for the tourists to use the next day as reported by Mal Pri 7 *“Erratic wind direction, very strong severe storms and eating away at the islands. So we have to have this kind of sand growing, sand pump to pump sand back into the island to protect the island. So it is a constant fight, constant fight against nature for us”*. Resorts were having to increase the number of sand pumps all the time to try to respond to this problem, which was both costly in running and purchasing the pumps, and time-consuming to operate and a very short



term solution. Philip and Jones (2006) recommend that all stakeholders are involved in finding effective solutions to coastal erosion through ‘integrated coastal zone management practice’. However, in the Maldives actions were taken by each individual resort and there was no co-ordination of response at a national level.

***Only one destination identified the following changes:***

**Flooding**

Flooding was a particular problem in Sri Lanka. This concurs with the predictions of the IPCC (2007c) identified in Chapter Two, section 2.2.1: Coastal areas, especially heavily populated mega-delta regions in south, east and south-east Asia, will be at greatest risk due to increased flooding from the sea and flooding from the rivers. In Sri Lanka it was reported that it was the speed at which the rain fell that created the problems as the natural flood areas that had often been built upon could not handle the quantity of rain. As *SL Pri 1* explained, *“You still getting five thousand millimetres of rain, so the total is the same, it’s the intensity as well, now you get them in two or three short bursts. The rain forest can’t handle it; it’s going to thunder down the streams in the rivers and the erosion and silting and the flooding which we are seeing”*. The implications of flooding for tourism are multiple: safety of the tourist, contamination of water supply and food security as crops are destroyed, which all result in higher costs. The implications for the safety of tourists need to be considered in the Sri Lankan context, especially if tourists are taken to remote areas to observe wildlife.

**Encroachment of roads**

In the Seychelles, many of the respondents discussed the encroachment on the roads as *Sey Pri 3* illustrated, *“each time we have high tides, it’s covering most of our coastal roads and you find a lot of erosion happening where you used to park your cars”* . This was probably not mentioned in the Maldives, as the only island with roads is Malé and the sea wall barrier prevents encroachment from happening.

**Drought**

By contrast, the Seychelles was more prone to drought as *Sey Pub 2* recounted *“The droughts are very much frequent and severe where our water has been cut off from the normal distribution. I think there have been also changes in the use of water, we are using water most probably much more than we used to. But our droughts so some extent have*

*also changed, it seems we have longer drought periods*". This was clearly a concern and one which created water security issues, given that tourists use four times the amount of water of that of a local, the fairness of distribution of water to tourist resorts and local households was perceived as a problem.

### **Temperature**

In Sri Lanka many of the respondents thought that the temperature was increasing, even in cooler times of the year as *SL Pub 3 reported, "now unexpectedly some days were excruciatingly hot and days they would have predicted it to be hot, were cooler than expected"*. This was not reported in other destinations, but most respondents in Sri Lanka referred to the lack of predictability of the temperature.

All respondents except one were able to make observations that were corroborated by other respondents within that destination that there were changes to the climate. The projections for climatic change identified in Chapter Three (section 3.2.1), suggest that low lying islands in the Indian Ocean are likely to experience sea level rises, savage storms, reductions in rainfall, increases in sea temperature, coral bleaching, loss of beaches and loss of marine life, resulting in detrimental reductions to the island's economy. So, although the results gained in this research are not valid in a scientific sense (having not mapped the changes over many years); but were instead collected using the social constructionist methodology, reporting the perceptions of respondents that live and work in the destinations which provides a unique insight. It would appear that there were changes being observed and that the respondents were accrediting them to climate change in the absence of any formal validation or training on behalf of the respondents. What was also particularly interesting, was that the respondents in the Seychelles not only identified various observations but had had to make changes to the tourism product (section 5.3.9). Due to the deterioration in the quality of the coral reef tourists were no longer taken to the Brissare Rocks dive site. In the Maldives and Sri Lanka, specific discussions about changes to the tourism product did not take place, which gave the Researcher the understanding that there had not been discussions about climate change within the industry at a national level. Maloney and Ward (1973) suggested that the first stage of environmental consciousness is environmental education and the obvious provider of this would be the NTO, through leaflets and explanations of environmental standards. As all

the respondents, except one in the Maldives, in each of the destinations were all able to identify multiple changes that were linked to climate change, it did not seem to be a clear indicating factor for the differing levels of responsiveness in the destination to climate change.

The next section moves on to examine the environmental consciousness of the stakeholders within the tourism destinations.

### **6.3 ENVIRONMENTAL CONSCIOUSNESS OF STAKEHOLDERS IN THE DESTINATIONS**

Having examined the contextual factors that create the unique background for each of the destinations and the respondents' observations of climatic changes, this next section examines the environmental consciousness of the respondents within the tourism destination, starting with attitude, then knowledge and finally behaviour.

#### **6.3.1 Attitude**

The attitude of the respondents within the destinations to climate change and the environment is explored in this section. It is important to remember that according to Kollmuss and Agyeman, (2002) attitude and knowledge are internal factors that tend to have been established in an individuals' formative years. The Researcher has had to make judgements about the importance of these factors, so during the analysis consideration was given to how frequently the issue was mentioned and the use of emotion by respondents when discussing the issue in order to make an informed assessment of their attitudes, as well as what was reported.

#### **Climate change a global problem**

Climate change was recognised as being a universal issue within all the destinations; there was also a consensus that non-Annex 1 countries were paying the price of the economic growth that has already taken place in Annex 1 countries, as seen in section 2.3.2. What differed was the attitude of respondents in the destinations to the responsibilities of nations in addressing the problem. In two of the destinations, the Maldives and Sri Lanka respondents portrayed far more emotional responses and became rather angry when discussing this issue as is demonstrated by *SL Priv 1*. *"I just want you to realise that there is deep bitterness in a lot of these countries because it must give convey to the West*

*because the people who have the bitterness don't have a voice, but it does not mean they aren't bitter and it does not mean that they aren't hurt just as much as the six million Jews who were gas chambered".* And Mal Pub 5, *"I don't see the actions, that's the sad part of it. We need to keep the momentum going; there is no time for us to waste. This is not a voluntary thing, this is a moral obligation".* The underlying message given by the public sector respondents in the Maldives was that Annex 1 countries were aware of the problems the Maldives were facing with climate change. However, the international community were not providing the help and support that the respondents were expecting and this created feelings of anger, helplessness and despair, which resonates with Scheyvens and Momsen's (2008) assessment that the Maldives might play upon their vulnerabilities while negotiating aid. In the Seychelles, there was a far more reserved response, whilst there was a clear intimation that the cause of global warming was created in the Annex 1 countries, they were pragmatic in wanting to move forward with solutions to the problems.

### **Environmental protection**

The attitude of the respondents within tourism destinations to the protection of the environment was clearly different, as has already been discussed in section 6.1. With regard to protected areas Sri Lanka has 8 WHSs and 14 National Parks, The Maldives has 25 Marine Protection Areas and the Seychelles has 2 WHSs and 7 National Parks. Initially, by just counting the number of protected areas the Maldives has the most and this gives the impression that the Maldives had the strongest attitude to protecting the environment. In reality, it was quite difficult to find out about the MPAs during the fieldwork and not one of the respondents referred to either the designation or the actual areas. In addition, the MPAs were a relatively new designation (1998). Within the other two destinations (the Seychelles and the Maldives) there was a well-established system for designation of fragile sites and the respondents made numerous references to these sites. They were also visited by many of the tourists to these countries, as can be seen in section 5.1.2 and 5.3.2. The commitment of these two destinations to protecting sites is further demonstrated by gaining a number of WHS accreditations. In section 5.2.4, there is a discussion about the importance of the environment to the Maldives and there is a difference in the attitude of the public and private sector respondents. The public sector respondent appears to pay lip service *"spread the news that we are an eco-friendly destination, a green destination. What we are trying to do is invite them to the Maldives and show them what we are doing*

*in different islands. I mean they have actually produced very positive articles about the Maldives and it's actually a huge promotion for us". Mal Pub 3.* Whereas the private sector stated: *"we have never been very much environment friendly anyway" Mal Priv 2,* and *"what's the point of promoting something if you can't sustain it, the same quality" Mal Priv 6,* and *"it shouldn't be just a question of gimmickry or public relations stance to use the environmental badge" Mal Pri 8.* Dief and Font (2010) recommend that true green marketing should stem from strong environmental values. This begs the question is the Maldives using the environment for 'greenwashing'<sup>46</sup> purposes? Both the Seychelles and the Sri Lanka were keen to stress the close proximity of the environment to their respective cultures, which seems to indicate a higher level of environmental consciousness (section 6.1.2).

### **Levels of growth**

Another indication of the respondents' attitude to climate change in the destinations is how far they were happy to push the levels of tourism growth in the destinations. In Sri Lanka both public and private sector respondents were keen to pursue high growth levels, this is evidenced by a projected growth target for 2010 of an additional 20 percent (Sri Lanka Statistical Report 2009). This is understandable as there has been a suppressed tourism arrivals for two decades due to the civil war, so both sectors were keen to accelerate tourism arrivals. In the Maldives, (as it can be seen in Figure 5.2.10) an additional 51 islands are being released for tourism development at the end of 2011, which would result in a 54 percent increase in resort capacity. Therefore, the Maldives must be anticipating high levels of growth to the destination to fill the capacity, although no official growth percentage rate is published. The Seychelles has a more cautious tourism strategy and the government through the STB had set clear limits to the growth and type of tourism establishments that are allowed within the country. There is an inbuilt maximum carrying capacity identified in the tourism strategy. Up to 2010 the limit was 200,000 tourists per annum, however, this has been raised significantly to 360,000 tourists per annum in the tourism strategy to 2017. During the fieldwork, the Researcher was frequently told of concerns about the raising of the limit of tourists, both by the public sector and the private sector who felt the increased target had come from the President's office with very little

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46 "Greenwashing," a pejorative term derived from the term "whitewashing," was coined by environmental activists to describe efforts by corporations to portray themselves as environmentally responsible in order to mask environmental wrong doings. Whellams and McDonald, 2007.

negotiation. So there are two factors that suggest a more environmentally concerned attitude within the Seychelles, firstly that clear limits were in place and secondly, that these new limits for future growth were being questioned by the tourism sector.

### **Consideration of climate change in decision making**

The degree to which the destinations considered climate change in their decision making processes was also an indicator of the stakeholders attitude to the environment. In Sri Lanka, only three respondents answered the question and the responses contradicted the idea that the environment was embedded in their culture as their lack of response did not reflect this. The one public sector respondent who answered explained it was difficult to focus on climate change when the country had to deal with the day to day problems of the civil war. Of the two private sector respondents, one considered the environment as the core of their business (a wildlife tour operator) and the other responded from a cost cutting perspective (CEO of a large hotel chain). Therefore, climate change was not given as high a priority in decision making in Sri Lanka as other factors might have indicated. In the Maldives, the public sector respondents stated that they did consider climate change in decision making, but this was contested by the private sector, who suggested their concern was *'a lot of noise'* Mal Pri 7. In the Seychelles both sectors reported they considered climate change in their decision making, but when probed further the reason for this concern in the private sector was being driven by tourists complaints about their dissatisfaction in of the quality of the coral that they were taken to see due to coral bleaching. The public sector did seem to integrate consideration of climate change in planning and tourism sector workshops organised by STB, so there was some evidence at this level. Overall, looking at the three case studies the public sector suggested they considered climate change more in decision-making, but it was hard to substantiate this with tangible actions as none of the tourism documents in any of the destinations reflected this. Therefore, going from the interview data alone it can be seen that the environmental attitude seemed to be slightly stronger in the Seychelles, next in Sri Lanka and finally less so in the Maldives.

### **Optimism or pessimism**

The respondents gave an indication of their environmental attitude when questioned about their levels of optimism and pessimism for the tourism sector in fifty and a hundred years'

time. The responses from respondents in Sri Lanka were inconclusive overall, but the private sector was more optimistic than the public sector. The reason they gave for this was the strong natural and cultural heritage which attracted tourists to visit Sri Lanka. In the Maldives, the respondents were overall optimistic about the future, those who were pessimistic tended to be from the private sector and uneasy about the pace of development, so this indicates that those respondents had more concern about the environment and the carrying capacity of the destinations. The Seychelles respondents presented a clearer response both in their levels of optimism and the reasons for this, which was based around having confidence in the tourism planning and management processes within the Seychelles. Respondents from Sri Lanka and the Maldives had a less coherent response between the public and private sectors and a less consistent view of the future. There was greater coherence in the Seychelles where the planning process (not building on more than 50 percent of the land, Vision 21, 2000) probably contributed to a more positive attitude to the future.

In summary, Sri Lanka has an attitude that shows concern for the environment through the cultural links, but this is not always consistently demonstrated, such as where the tourism strategy is forecasting and encouraging very high growth levels. In the Maldives, there is an even more inconsistent approach with the public sector stating that climate change and the environment are key factors within the decision making, but this was being directly contradicted by the private sector. There was a more consistently pro-environmental attitude in the Seychelles, with evidence of limits to tourism growth being set historically and concerns about the projected increases of tourism arrivals within the future; this was consistent within the public and private sector. In addition, all stakeholders recognised that robust tourism strategies have provided a good legacy for the future. Table 6.15 summarises the results of the environmental attitude to climate change within the destinations.

Table 6.15 Indicative classification of the environmental attitude within the destination

	<b>Environmental attitude</b>
Sri Lanka	Concern but not consistent
Maldives	No significant concern and inconsistent
Seychelles	Concern with greater consistency

Source: Researcher

### 6.3.2 Knowledge

This section examines the differences in education levels within the three destinations and how the education of local people, tourists and workers within the tourism sector is developed. It is worth remembering that Kollmuss and Agyeman (2002), state that knowledge is an internal factor that tends to be established in individuals' formative years, so changes in educational levels are going to provide longer term benefits.

#### Knowledge of local people

Levels of knowledge of climate change varied between the destinations. The educational levels only altered very slightly between the destinations. Sri Lanka has 90.7 percent of the population who can read at the age of 15, the Maldives 93.8 percent and the Seychelles 91.4 percent (CIA, 2010), which means there were similar literacy levels in the countries. In Sri Lanka there was no formal integration of learning about climate change integrated into the curriculum, whereas in the Maldives and the Seychelles climate change had been integrated into the curriculum, so the current schoolchildren would have more awareness and understanding. In a couple of interviews in the Seychelles and the Maldives respondents reported that they were learning about climate change from their children. The increase in knowledge about climate change should also increase the capacity of the country in the future to respond in a more effective way to the impacts, indeed education is an adaptation recommended by UNEP, 2003, referred to in section 2.4.2. One of the respondents, a meteorologist in the Seychelles, talked about how he had been inspired by a teacher at school and that he now spent time in schools in a voluntary capacity talking about his role and the issue of climate change. The resorts have an important role in the education of the staff that they employed. The resorts in the Seychelles were keen to reduce the costs, particularly for energy, so the housekeeping staff were encouraged not to put the air conditioning on or leave lights on during cleaning of the rooms and this was linked to cost and carbon reduction. However, there was a difference in the education levels of the locals working in tourist resorts and the rest of the population as *Mal Priv 2* reported, *“there is no information for local people like the fishermen so that’s what causes us problems. I was thinking about making something on the local language to help people tread a new path”*. His experience was that fishermen used fishing methods that caused damage to the reefs and did not dispose of waste in appropriate ways, so created pollution. His organisation was keen to produce some publications to encourage better



marine practises, but they were unable to secure sponsorship and could not afford the printing costs.

### **Poor understanding of adaptation**

The respondents in Sri Lanka had a very poor understanding of the terms mitigation and adaptation compared to the other destinations, to the point that the Researcher needed to explain the terms. This could be for a number of reasons, that they had not come across the terms before, there could be a translation difficulty or alternatively the terms may not be used in the destination. It could also reflect that climate change is not included in the school curriculum. In the Maldives and Seychelles, there was evidence in tourism industry newsletters and the national news that the terms were more frequently used within the country, hence the respondents understood the terms.

### **Knowledge of climate change within government**

In the Maldives the two respondents who had a great deal of knowledge on the subject of climate change were the Head of the Environment Department and the Head of Tourism and Civil Aviation. They were able to talk about the technical aspects of the Kyoto Protocol and the implications of setting greenhouse gas limits at different levels. However, this knowledge did not seem to have been transferred through to other members of these departments or through to the private sector, as their level of knowledge was far more limited. In Sri Lanka the public sector respondents demonstrated a lack of technical understanding of climate change with limited knowledge of mitigation and adaptation. In addition, the respondents were very dismissive about the actions of other government departments and stated that the tourism sector was leading the government in the response to climate change, even though their knowledge was limited. In the Seychelles the public sector respondents who worked in the Environment Department and the Tourism Department all had a good technical understanding and were able to discuss the issue fairly fluently which gave the Researcher greater confidence that there was good communication across the departments about the issue of climate change.

### **Informing tourists about climate change**

The destinations did inform tourists about the issue of climate change, but in a rather indirect manner in most instances. Becken (2004a) conducted a study in Fuji which

identified adaptation measures taken by accommodation providers. Guest education was flagged up as an area for future research and this is reflected in this study. The Earth Lung project, if it reaches fruition, would provide a good platform to inform tourists about the issue of climate change, whilst at the same time allowing them to do something positive such as giving money to the project or actually planting trees. Two of the Sri Lankan respondents gave concrete examples of how they educated the tourists about the issue of climate change in Sri Lanka, one being through the publication of the 'green audit', where the carbon footprint of the hotel was produced each quarter and published in every guest room. Secondly, a wildlife tourism tour operator educated the local tour guides about the wildlife and the environment which included some aspects of climate change. The tour guides had found that the more knowledgeable they were, the better tips they were given as they could educate the tourists; so this was a good mechanism for educating tourists and local people (section 5.1.7). However, there was not a co-ordinated approach to providing any formal information to tourists through SLTB. This was a similar picture to what was happening in the Maldives.

There were no public sector attempts to educate the tourists. There was one resort, the Banyan Tree, identified in Insight 7, that had a lecture series for guests and one of the lectures was about climate change. However, this seemed to be the exception rather than the rule, as the other resorts did not have anything like this. In most instances there was just the normal 'welcome talk' where guests were informed of the facilities and services of the resorts and how to behave during their stay. This also reflected what was happening in the Seychelles, where the public sector at present did not have a co-ordinated approach although there was some discussion about whether carbon audits should be pursued or whether the eco labels that the STDA were developing should include emission reductions. If so, this would raise the awareness of the tourist to the issue of climate change. The public sector was extremely aware that 19 percent of the tourists to the Seychelles were from Germany (Visitor Statistics, October 2010) and they perceived these tourists to be very environmentally aware and questioning about issues to do with recycling and climate change. In discussions, the Director of STDA was keen that the resorts needed to act quickly to pre-empt tourist enquiries, so his idea was to assist the resorts, hotels and guest houses to conduct a carbon audit and publish it in each of the locations. STDA would facilitate this process by providing accurate information on the carbon emissions of flights

and training on conducting carbon audits. STDA was also investigating opportunities to conduct research into the carbon footprints of tourists coming to the Seychelles, partly in response to the research conducted by Gössling *et al* (2002), who had used the Seychelles as a case study to calculate the ecological footprint of tourism (Section 3.7.3.) and also to be prepared for when tourists started to request specific information.

**All destinations recognised the vulnerability of their country to climate change**

Despite the different levels of knowledge on the issue of climate change, respondents were all very aware of the vulnerability of their islands to climatic changes. They had elicited this knowledge from different means; respondents often cited the television as the main source of information. In the Seychelles there was a national news channel with content controlled by the President’s Office and in the Maldives and Sri Lanka respondents referred to global channels such as the BBC and CNN. Respondents in each of the destinations were asked about their country’s vulnerability to climate change, summarised in Table 6.16.

Table 6.16 Stakeholders’ perceptions of the vulnerability of the destination to climate change

	Not vulnerable				Extremely vulnerable
	1	2	3	4	5
<b>Sri Lanka</b>			3	5	4
<b>Maldives</b>			3	5	8
<b>Seychelles</b>			2	4	10

Source: Researcher

The results illustrate that respondents in the Seychelles were most concerned about the vulnerability of their country in relation to climate change, followed by those in the Maldives and then Sri Lanka, this could be a consequence of the integration of climate change into the school curriculum in the Maldives and Seychelles and also fits with the finding of limited technical knowledge about climate change in Sri Lanka.

In summary, the level of knowledge of climate change in the destinations varied. Sri Lanka demonstrated the least overall knowledge of climate change, within both the public and private sectors. This is consistent in that climate change is not included within the national curriculum and Sri Lanka has the lowest level of literacy. The Earth Lung project,

if it is actually implemented will help to educate tourists and local residents about the issue of climate change. At present there is no evidence of education regarding climate change in the public sector, but there is some evidence of pockets of education in the private sector about environmental causes such as the changing habitat of wildlife and deforestation.

In the Maldives, there was evidence of detailed knowledge with two of the government representatives, but this knowledge had not been disseminated through to the lower levels of staff within these departments, or to the private sector. There was one resort that demonstrated good knowledge of climate change by the management and this was transferred to the lower levels of staff such as the waiters in the restaurants and reception staff. Information about climate change was given to the tourists in this resort, but this was the exception not the rule. The tourists were very interested because the location they were in ensured that the points being made had a special resonance; however whether this would change their behaviour once they returned home is an area for further study (this will be picked up again in Chapter Seven). The inclusion of climate change in the national curriculum should improve the knowledge and awareness of future generations.

In the Seychelles, the public sector made more opportunities for passing information on about climate change and as a result the level of knowledge both within the public and private sector was good. Opportunities were made with STDA workshops, newsletters and the national news station, so there appeared to be good transfer of knowledge which was reflected in the respondents interviewed. STDA officials were extremely aware that the majority of tourists that go to the Seychelles were well educated and alert to the issue of climate change, so they were keen to collect and provide information on climate change through carbon audits before more tourists started to ask for information. STDA had a strong conviction that the more information they could provide tourists to help them to make informed decisions about flying and where to go on holiday, the more secure their future position would be. Table 6.17 provides a summary of the environmental knowledge results.

Table 6.17 Indicative classification of the environmental knowledge within each of the destinations

	Environmental knowledge
Sri Lanka	Limited knowledge of climate change in both the public and private sector.
Maldives	Strong in pockets of public sector but not transferred to other dept. Strong in pockets of private sector but not transferred to other resorts.
Seychelles	Strong knowledge of climate change within the public and private sector.

Source: Researcher

### 6.3.3 Behaviour

This section identifies the externally visible component of environmental consciousness behaviour. It examines the behaviour of stakeholders via adaptation and mitigation initiatives that were actually happening in the destinations as a result of the challenge of climate change. Summative Tables (6.18 and 6.19) are provided at the end of each section that categorises the adaptation and mitigation behaviour in each destination. Finally the roles and influence of the public and private sector stakeholders are explored.

Before examining adaptation and mitigation the first area of behaviour to be examined in the destination is use of regulations to minimise the environmental impact of tourism development and climate change.

#### Response to regulation

In the Maldives the government had an established procedure to ensure that the environment would not be compromised when islands were released for development. The investors needed to produce an environmental impact assessment and this became one of the criteria which would be considered before an island was granted an operating licence. However, there was a problem at the next stage in the process, as it became apparent that there was no monitoring once the operating licence had been granted (section 6.1.2). The public sector stated that they did not have the resources to allow them to do this, the private sector were critical that enforcement did not take place. This contrasted greatly with what happened in the Seychelles. The initial environmental impact assessment was similar, but there were 3 or 4 inspections a year to ensure that the resorts were operating within the terms and conditions of the operating licences had been granted. As Sey Pub 5 recounts *“The unit here, they organise themselves with health, fire, and the environment. So they all go in a team, they all do their part, unit A will go inspect all the bedrooms, unit B the spot check, the kitchen, the restaurant, the bars, the back of house, the garden, the fire inspector team, the health also inspect the kitchen. The environment of course make*

*sure that everything is safe, that report is compiled and it is on that basis that your license will be renewed or not*". Many additional anecdotes were provided illustrating that regulations were enforced, which included hotels being closed down and resorts having to dismantle and move a harbour that had been installed without the correct authorisation. In Sri Lanka, the government did have planning regulations, but appeared to be rather casual in their enforcement. Although, at the other extreme the Tourist Police generated a lot of fear among the small operators in the tourism industry and appeared to be rather overbearing. The smaller operators were more concerned about having their licence revoked by the Tourist Police rather than by building inspections. Respondent SL Pub 4 illustrates this: *"The government have some responsibility to support tourism but they have to protect tourists, that's the main thing"*. This might be because Sri Lanka is at the involvement stage of the TALC and the government has not yet developed a co-ordinated system for hotel inspection as seen in the Seychelles, which is also supported by the proposed changed of structure within SLTB (section 5.1.6). Therefore, there was an inconsistent approach to enforcement in Sri Lanka. The behaviour of the public sector will send clear messages to the private sector in these destinations of how they are expected to behave.

The Seychelles was consistent in both setting clear guidelines about the standards of behaviour for the private sector and enforcing it. The private sector respondents discussed this with a degree of acceptance that to maintain the beauty of the islands the Department of the Environment needed to be active in the process. The private sector seemed to feel the regulations and enforcement was fair and the approach was consistent. In the Maldives, the private sector was clearly annoyed about the inconsistencies in processes and gave many examples. Mal Priv 5 illustrated this point: *"what I think they have to really change the mindset of the investors towards environmental construction and environment friendly practices. So I think there could be a balance here as the investors know that this country is not impossible, right [laughs] a situation where we have too many restrictions, but blind eyes are turned. So like I still feel the Maldives is far more lenient than many other countries"*, and *"Right now everything is political and for that reason they are just giving out islands and I heard a debate in the parliament saying that by giving these islands on rent they can balance the budget, but that is wrong. You cannot depend on the sale of an island to have your budget balance. It is not correct. It is for wrong economic reasons.*

*We get enough money from tourism that if they don't really waste this money and use it wisely we can have a very good life here in Maldives" Mal Priv 9.* So the government here appeared to talk a good talk about environmental protection, but did not always seem to carry out the supporting actions. This could be due to the financial pressures that were being experienced by the Maldives government as the second quote intimates; or possibly there is recognition that the Maldives only has a limited time before the impacts of climate change are so severe that it is not viable to live there anymore, in which case they could be maximising the opportunities that are currently present.

The next section looks particularly at the behaviour of the respondents to mitigation and adaptation. As was discussed in Chapter Two, the IPCC report (2007c) concerning the future scenarios in response to different levels of greenhouse gases suggests there is high confidence that neither adaptation nor mitigation alone can avoid all climate change impacts. A combination of adaptation and mitigation can complement each other to provide a more effective response to climate change.

#### **6.3.4 Adaptation**

This section uses the UNWTO (2003) recommendations for adaptation of SIDS as a framework that were previously discussed in section 3.6. These factors should enable the destinations to develop effective strategies to respond to the impacts of climate change that were identified in Chapters 2 and 3.

#### **Sea Defences**

The building of sea wall and defences were observed in the Maldives and the Seychelles this was illustrated and examined in section 5.2.9 and section 5.3.9 respectively. Both governments had little option but to build sea defences as flooding had compromised residential areas and been a risk for human life, hence it is classified as reactive adaptation (2.4.3).

#### **Enhancement and preservation of natural defences**

Many respondents in the Seychelles gave examples of resort managers removing mangroves and beach vegetation to create the perfect beach (5.3.9), but this was counter productive as *Sey Pub 7 illustrated "what we found is that if you leave the coastal vegetation at the front, then that will also break the force of the water"* . A similar

situation was recounted in the Maldives in section 5.2.9 with mangroves needing to be reinstated to protect beaches from sea vegetation. Both examples would be reactive adaptation.

### **Adapting to building tourism infrastructure**

In the Maldives the over water lodges were now being built at a higher level over the sea to allow for increases in sea level rise. As explained in (section 5.2.9), some guests were not happy with this as they could not sit and dip their toes in the sea. This is an example of anticipatory adaptation. In Sri Lanka a public sector respondent discussed the way he had encouraged the private sector to design buildings to take advantages of natural draughts so air conditioning was not essential (section 5.1.9). In the Seychelles, a resort manager had to add an additional section to a landing jetty to link the existing jetty to the coastline, due to the changes in currents and beach erosion (section 5.3.9) an example of reactive adaptation.

### **Importing sand to the beaches**

This was most prevalent in the Maldives, where all the resorts the Researcher visited had to extensively pump sand back to create beaches during the night time. They also need to use sand bags to try to ameliorate the problem, as can be seen in Figure 5.2.13. This reactive adaptation had considerable cost implications for the resorts, increased energy and manpower requirements all to maintain the amenity that was seen to be essential to the guest. Respondents in the Seychelles did mention beach erosion especially on St Anne's island, but it was not such an acute problem.

### **Impose new building regulations**

In the Seychelles the building regulations had been altered to take into account the increasing sea level and high tides as *Sey Pub 5 illustrated "you have to build about twenty-five metres from the high water mark. That is in the policy now"*. This is an example of anticipatory adaptation. Interestingly, the building regulations had not been changed in the Maldives, but the construction companies were making adaptations themselves as can be seen in section 5.2.9.



## Man-made coral gardens

The only illustration of this was in the Maldives, as discussed and illustrated in section 5.2.9. The catalyst had been the tsunami in 2004, but the concept was popular with the resorts to address concerns over the deteriorating quality of coral and also tourists liked to plant and name corals. So this is reactive adaptation that is also being used as a tourism activity.

## Summary

It is very noticeable in this section that the only two destinations to discuss adaptations that had taken place were predominantly the Maldives and the Seychelles. Sri Lanka only provided one illustration of adaptation. Table 6.18 summaries the adaptation action in the destinations. The pattern in adaptation responses in the Seychelles and Maldives was similar, but what is worthy of note is that it is the private sector was driving anticipatory adaptation in the Maldives and the public sector in the Seychelles.

Table 6.18 Summary of adaptation methods used in the destinations

	Sri Lanka	Maldives	Seychelles
Sea Defences		Reactive	Reactive
Enhancement and preservation of natural defences		Reactive	Reactive
Adapting to building tourism infrastructure	Anticipatory	Anticipatory	Reactive
Importing sand to the beaches		Reactive	Reactive
Impose new building regulations			Anticipatory
Man-made coral gardens		Reactive	

Source Researcher

## 6.3.5 Mitigation

As identified in Chapter Two, section 2.4.1, the IPCC (2007a) has stated that unmitigated climate change would in the long term be likely to exceed the capacity of natural, managed and human systems to adapt, so all nations and industrial sectors will need to be active in mitigation activities. The tourism industry has not explicitly established a global, industry-wide mitigation scheme, but the options identified for mitigation (section 2.4.1) are reduction of energy use, the improvement of energy efficiency, the increase of the use of renewable energy and the sequestration of carbon through sinks (UNWTO, 2008). Beckon

and Simmons (2005), classification is used to structure the analysis (section 3.7), it enables an examination of the emission on the journey to the destination, travel once at the destination, in the accommodation and in tourist attractions and activities and the behaviour of the public and private stakeholder groups in the destinations towards the reduction in greenhouse gas emissions. Gössling (2002b) suggests that the global CO<sub>2</sub> emissions from tourism transport is 90 percent, accommodation 6 percent and only 4 percent from other activities, so the majority of emissions are generated in the transit route to the destination and the destination region has limited control over this aspect. The next section will use Gössling (2002b) classification of the three sources of emissions as sub headings for presenting the comparative analysis.

*Firstly, travel to the destination - Gössling (2002b) suggests that tourism transport is 90 percent of tourism's overall contribution to global CO<sub>2</sub> emissions. As the findings illustrate below all destinations were very concerned that tourists would stop taking long haul flights.*

### **Earth Lung**

In Sri Lanka the Earth Lung project (Insight 3) is still in an embryonic state; however, it has created a great deal of interest both within the country and outside the country so this is a positive outcome as it has raised awareness of the issue and made the industry consider their responses to climate change. The public sector is evidently very committed to furthering the project and since the fieldwork Egypt has joined the Earth Lung project. However, there still seems little evidence of the programme being implemented, so tourists are still not able to offset the carbon of the flights they have taken to travel to Sri Lanka. The private sector was not as positive as the public sector as respondent *SL Priv 2* reflects *"I am not quite sure whether Sri Lanka is ready for it [Earth Lung]"*. The project has been a catalyst in raising awareness of climate change and the tourism industries response and although the Researcher was not told that this was the purpose it has even at this stage had a positive effect in getting the public and private sector to discuss the issue. Given that aviation for tourism purposes is expected to grow (UNWTO, 2008) and the study conducted by Gössling (2002b) estimates the largest proportion of tourism emissions (90 percent) are related to the journey to and from the destination, this is likely to become a more contentious issue in the future. As identified in Chapter Two, section 2.4.1, there are

a growing number of companies setting up voluntary compensation schemes but there are quite a number of criticisms to these schemes such as variable differences in their approach to calculate and compensate for emissions, their price and their accountability (Gössling *et al* 2007). The contribution of tourism aviation to anthropogenic climate change is likely to increase and the impacts of climate change continue to manifest themselves. The causes of global warming and subsequent impacts of climate change will become a more pressing issue and maybe the UNWTO and WTTC should begin to explore a tourism wide offsetting scheme that crosses the boundary of generating, transition and destination regions (Lieper, 1973).

### **Seychelles mitigation scheme**

In the Seychelles, the government was promoting the UN plant a tree scheme (section 5.3.10). Whilst it was not a tourism specific carbon offsetting scheme like the Earth Lung project, tourists on Air Seychelles could purchase a ticket and a tree would be planted in the Seychelles. The project was similar in essence to the Earth Lung project but there was not as much publicity surrounding it, the Researcher saw the banner in a local community and asked the respondents for more information.

### **Long haul flights**

All the destination had deep held concerns regarding long haul flights; that tourists would stop taking long haul flights and so not visit their particular destination, as the following quotes illustrate:

*“Customer’s asking how much would we be contributing to global warming when we travel” SL Pub 1.*

*“we can’t tell people not to fly to long haul destinations but we do not want people to stop flying to our destination we have to find other ways of offsetting what, the fuel that we burn because aircraft obviously heavy users of fuel” Mal Pri 8.*

*“If you look at the global flights, transportation figure as compared to what Seychelles has thirty flights a week, you see it is not even a fraction of what happens in a day in Paris” Sey Pub 4.*

These concerns reflect those of Bartlett, 2007; Boyd, 2007, Caribbean Hotels Association and Caribbean Tourism Organisation, 2007 established in Chapter Three. In addition, the UNWTO (2008), established the impacts of mitigation policies on tourist mobility as a key impact on the tourism industry (as discussed in section 3.5.3). The particular difficulty of this impact is that the ramifications of tourists not travelling to the destinations would have negative economic consequences, especially for the Maldives and the Seychelles with 55 percent and 50 percent of their national GDP reliant on tourism receipts. However, as the decision to take a holiday is made in the generating region and influenced by specific issues in that environment, there is little direct control that the destination stakeholders can take to respond to this. An illustration of this point was examined in Chapter Five, section 5.3.8, where a German academic was recommending that German tourists visited a local island, Sylt, in Germany, rather than flying to the Seychelles.

The destinations were reliant to different degrees on tourists coming to their destinations on long haul flights as 30 percent of tourists to the Sri Lanka come from Europe (Sri Lanka Tourism Development Agency 2010); 77 percent of tourists to the Maldives come from Europe (Ministry of Tourism Art and Culture 2010) and 78 percent of tourists to the Seychelles come from Europe (National Bureau of Statistics, 2010). Interestingly, Sri Lanka had the most direct response to the stabilisation / reduction of greenhouse gases through the Earth Lung project and yet it is the least reliant upon long haul flights. An action that the destinations could pursue is encouraging tourists to extend their stays in the destination, thus reducing the greenhouse gas contribution per day of the holiday. At present the average length of stay in the destinations is: Sri Lanka 9.1 days, Maldives 8.1 days and the Seychelles 10.2 days (UNWTO, 2009). Although this was not an initiative that was mentioned during the fieldwork, it is more directly controllable by the destination region than reliance upon the aviation industry to use new technologies to reduce their contribution to greenhouse gases as examined in section 3.7.1.

*Secondly, travel at the destination - Gössling (2002b) suggests that tourism transport is 90 percent of tourism's overall contribution to global CO<sub>2</sub> emissions of which he suggests approximately 5 percent is related to travel within the destination.*

### **Internal flights**

Both the Maldives and the Seychelles respondents reported that the number of internal flights was on the increase. This was not the case in Sri Lanka where internal flights had been curtailed due to the civil war. This supports the trend identified in Chapter Three, section 3.7.1, that tourist flights are expected to increase over the next couple of decades (Briguglio *et al* 1996, Simpson *et al* 2008, Gössling *et al* 2009). Therefore, the contribution to greenhouse gas emissions could also increase, unless the technological advances referred to by the WTTC in Chapter Three, section 3.4 is achieved.

### **La Digue project**

In the Seychelles there was a project to eliminate all the cars from one of the islands (La Digue) and to use this as a way of making La Digue a carbon neutral destination as discussed in Chapter Five, section 5.3.10. The government were already in advanced stages of negotiation with the local residents and business people and a carbon audit was already being conducted. The majority of tourists already used ox carts and bicycles so the modal shift was not a problem from the perspective of tourists; the biggest barrier was from local residents who did not want to give up their cars.

*Finally, accommodation, activities, and attractions - Gössling (2002b) suggests that tourism accommodation is 6 percent and only 4 percent from other activities of tourism's overall contribution to global CO<sub>2</sub> emissions.*

### **Renewable energy**

None of the businesses within the destinations seemed to have made much headway with the use of renewable sources to generate energy. According to NationMaster (2010) the countries are reliant upon fossil fuels for their energy production: the Maldives is 100 percent, Sri Lanka 51.7 percent and Seychelles 100 percent. This means that the Maldives and the Seychelles are most dependent upon fossil fuels and should be actively looking for alternative energy sources. In the Maldives, from a governmental perspective, there was no mention of alternative projects although as mentioned in section 6.1 the government now has a solar energy project. Within the private sector, there were a number of projects that were piloting new energy sources, such as a heat transfer project and a wind project, but these were not co-ordinated centrally (section 6.1.6). The Seychelles is in the same

position, 100 percent dependent upon fossil fuels, but there was some evidence that the government were investigating the generation of energy by alternative sources, such as wind and tidal power. The private sector stated they were keen to reduce energy costs, but few resorts had embraced alternative energy. In Sri Lanka, there was very little evidence of alternative energy sources, but this might be as the country is not so reliant upon fossil fuels and the government did not seem to see it as a priority. Transferring the balance of energy productions would prove to be very expensive and as these countries are still developing the cost may be prohibitive, this was a point made by two respondents in the Seychelles.

### **Carbon audit**

The public sector in the Seychelles was in the process of commissioning a carbon audit of the tourism sector. The two reasons behind this were firstly, so that this information could be disseminated to members of the industry such as hoteliers and tour operators and then be used as comparable base line data, so that every tourism business could have its own carbon audit using common parameters. The second reason was to explore whether the Seychelles could become a 'carbon neutral destination'. Whilst many destinations do have the aim to become 'carbon neutral destinations', it is only possible if all actors within the tourism sector cooperate and share relevant information (Gössling, 2009).

Mitigation was a very genuine concern raised within the research interviews. All the respondents had made the relationship between the reduction of tourist mobility and the subsequent threat to economic growth (discussed in Chapter Two, section 2.3.3 and Chapter Three, section 3.5.3). The economic dependence on tourism for the destinations has been illustrated and it is the fear that tourism travel patterns will alter (Chapter Three, section 3.1) and result in a premature and or sudden decline in tourist arrivals. Table 6.19 provides a summary of the mitigation responses within the three tourism destinations.

Table 6.19 Summary of mitigation methods used in the destinations

	Sri Lanka	Maldives	Seychelles
<b>Key concern regarding mitigation</b>	Tourists will reduce or stop taking long haul flights		
<b>Carbon offsetting schemes</b>	Earth Lung		UN Plant a tree
<b>Renewable energy government</b>	48 percent already renewable	100 percent reliance on fossil fuel	100 percent reliance on fossil fuel
<b>Renewable energy private sector</b>	Principally as a means of cost cutting	Principally as a means of cost cutting	Principally as a means of cost cutting
<b>Transport schemes</b>			La Digue
<b>Carbon audits</b>	Private sector		Public sector

Source Researcher

As it can be seen in Table 6.19 all the destinations were involved in mitigation initiatives. The most initiatives were observed in the Seychelles, then Sri Lanka and finally the Maldives. Given the prominence of this issue within the interviews it was surprising that more was not being attempted. The next section examines the differences in the actions of the public and private sector respondents with regard to climate change.

### 6.3.6 The role of public and private sector stakeholders

The active involvement of all people involved in particular initiatives is the underlying premise for stakeholder theory (Freeman, 1984). Specifically, Hall (2000) and Ladkin and Bertramini (2002), identify that education is an important aspect of coordination and collaboration amongst the stakeholder groups within a destination and can improve engagement (Chapter Three, section 3.4). The cohesion and engagement between the public and private stakeholder groups varied considerably and this is likely to be linked to the stage that the destinations are at in the tourism area life cycle (Butler, 1980), as discussed in section 6.0. The public and private sectors in Sri Lanka seemed fragmented with clear contempt between the two as examined in Chapter Five, section 5.1.10. This is illustrated by *SL Priv 7*, “*I would love more support [from SLTB] really both overseas and internally, tourist boards can be very proactive from my experience in Indonesia was that they were and I don’t have the same here*”, the public and private sector did not appear to work well together.

In the Maldives, the public sector took a great pride in their involvement in tourism planning, as MAL Pub 4 explained, “*the government is very strong they good at putting on regulation and all that*”. There were meetings that involved both public and private sector

stakeholders but there seemed to be cracks under the surface as Mal Priv 6 suggested *“I think the public sector they talk about it and maybe they are aware of it [climate change] but again they don’t do much about it”*. And Mal Pri 10 *“They [the public sector] are not effective they need to be more proactive they need to come and work with us, talk to us”*. There seemed to be delineation of the roles of both the public and private sector and as this paragraph suggest a lack of common understanding.

In the Seychelles there was less animosity and both parties seemed to have an understanding and acceptance of the role of others, as Sey Pri 2 explained: *“The public and private sectors are both very effective. They are in the forefront and they are definitely pushing and driving but of course work in conjunction with each other whatever they are doing it with consultation with the DMC’s with the hotels, with the people involved. They try their best where they can’t delver it’s to do with limitations, government policies as well, but they do listen and they will listen to the recommendations and they are trying to work”*.

Effective collaboration and co-ordination is essential for the successful planning and development of tourism resorts. Butler (1980) observed that a change of attitude is required on the part of those responsible for planning, development and managing tourism areas and this could be what is required in Sri Lanka and the Maldives. There still seems to be a power struggle in these two destinations to see if the public or private sector is dominant rather than the collaborative approach recommended by Freeman (1984) and fostered by the Seychelles. Table 6.20 summarises the approach of the public and private sector stakeholders in the tourism destinations.

Table 6.20 Summary of the roles public and private sector stakeholders

	Sri Lanka	Maldives	Seychelles
<b>Perception of the roles of public and private sector</b>	Contempt	Demarcation	Cohesion

Source Researcher

In the preceding section it can be seen that public and private sector stakeholders are influential in the development of environmental consciousness within tourism destinations, it would seem that the more cohesive and integrated the stakeholder groups (Table 6.21)



the more developed the environmental consciousness within the destination as Table 6.21 indicates. It can be seen that there was greater environmental consciousness within the Seychelles and less in the Maldives and Sri Lanka respectively. However, this is only one study and further research would need to be conducted to test the relationship and provide greater reliability to the analysis.

Table 6.21 Summary of environmental consciousness within the destinations

	Sri Lanka	Maldives	Seychelles
<b>Attitude</b>	Concern, but not consistent approach	No significant concern and inconsistent approach	Concern with a more consistent approach
<b>Knowledge</b>	Limited knowledge of climate change in both the public and private sector	Strong in pockets of public sector but not transferred to other dept. Strong in pockets of private sector but not transferred to other resorts.	Strong knowledge of climate change within both the public and private sector.
<b>Behaviour-adaptation</b>	Limited anticipatory	Strong reactive Limited anticipatory	Strong reactive Limited anticipatory
<b>Behaviour mitigation</b>	Public sector one key project  Private sector action based on cost reduction	No public sector action  Private sector action based on cost reduction	Public sector two key projects  Private sector action based on cost reduction

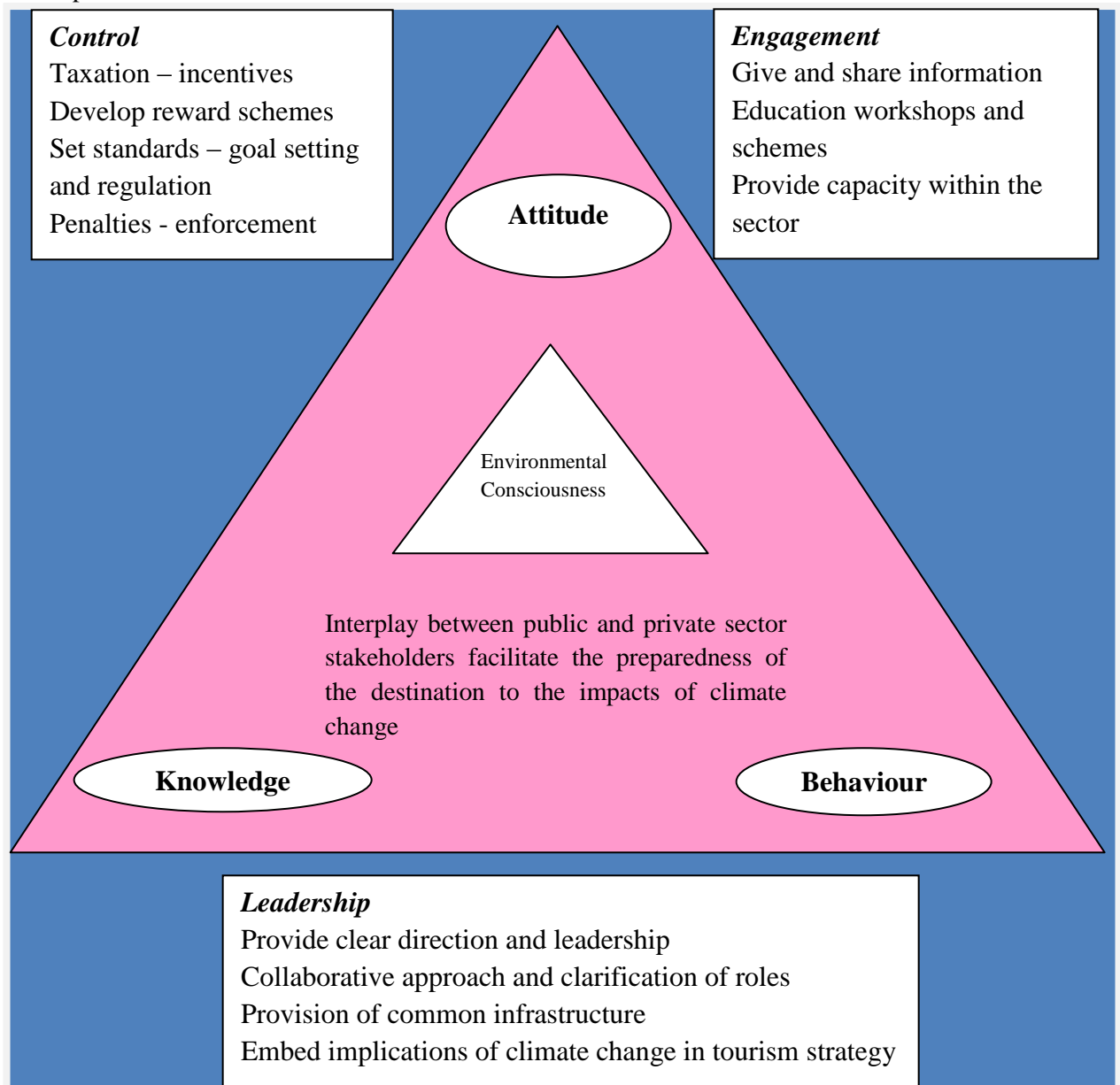
Source Researcher

There is a range of action that public and private sector stakeholders can take to increase the responsiveness of the tourism destination to the impacts of climate change as Figure 6.6 below illustrates. The stakeholder group's actions can be categorised into broad areas that are drawn from concepts within stakeholder theory. The first area is control, which is using legal frameworks, certification schemes and enforcement to ensure that clear targets and standards are set and very importantly enforced. Next, both the public and private sector stakeholders need to engage to share the good practises that exist in both sectors, which will develop greater cohesion between the two groups and build greater capacity to respond to the impacts of climate change. The final area is leadership, where the stakeholders have to have suitable structures to ensure effective co-ordination that can provide a clear direction. This will ensure resources and tourism strategy can be planned in a more integrated way.

The progression of each of these areas should provide mutual reinforcement that in turn can result in greater environmental consciousness within the tourism destination and consequently the destination being more effectively prepared for the impacts of climate

change. The interaction of these factors (control, engagement and leadership) can act as enablers or inhibitors to the responsiveness of the destinations to the impacts of climate change.

Figure 6.6 Framework of influence of the public and private sector stakeholders in the development of environmental consciousness in tourism destinations

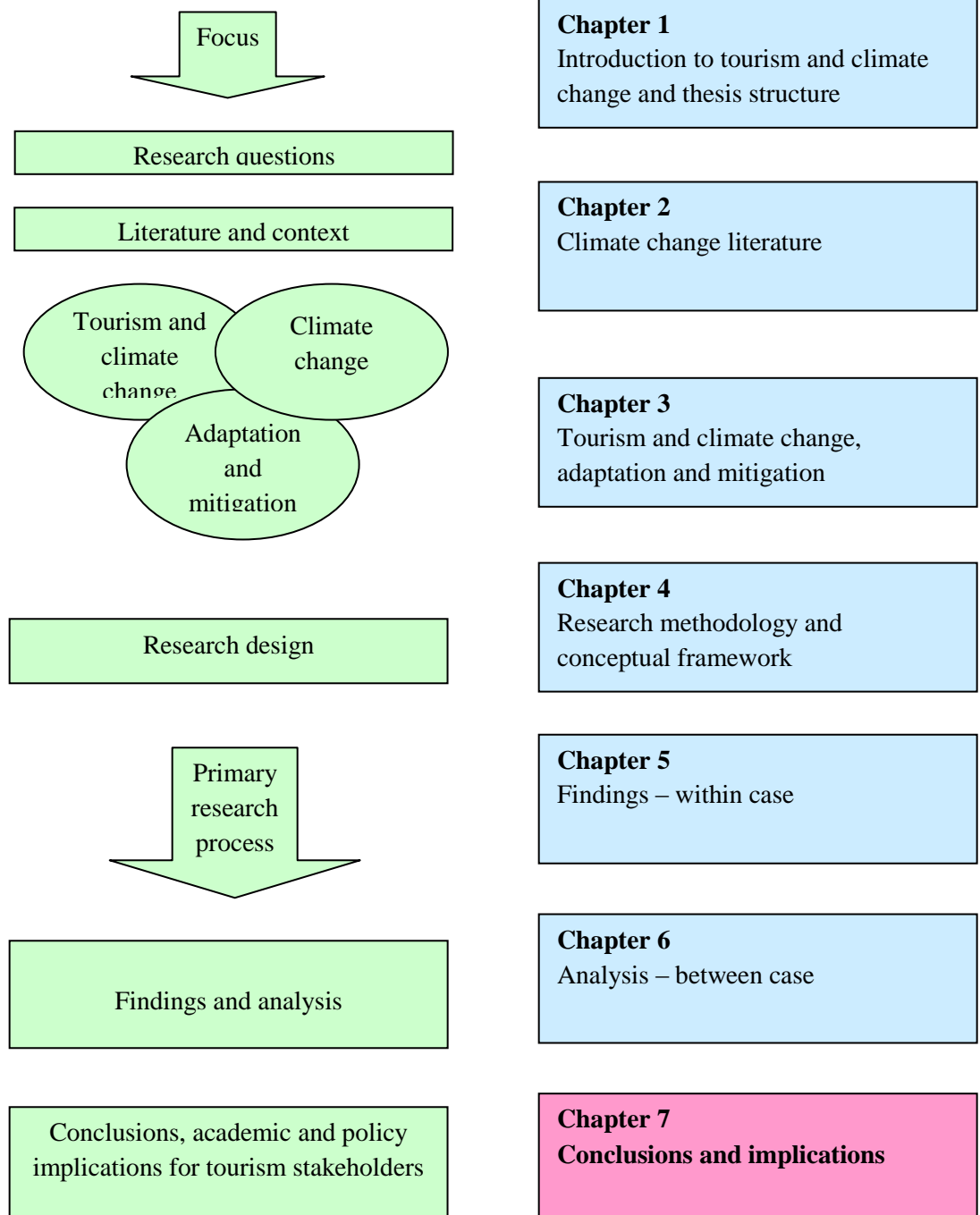


Source: Researcher

#### 6.4 CHAPTER SUMMARY

*This Chapter has provided a comparative case analysis that offers an understanding of the responsiveness of island tourism destinations in the Indian Ocean to cope with the effects of climate change. The political, environmental, social, economic, geographic and technological contextual factors were compared, which enabled a prioritisation of the importance of these factors to each of the destinations which demonstrated significant variability. Almost all the respondents in all the destinations were able to identify changing weather patterns, loss of habitat, coral bleaching beach erosion and tidal surges that they associated with climate change, which shows that it is a current phenomenon, not a future one. The environmental consciousness of the respondents within the destinations has been examined using knowledge, attitude and behaviour (specifically adaptation and mitigation actions) to provide a collective indication of the environmental consciousness of the tourism destination. The findings establish that the Seychelles has greater environmental consciousness than the Maldives and Sri Lanka, respectively. The roles of public and private sector stakeholders seem influential in the environmental consciousness of the destination where greater cohesion between the two groups results in control, collaboration and co-operation actions that can either enable or inhibit the responsiveness of the tourism destination to the impacts of climate change. Chapter Seven will integrate these aspects to develop a new model.*

## Chapter Seven Conclusions



## 7.0 INTRODUCTION TO THE CHAPTER

*This Chapter draws together the findings of this research the literature reviewed in Chapters 2 and 3 and the analysis from the fieldwork as presented in Chapters 5 and 6. The discussion commences with the introduction of two new bodies of literature, climate change resilience and ecological modernisation, and how they have informed this research. Then a narrative is presented on the evolution of a model that can be used to examine the progress that Indian Ocean island tourism destinations have made in responding to the impacts of climate change and subsequently their climate change resilience. The model is then tested through its application to each of the three case studies. Next the three research objectives are reviewed to present key conclusions from the thesis. The original contribution of this work is highlighted in terms of both its contribution for the academic study of tourism and the practice of tourism. Subsequently, a review of the methodology is then conducted. The Chapter concludes by identifying suggestions for future research and the implications of this research for tourism practitioners within Indian Ocean island tourism destinations.*

This Chapter begins by introducing the concepts of climate change resilience and ecological modernisation and clarifying their relationship with the research questions. The next Section draws the key issues together that emerged from the analysis in Chapters 5 and 6 and offers a framework that will help in the assessment of the responsiveness of tourism island destinations to the challenges of climate change.

## 7.1 CLIMATE CHANGE RESILIENCE AND ECOLOGICAL MODERNISATION

As detailed in (Section 2.1) the IPCC predicated that climate change was occurring and raised questions about the severity of the impacts and what societies can do to both mitigate climate change and develop adaptive capacity to deal effectively with the impacts (Fourth Assessment Report, 2007). As a result the focus of climate change research has altered from the realm of pure science and now includes that of social science, where decision making, feasibility and technical options need to be considered in the context of economic, political, and cultural conditions, which is the arena in which this research has been undertaken. The findings from this research contribute to study in this area.

To understand the impact of climate change the vulnerability of an area needs to be examined. Vulnerability has been defined as “the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity” (IPCC, 2001b:18). However, this definition was produced prior to the Fourth Assessment report and has been criticised, for example by O’Brien et al. (2006) for failing to consider social aspects which examine how societies cope and develop adaptive capacity based on their human resources, economic capacity and environmental capacity. This ability to cope, be it the natural environment, economy or society can be thought of as the resilience of an area to climate change. It is argued here that both adaptation and to a lesser extent mitigation (Section 2.4, 3.6 and 3.7), contribute to building climate change resilience within tourism island destinations.

The IPCC (2001:750) defines adaptation as “adjustments in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderate harm or exploit beneficial opportunities”. Broadly, there are two adaptation responses to address the impacts of climate change (Section 2.4). Firstly, building adaptive capacity within society and institutions, through education and engagement to deliver adaptation actions. Secondly, via reactive adaptation (e.g. having to reroute a road that is being encroached).

This study also recognises the role of mitigation in building climate change resilience. Mitigation is defined by the IPCC as “intervention to reduce human-caused net emissions

of greenhouse gases” (1994:186). Mitigation refers to actions that reduce anthropogenic contributions to the causes of climate change. The implementation of mitigation programmes (e.g. planting trees to form a carbon sink) often have an educational component that reinforces the building of adaptive capacity within society. It is the combination of these adaptation and mitigation actions that provides an understanding of the destination’s response to the potential impacts of climate change. The IPCC, World Bank and United Nations Development Programme all consider that mitigation and adaptation to be closely related and ideally should be considered together rather than separately (Section 2.4) which is why this study has examined both. Whilst this is not always possible, it is important that any adaptation actions take account of mitigation, and any mitigation takes account of the need for adaptation to provide a more robust foundation for resilience within a tourism destination.

Ideas within the resilience literature have emerged from a number of areas such as risk management, supply chain management, corporate governance and environmental science (Harwood et al, 2011). Climate change resilience has developed from the adaptation literature (Section 2.4.2) and is particularly pertinent to developing countries (World Bank, 2010; Eakin and Lemos, 2010). There is consensus that climate change resilience is the ability of a region to respond to climate variations and natural events that result from climate change and the ability of the region to develop suitable adaptation, coping capacity and sensitivity to climate change (Chandra, 2010 and Ibararan et el, 2010). Cork (2009) expands suggesting that a resilient nation would consist of resilient ecological systems, people and institutions that have the understanding and capacity to recognise slowly changing variables and processes and to draw on knowledge, experience and experimentation to keep the social and ecological systems away from undesirable thresholds, and to have the capacity to absorb shocks of all kinds. The degree of resilience is thus a reflection of its coping capacity and its sensitivity to climate change (Tompkins and Adgar, 2004). Within this study, sensitivity was assessed by examining how aware respondents were to climate change impacts. Climate change resilience is a useful concept for this research, as it explores both the tourism sectors’ understanding of how the impacts of climate change are affecting their destination (awareness) and how the stakeholders are responding (adaptation and mitigation).

Adaptation actions undertaken to ecosystems and communities need to consider “no-regrets” adaptation approaches; which are actions society would not regret and are unlikely to have any negative consequences. Heltberg et al, (2009:91) define 'no-regrets' adaptation interventions as “actions that generate net social benefits under all future scenarios of climate change and impacts”. The complexity arises as ‘no regrets’ adaptation attempts to consider all future scenarios which covers many uncertainties of the impacts of climate change and as a result make adaptation all the more complex (Campbell et al. 2009, Heller & Zavaleta. 2009, Chandra, 2010, Eakin and Lemos, 2010. An illustration of a “no-regrets” adaptation is in the Maldives, the sea defence wall built around Male is an illustration of adaptation that has been very effective as it prevents flooding that occurred with tidal surges (Section 5.2.9). However, some of the sea defence adaptation work in the Seychelles at Saint Anne’s (Section 5.3.9) has not provided a feasible solution for either ecosystems or society. The hard engineering work has altered the tides, which has according to the locals, adjusted the species of fish in the area, which in turn reduces the ability of the fishermen to make a living. This is a classic example of “mal-adaptation”, where in the long term the ecological attributes that regulate the modified ecosystems are disturbed (The Convention on Biological Diversity (CBD, 2000). In addition, the new harbour is unsightly for locals and tourists and was an adaptation regretted by all stakeholders interviewed. This supports the findings of a study by Campbell et al., (2009), which showed that many adaptation strategies had a negative impact, especially in the case of ‘hard defences built to prevent coastal and inland flooding’. As a result, the Seychelles has lost some resilience and adaptability to future disturbance. Climate change resilience is now at the forefront of scientific inquiry and policy negotiations. One of the main challenges in current adaptation work is to understand and demonstrate how adaptation works and the consequential implications for resilience (Tschakert and Dietrich, 2010).

One approach that could be useful in conjunction to climate change resilience is that of ecological modernisation, a concept that has developed since the 1980s. Proponents, for example, Spaargaren, Mol, Buttel, (2000) suggest it is possible to develop economically and socially and at the same time conserve the environment. A definition of ecological modernisation is provided by Gibbs (2009:65) as “a process of the progressive modernisation of the institutions of modern society. The basic argument is that the central institutions of modern society can be transformed in order to avoid ecological crisis”. It is



argued (Spaargaren et al., 2000; Gibbs, 2000) that ecological modernisation is a more rigorous approach to development since it focuses upon reconciling the tensions between economic development and ecological crisis to form a new model, where the emphasis is placed on the primacy of new technologies in the battle to modernise environmental management (Christoff, 1996). All the tourism island destinations had conflicts between economic development derived through tourism and ecological protection, the basis of the tourism product, which will be discussed below.

Respondents in all the tourism destinations had concerns about the pace of growth and sustainability of tourism (Sections 5.1.4, 5.2.4 and 5.3.4), within their respective destinations. The concept of ecological modernisation can be used to shed some light on tourism development against the emergence of the impacts of climate change. Christoff (1996) developed the two ends of the ecological modernisation spectrum as weak and strong versions as shown in Table 7.1.

Table 7.1 Characteristics of weak and strong ecological modernisation
<p><b><i>Weak ecological modernisation</i></b></p> <ul style="list-style-type: none"> <li>• Technological solutions to environmental problems</li> <li>• Technocratic/corporatist styles of policy making by scientific, economic and political elites</li> <li>• Restricted to developed nations who use ecological modernisation to consolidate their global economic advantages</li> <li>• Imposes a single, closed-ended framework on political and economic development</li> </ul>
<p><b><i>Strong ecological modernisation</i></b></p> <ul style="list-style-type: none"> <li>• Broad changes to institutional and economic structure of society incorporating ecological concerns</li> <li>• Open, democratic decision making with participation and involvement</li> <li>• Concerned with the international dimensions of the environment and development</li> <li>• A more open-ended approach with no single view, but multiple possibilities with ecological modernisation providing orientation</li> </ul>
<p>Source: Derived from Christoff (1996).</p>

Sri Lanka and the Maldives were the destinations closest to the weak end of the spectrum. Whilst it is recognised they are not developed nations, they did have bureaucratic policy makers (Section 5.1.5 and 5.2.5), there was evidence of division between the public and private sector stakeholders with social elites (Section 5.1.12 and 5.2.12) and the Maldives wanted support and aid from international organisations (Section 5.2.8). The Seychelles is

the destination closer to the stronger end of the spectrum, with a more open and inclusive decision making process (Section 5.3.12) supported by legislation that protects the environment (Section 5.9) and less evidence of decisions being made prior to consultation (Section 5.3.3 and 5.3.11).

There are a number of criticisms of the ecological modernisation approach. Questions are raised as to whether ecological modernisation is an appropriate concept in developing countries, as it ignores the dynamics of power, which can subvert environmental reform; and as a result underplay the nature and scale of social changes required to move to more sustainable forms of development (Gibbs, 2000). This research has shown that those destinations that have a stronger affinity to the environment (Sri Lanka and the Seychelles) have made greater anticipatory adaptive actions to respond to the climate change impacts (Section 6.3.4). In comparison, the Maldives (with low affiliation) whose actions were predominantly classed as responsive adaptation (Section 6.3.4). As ecological modernisation often fails to take account of the social processes at work this may not lead to the type of embedded cultural transformations that will sustain factors such as environmental improvements, reduced consumption and greater equity (Cohen, 1997, 1998; Jamison and Baark, 1999).

The principles behind ecological modernisation might be useful for the tourism stakeholders to consider when planning their response to the impact of climate change but this would need further specific research to be conducted. Barry and Doran (2006) argue that ecological modernisation should be seen as a ‘jumping off’ point for more radical shifts towards a green economy and politics, rather than as an end in itself. Although in the Maldives and Sri Lanka, implementation of tourism strategies would likely be impeded as a result of power struggles and political manoeuvring among key stakeholders including government, private sector, political parties, local government and communities. This reflects the research findings conducted by other tourism academics in developing countries (Yasarata *et al*, 2010; Altinay, Var, Hines, & Hussain, 2007; Tosun, 2000 and Tosun 2001) who conclude that sustainable tourism development requires re-structuring the public administration system, and a re-distribution of power and wealth which means making hard political choices and this is only effective with the assistance of international organisation. As Cohen (2006) observes, ecological modernisation is not a panacea for

resolving the tensions between concern for environmental wellbeing and the need to sustain a viable economy. International organisations such as the UNWTO and WTTC need to acknowledge this and facilitate the decision making process and implementation of tourism and climate change policies in a more dispassionate manner, helping to garner tourism stakeholders to adapt and evolve in a more cohesive manner.

To recap, the third research objective of this study is to examine what actions are being taken in adapt to the effects of climate change and mitigate the causes of climate change (by key private and public sector stakeholders in Indian Ocean Island tourism destinations). The concept of climate change resilience is here used to draw together the individual adaptation and mitigation actions examined within the tourism destinations to provide a more holistic understanding of how prepared they are to the vulnerabilities they will face as a consequence of climate change. By responding to the physical impacts of climate change and building adaptation capacity into institutions and society, the tourism sector will be able to make a positive contribution to improving resilience.

## 7.2 THE DEVELOPMENT OF THE MODEL

Drawing on the findings identified in Chapters 5 and 6, a model (Figure 7.1) is offered to provide an examination of the responsiveness (speed of reaction) of Indian Ocean island tourism destinations to the impacts of, and the development of climate change resilience (ability to cope). The responsiveness and resilience of a tourism destination are influenced by 3 elements: stakeholder awareness of the impacts of climate change; environmental consciousness within the stakeholders and levels of cohesion between stakeholders. These three elements are in turn informed by the surrounding contextual factors. The next section examines each of the elements.

### **Awareness of impact of climate change**

Developed from the findings presented in Chapters 5 and 6 the first element of the model is stakeholder awareness of the impacts of climate change on the island tourism destination. The perception of stakeholders is important in understanding the tourism island destination's responsiveness to climate change and subsequently the resilience of the community to climatic changes, which is why a social constructionist methodology was used. Scientific evidence had already been reviewed (Section 2.2 to 2.4) which indicated that these Indian Ocean island tourism destinations were at significant risk as a result of the impacts of climate change (UNWTO, 2008, IPCC 2007). However, the researcher was keen to examine if such impacts had been observed by the resident population. The use of a social constructionist methodology was critical in gaining this insight as it represented the views of the community and relayed their understandings of how the impacts of climate change were manifesting in the destinations.

A community's knowledge of risk is bound to its context and reflects the social and cultural perspectives which shape the community's perception of what is hazardous and non-hazardous, and thus whether action needs to be taken to respond to the hazards or not (Lidskog, 1996). In this study, all respondents in the tourism island destinations (except one respondent in the Maldives) had observed changes that they attributed to climate change (Section 6.2), thus all communities had identified the hazard of climate change. There was a shared experience surrounding climate change and common narratives were emerging around these observations as the research shows many of the accounts had

mutual threads told from different perspectives but which pieced together seemed to form part of the tourism islands reality (Section 5.1.7, 5.2.7 and 5.3.7).

In the Maldives and Sri Lanka, respondents identified six types of impact, whereas in the Seychelles eight different changes had been observed. Technically the Maldives is the most vulnerable of the three destinations and there is scientific evidence (UNWTO, 2008, IPCC 2007) to support this, so it might be expected that there would be greater reporting of climate change impacts by the respondents. However, the results show this was not the case (Section 5.2.7) and thus it can be seen that perceptions of environmental risk is not based on scientific knowledge, but is also a product of their social interpretation and this would not have been apparent unless a social constructionist methodology was utilised. This recognition of the impacts of climate change seemed to be a precursor to the actions of the stakeholders to respond to the impacts.

### **Levels of cohesion between stakeholders**

The second element in the model encapsulates the interactions between the public and private stakeholders. The term public and private sector stakeholders was taken from the Davos conference on Tourism and Climate Change (2007), and then taken forward into the conceptualisation, to establish what actions were being undertaken by the different stakeholders to respond to climate change (Section 3.4). In reality the distinction between the public and private sector is more complex than these terms suggest. Whilst this term has provided a categorisation, it also has limitations; for example respondents could be in quasi-governmental organisations that are neither purely public nor private. Equally, within each of the sectors differing perspectives were evident and the use of this distinction may have reinforced the idea of dualism which Spaargaren (2011) suggests is non-productive and can lead to a limit in environmental governance, as seen in Sri Lanka and to a lesser extent in the Maldives (Section 5.1.12 and 5.3.12). Thus an alternative term of 'stakeholder' is used in the model to represent the range of different private and public sector actors which represent the responsiveness of the destination to climate change.

The results of this research suggest that the more cohesion across the range of the stakeholders within the destination, the greater the environmental consciousness, as shown in the Seychelles (Section 6.3.6). Conversely, the less cohesion, the less environmental

consciousness, as in Sri Lanka (Section 6.3.6). In those destinations where the stakeholders worked together more closely and where there was less conflict between the stakeholders it seemed to result in the destination being more responsive to the impacts of climate change and developing greater climate change resilience. Although it must be recognised that this is an exploratory study and more detailed research would need to be undertaken to establish if there was a cause and effect relationship. This concurs with the work of Altinay et al, (2007) and Tosun, (2000) who found that, particularly in developing countries, formulation of sustainable tourism policies and plans and their implementation are impeded as a result of power struggles and political manoeuvring among key actor groups including government, private sector, political parties, local government and communities (i.e. where there is a lack of cohesion). In addition, Fadeeva (2004) conducted research into the effectiveness of networks within the tourism sector and concluded that there was a higher chance of sustainable practices emerging if tourism stakeholders operated within organised networks (i.e. where there is greater cohesion). This prevails upon the governments and national tourism organisations to take more of a lead role in the cultivation and co-ordination of networks and formal education, such as workshops. Within Sri Lanka the private sector stakeholders were quite derisive about the work of the public sector (5.1.12). There was clearly a ‘them and us attitude’, so resources were not effectively galvanised to provide innovative solutions to the impacts of climate change. All Sri Lankan stakeholders were able to identify multiple impacts (5.1.7), yet limited actions had been undertaken on mitigation and adaptation actions.

### **Levels of environmental consciousness**

The third element of the model considers the levels of environmental consciousness within the tourism island destination. The concept of environmental consciousness was briefly examined in Section 6.0, where it was recognised that understanding behavioural change requires an understanding of theories from various social, psychological, subjective and objective variables (Jackson, 2005). These theories were not identified prior to data collection so were not integrated into the design of this research. At the analysis stage three broad aspects of environmental consciousness were examined; attitude, knowledge and behaviour (identified in Sections 6.1 and 6.4). These broad areas were established in the simple linear model (Figure 6.4), developed by Kollmuss and Agyeman, 2002). However, it is clearly recognised that the relationship between attitude, knowledge and

behaviour is not as simple as the linear model implies. This was evident in the findings presented in Chapter 6. For example, in the Maldives there were strong pockets of knowledge about climate change within the public sector stakeholders, but this did not appear to have a significant influence on developing pro-environmental attitudes or behaviour. This supports the work of Blake (1999), Kollmuss and Agyeman (2002) and Barr (2004) who found that the relationship between attitude, knowledge and behaviour is more complex than first indicated.

Later, Kollmuss and Agyeman (2002) (Figure 6.5) established a model that took a more holistic approach to environmental consciousness. It encompassed a range of factors that promote or inhibit environmental consciousness with recognition given to both internal and external factors which influence pro environmental behaviour. This supports the findings of this study, as both internal and external factors (albeit different in the various destinations) gave an indication of the responsiveness and resilience of the destination to climate change. Jackson (2005) identified three principal external barriers to behavioural change: external conditions; social context; and 'lock in' (norms and habits). The findings of this research presented in Section 5.1, 5.2 and 5.3 show evidence of all these barriers being present. Interestingly, these barriers can be applied on a number of different levels: at the individual the (norms and habits); and at the interpersonal level and at the community level (Halpern and Bates, 2004) as the next example illustrates. There was evidence that some individuals in the Maldives had a disregard for the environment (Section 5.2.4) and this appeared to be quite deeply engrained (historically locals had broken up the coral reefs to use as a building material). Stern (2000:417) refers to this type of behaviour as an 'individuals operating procedure' resulting in behaviours that became habitual and are extremely difficult to break. In the Sri Lanka there was evidence of interpersonal conflict and contempt between the stakeholders (Section 6.3.6). Finally, in the Seychelles, the economic crisis was a community barrier to conducting a carbon audit as there were not the funds to finance the work (Section 5.3.10). Therefore, these findings support the views of Kollmuss and Agyeman (2002) that a holistic approach needs to be taken with environmental consciousness as the interactions between the stakeholder groups within this study (degree of cohesion) have been seen to be influential in the levels of adaptation (Section 6.3.4) and mitigation (Section 6.3.5) actions.

Although, this research did not examine the specific actions of individuals (an area for future research) it did establish the importance of the social context on the responsiveness of the destination to climate change impacts. Randles and Mander (2009) argue that behaviour is socially constructed through a combination of an individual's beliefs, norms and values regarding action and interaction with the resources available (physical structures and social rules) and this seems to illustrate what was observed in the Seychelles and Sri Lanka. Randles and Mander expand (2009:95) that social practices create a "propensity for 'lock-in' (through their norms and habits), or an inherent resistance to change". This could account for the lack of environmental initiatives being implemented by the public sector in the Maldives, maybe the use of the environment as a functional resource contributed to 'locking out' with regard to local environmental initiatives? This is an area that needs more research but clearly supports the findings within this study as the resources available within the destinations varied considerably (economic factors Section 6.1.4) and this was influential in the progress made within the destinations.

This study collaborates the findings of previous studies on tourism businesses by El Dief and Font (2010) and Riverera and de Leon (2005) who found that within the early stages of environmental transformation, the managerial beliefs, attitudes and norms are important in driving the changes through to fruition. This was particularly significant in developing countries where external pressures and regulatory structures are not fully developed and tourism is used as an important vector for economic development. In both Sri Lanka and the Maldives, the Directors of large hotel chains clearly had a strong interest's in wildlife and the environment. This culminated in the commissioning of environmental audits within the business and changes to the operations of the business (Section 5.1.11 and 5.3.10).

Claver et al (2007) established tourism firms that integrate environmental management practices into their performance tend to obtain a competitive advantage in differentiation through improved brand image and increased credibility in business relationships. This is supported by Schwartz et al (2007) study who add, that any serious attempt to integrate sustainability into an organisation requires the adoption of the sustainable supply chain management framework. Those companies that claim to have good environmental credentials but do not have substantive evidence to back them up are green washing



(Section 6.3.1). This can erode the claims made by companies truly committed to the green agenda (Chamorro & Bagnegil, 2006). The Seychelles was extremely aware of the problems that result from green washing and so the national tourist board aimed to conduct a carbon audit for all the resorts within the destination and then make it available for all tourists within the destination. Customer information on environmental management within destinations is more commonly generated by specialist operators, due to the nature of the product and perceived market interest (Font et al, 2008). However, the tourist board did not intend to use the audit for marketing purposes but to provide accurate information for those tourists who asked questions (Section 5.3.10), as tourists to the Seychelles were perceived as being well educated and aware of the issue of climate change.

Kollmuss and Agyeman (2002) conclude that the question of what determines pro-environmental behaviour is such a complex one that it cannot be visualised through one single framework or diagram. Anable et al. (2006:64) agree stating there is no “grand unified theory” that provides a definitive explanation of behavioural change. Thus the model offered identifies the concept of environmental consciousness as an important factor that influences the responsiveness of the tourism destination to the impacts of climate change, but it is only one piece of the puzzle.

### **Contextual factors**

Surrounding the three elements discussed above is the backdrop of the contextual factors, political, economic, environmental, social, technological and geographical features which are all interdependent and influence where the destination is according to the tourism area life cycle (Figure 6.1). The combination of these contextual factors leads to a unique and dynamic background that is essential to understand the situation of a particular tourism destination (Section 6.1). These factors directly and indirectly affect the manner in which the stakeholders in the tourism island destinations respond to the issue of climate change through mitigation and adaptation actions (examined in detail in Sections, 5.1.4, 5.2.4, 5.3.4 and 6.1) and as a consequence influence the climate change resilience of each destination.

The perceptions of respondents in all three cases indicate that the respondents were aware that the islands are highly vulnerable to climate change and the respondents held limited

optimism about the future. This could indicate a lack of confidence in the ability of stakeholders to adapt to climate change impacts and build adaptive capacity. Future resilience may lie with different social and ecological systems (this could include different carrying capacity within tourism) and the need for political legal and cultural adjustment to facilitate the future sustainability of the islands (Bounce et al, 2009). Where resilience can be enhanced, the goal of continued tourism development in these countries is more likely to be achieved. To overcome some of these difficulties, Stickland-Munro et al, (2009) suggest that a systems thinking approach<sup>47</sup> is required as future conditions may be different, more extreme and rapidly changing than previously experienced, requiring very different approaches to the assessment of climate change impacts. This research established that the stakeholder's were able to identify many impacts of climate change and although these varied from the predictions in the scientific evidence presented they stimulated awareness, discussion and adaptation initiatives. Adopting a systems approach would require effective networking between the stakeholders within the destinations and as the results of this study shows the levels of cohesion vary in the destinations. The Seychelles are more likely to be able to embrace a systems approach to tourism development as there is greater cohesion between the stakeholders, whereas Sri Lanka and the Maldives are more likely to find a systems approach to tourism development more challenging.

### **Combination of the factors**

The analysis of the findings of this research study have identified that the key elements of tourism island destination responsiveness to climate change are: stakeholder awareness of the impacts of climate change in their destination; cohesion between stakeholders and greater environmental consciousness by the stakeholders (attitude, knowledge and behaviour indicated through the adaptation and mitigation). These factors, awareness of climate change, respondents exhibiting greater environmental consciousness and greater cohesion between the tourism stakeholders all combine together to provide a greater force in building climate change resilience in the Indian Ocean island tourism destination. An area that requires more research is to establish if there is a chronological order to these

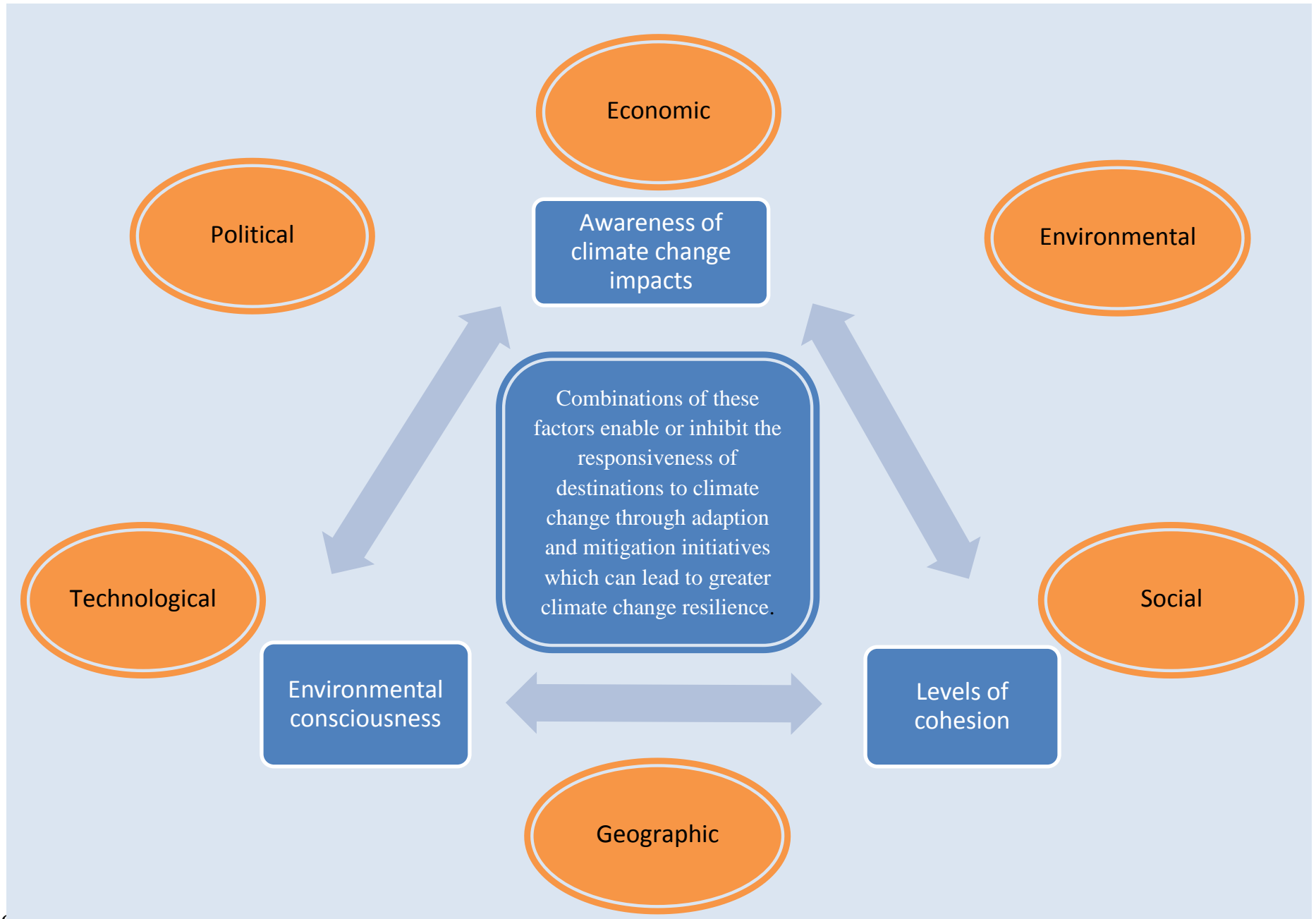
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<sup>47</sup> System thinking approach is used within strategic management, it recognised the complex, embedded and dynamic nature of decision making in modern organizations. Mintzberg et al 1998, identify ten approaches to strategic management and a systems approach recognises the limitations of using any of the approaches in isolation recommends the use of combinations of the approaches in complementary and flexible way

factors, but this research is not able to specify a particular order; just that these factors are good predictors to assess climate change resilience in the destination.

Figure 7.1 provides a diagrammatic representation of the three elements. These elements are all influenced by the contextual factors, political, economic, environmental, social, technological and geographical features which are all interdependent and influence how tourism has developed. It is a combination of these elements that enables the destinations to develop greater adaptive capacity which in turn leads to more anticipatory adaptation in their responses to the impacts of climate change; finally resulting in greater climate change resilience for the Indian Ocean tourism island destination.

Figure 7.1 Framework to examine the responsiveness of the tourism destination to the impacts of climate change.



### **7.2.1 How the social constructionist methodology enriched the findings**

This section establishes the relevance of a social constructionist methodology to this research. The social constructionist methodology has been significant in the findings of this research as the interviews surfaced the perspectives of the respondents. This provided a sense of meaning to their actions and a clear insight into their destination and the reality (as they recognise it) that the stakeholders operate in. This has provided the unique insights (section 5.1, 5.2 and 5.3) into how these individuals use their historical, spiritual, cultural and environmental beliefs to influence their social process, to provide an understanding of the tourism island destinations responsiveness to climate change.

As Gergen (1999) illuminates, exploration of the past can help with deliberations of the present and help with creating new futures (Section 4.1.7). This is particularly pertinent to this research as the following examples with illustrate. In Sri Lanka the dominant religion was Buddhism and the respondents had a close affinity to the environment and this was reflected in the protection provided to the natural and cultural environment (Section 5.1.1). This contrasted starkly with the Maldives where the respondents viewed the environment as a functional resource and until very recently had broken down the coral reefs and used them as a building material (Section 5.2.4). In the Seychelles respondents had an inherent determination to protect the natural environment and all respondents were keen to inform the researcher that 50 percent of the islands would remain without any development (section 5.3.4). Whilst this was enshrined in legislation it was communicated rather like a mantra that clearly predisposed their views on broader issues.

The use of stakeholder perceptions has enabled the development of an understanding of the complex conditions that exist within these tourism destinations (Section 5.1, 5.2 and 5.3). As the results have shown these include the changes that are attributed to tourism development; the interactions between the stakeholders; their views on the rates of growth within the destinations; the impacts that respondents had observed and attributed to climate change, emotive views on the responsibilities of developed and developing nations in connection to climate change concerns and about threshold levels of tourism and possible future scenarios. The historical, spiritual, cultural and environmental beliefs have been very influential in understanding the social process that influence tourism

stakeholders in Indian Ocean island tourism destination their current responsiveness, and also their future resilience to climate change.

This next section of the chapter takes each of the Indian Ocean island tourism destinations in turn and applies the model (Figure 7.1).

## **7.2.2 The application of the model to Sri Lanka**

The key elements of model are examined in turn to provide an interpretation of the model to each of the tourism destinations.

### **Contextual factors**

Application of the case study findings will be conducted looking at each aspect of model in turn (Figure 7.1). Firstly, in Sri Lanka political factors dominated the contextual factors due to the civil war deterring both tourists and investors. There was a deeply embedded respect for the natural and cultural environment and recognition that tourists were attracted by the WHSs and wildlife offerings, with the income generated potentially used for protection and conservation of these assets. The respondents from both sectors were clearly frustrated that tourism growth had been suppressed and the public sector was keen to increase tourist numbers, whilst the private sector was more cautious about rapid unrestricted growth (Section 6.1.7).

### **Awareness of impacts of climate change**

The next element of the model is the respondent's ability to identify impact that they attributed to climate change, which all respondents were able to do, but when compared to the other case studies not as many different types of impact (Section 6.2) were acknowledged. Although respondents had some broad awareness of the impacts of climate change, these impacts were not recognised as a major hazard and thus were not a catalyst for many adaptation and mitigation actions.

### **Levels of cohesion**

The disparity of view in the pace of tourism growth within Sri Lanka was illustrative of the general lack of cohesion (element three of the model) between the public and private sector stakeholders (Section 6.3.6). At times the private sector stakeholders were particularly dismissive of the public sector being openly confrontational about the previous actions and competence (Section 5.1.12) of the Sri Lankan Tourism Board and had little confidence in future plans connected to climate change being implemented.

### **Levels of environmental consciousness**

In the final element of the model environmental consciousness, the level was lower in Sri Lanka than the other case studies. As identified in the Section above (Section 5.1.12) the attitude of the respondents was clearly to be appreciative of their environment, but the strategies the public sector was pursuing were for high levels of growth (20 percent year on year). There was however, a shared concern for the environment, but not a consistent approach of the responses to climate change between the stakeholder groups (Section 6.3.1). The findings demonstrated that there were limited pockets of knowledge of climate change in both the public and private sector and this was not currently being addressed by putting climate change on the national curriculum or industry wide projects (Section 6.3.2). There was limited action around the area of adaptation and mitigation to evidence the behavioural aspect of environmental consciousness. Few respondents understood the concept of adaptation and only one illustration of anticipatory adaptation was provided by public sector respondents (Section 6.3.4). The thrust of the interest in Sri Lanka was around the Earth Lung project, a mitigation project that enabled tourists to ‘offset’ the greenhouse gases emitted on the flight to Sri Lanka and use the money for tourist and locals to plant trees to address some of the deforestation that has occurred. A very ambitious project that still needed to be fully implemented (Section 6.3.5), the differing views of the public and private sector stakeholders were also apparent in relation to this initiative (Section 5.1.10).

This study has therefore shown that in Sri Lanka the respondents were able to identify impacts of climate change (although less so than other destinations), but there was a lack of cohesion between the tourism stakeholders combined with limited environmental consciousness. As a consequence the tourism sector in Sri Lanka has not been very

effective in their responsiveness to the impacts of climate change. It could be argued at this stage, the Earth Lung project is very responsive at an international level (raising awareness). However, it is not implemented effectively within the country and does not pervade society at all levels to develop the synergistic effects within the model. As a result Sri Lanka was the destination least resilient to climate change in the future.

### **7.2.3 The application of the model to the Maldives**

#### **Contextual factors**

In the Maldives, the geographic contextual factor is the most dominant due to the low lying nature of the islands and the threat of sea level rise (Section 6.1.5). Economically they are very dependent upon tourism and have limited opportunities for diversification. Additionally, their transition from a LDC status to an emerging market economy also raised the importance of the economic factor (Section 6.1.4). Questions were raised about corrupt practices of government officials and the lack of democracy so this too was a significant contextual factor (Section 6.1.1). A finding that supported the previous work of Scheyvens and Momsen (2008) was that the Maldives tended to use their vulnerability to try to gain international aid and support (Section 3.5.2). The plans for growth in the Maldives were extremely optimistic with year on year growth of tourism arrivals of 8.3 percent, and the release of new islands for tourism increasing the accommodation capacity by 42 percent (Section 5.2.3). There was perfunctory use of environmental impact assessments (EIAs) when islands were developed but no regulation enforcement beyond that stage (Section 6.3.3).

#### **Awareness of impacts of climate change**

All respondents in the Maldives were very vocal about the impacts of climate change and had many illustrations to support their assertions. There was only one exception to this, the only respondent in the whole study who was unable to identify any impacts. This was a governmental minister who maybe felt if recognition was given that impact were already being observed, than tourists might not travel to the Maldives. As will be expanded below most actions focused on adaptation, such as the wall around Male, so the hazards were very apparent to the stakeholders on a daily basis.



### **Levels of cohesion**

The structure of tourism was rather traditional with the public sector writing a Master Plan which was disseminated to the private sector. The Master Plan was the main tool for tourism planning in the Maldives and the public sector continually referred back to it with reverence, whilst the private sector had clearly heard too much about the Master Plan and were irritated by its central role in the tourism planning process (Section 5.2.6). Thus the relationship between the public and private sector was rather uneasy and this did not result in a cohesive collaborative atmosphere. Equally there was a lack of trust between the public and private sector respondents (Section 5.2.12) which resulted in a demarcation of roles and an adversarial attitude between the two groups. As previously mentioned there was a lack of respect for the environment and yet public sector respondents were keen to emphasise the ecotourism credentials of the Maldives which resulted in an inconsistent approach.

### **Levels of environmental consciousness**

There were strong pockets of knowledge about climate change in both the public and private sectors, but there was little evidence of transfer of this knowledge (Section 6.3.2). The public and private sector stakeholders in the Maldives had no choice but to embark upon many adaptive initiatives, such as pumping back sand to make beaches and increasing the height of water bungalows etc. (Section 6.3.4). Adaptations identified tended to be mostly reactive rather than anticipatory and the largest one, the protective sea wall around Male was aided by Japan (Section 5.2.1). There was very limited action regarding mitigation of greenhouse gas emissions, the only evidence of initiatives were in the private sector and attributed to cost savings (Section 5.2.10 and Section 6.3.5). In addition the respondents generally had a very functional relationship with the environment, seeing it as a resource for development (Section 6.1.2).

In summary, the Maldives is extremely vulnerable to climate change impacts and this was clearly recognised by all but one respondent being able to identify multiple impacts. The government draws the international communities' attention to this vulnerability and requests financial aid. However, the lack of cohesion between the public and private sector within tourism did not foster a conducive environment in which to generate effective anticipatory adaptation and mitigation. Adaptation was evident but it was reactive as a

result of the impacts that were already being experienced. Subsequently, there was limited environmental consciousness due to the inconsistent approach of the stakeholders and this resulted in reactive responsiveness (mostly reactive adaptation) within the destination to the impacts of climate change. Limited climate change resilience was being fostered through the reactive adaptation being implemented, but adaptive capacity needs to be developed to encourage anticipatory adaptive actions and this seemed unlikely in the short term due to the lack of cohesion between tourism stakeholders.

#### **7.2.4 The application of the model to the Seychelles**

##### **Contextual factors**

Unlike the other destinations, in the Seychelles two contextual factors emerged as high priority, namely the environment and the economy. Both public and private sector respondents frequently referred with pride to the natural environment and there were effective legal mechanisms in place to ensure it was protected (Section 6.1.2 and Section 6.1.4). The IMF was actively involved in the management of the economy which was resulting in greater pressure on the tourism industry to increase numbers. Historically, growth had been restricted through limiting tourism development and encouraging ‘high end’ tourism (Section 5.3.3). The current pressures between the economy and environment might increase the risk of conflict between pursuing additional tourism growth and maintaining sustainable tourism practices.

##### **Awareness of impacts of climate change**

Again in the Seychelles all the respondents were able to identify multiple examples of the impacts that they attributed to climate change. In comparison to other destinations the respondents were able to identify more different types of impacts and yet this destination was not as vulnerable according to the scientific data as the Maldives. However, this culminated in the respondents categorising climate change impacts as a major hazard to their tourism destination.

### **Levels of cohesion**

The public and private sector respondents appeared to work quite well together and neither sector was particularly critical of the other. There appeared to be more cohesion in both their actions and attitudes (Section 5.3.12), compared to other destinations (Section 6.3.1). As a consequence of greater unity between the public and private sector respondents, a more cohesive approach was observed.

### **Levels of environmental consciousness**

There was greater consistency of attitude to concerns about tourism growth and climate change (Section 6.3.1). There was strong knowledge of climate change within both the public and private sector (Section 6.3.2). This knowledge was being developed in the school curriculum and there were also joint workshops between the public and private sector respondents that enabled the transfer of knowledge by both parties. Regarding behaviour the Seychelles had a more balanced approach in that they were involved in both mitigation and adaptation (Section 5.3.9 and Section 5.3.10) and these projects involved both public and private sector organisations (Section 6.3.4 and Section 6.3.5).

To conclude, the Seychelles has a more evenly balanced approach in preparing for the impacts of climate change. The respondents were all able to identify impacts that they attributed to climate change. The environmental consciousness's of the public and private sector respondents were fairly similar which illustrates a more unified approach, thus there was more cohesion, which resulted in more anticipatory adaptation and mitigation projects being proactively undertaken and planned. As a result of the combination of these elements the Seychelles was the most resilient to climate change of the three destinations.

The application of this model to the three tourism island destinations in the Indian Ocean shows that it can be used to provide a robust examination of the current responsiveness of these destinations to the impacts of climate change and make an assessment of their future resilience to climate change. Firstly, recognition of the dynamic effect of the contextual factors is critical, as unless the country works now to prioritise and develop adaptive capacity the country is less likely to be resilient to climate change in the future. As these factors are interrelated there also needs to be economic and social capital to respond in effective ways and develop adaptive capacity within society and institutions through

education and engagement. Hence these factors can be used as analytical tools to examine the attributed impacts of climate change within the destination. Next the responsiveness of the stakeholders to the impacts of climate change can be appraised through an examination of their awareness of impacts, degree of cohesion that is present between the stakeholders which seem to be a precursor to understanding the actions that have taken place within the realm of environmental consciousness. Where there is a positive relationship between the factors: where there is greater awareness and cohesion there are greater adaptation and mitigation initiatives and the destination has greater climate change resilience. Conversely, where there is less awareness and cohesion, it results in fewer adaptation and mitigation initiatives and less climate change resilience.

### 7.3 REVIEW OF RESEARCH OBJECTIVES

This Section of the Chapter returns to the research objectives and reviews each of them in turn and assesses the extent to which they have been achieved.

#### 7.3.1 Research objective 1

*To investigate the relationship between climate change and the tourism industry, in particular the predicted effects that climate change will have upon Indian Ocean island tourism destinations.*

The start of the investigation into the relationship between climate change and tourism was the development of the respective literature reviews. Chapter Two provided an overview of the scientific evidence that established that changes are happening within the climate system (Section 2.1) and identified implications of these changes to different parts of the world and populations (Section 2.2). In Chapters 2 and 3 it was established that the tourism industry is reliant upon the climate in many different ways, particularly in Indian Ocean island tourism destinations (Section 2.5) (Section 3.5.1) and that the predicted changes are likely to create negative impacts that will affect this relationship (Section 3.5.3).

Findings from the fieldwork in the form of interviews, photographs, documentary evidence and Researcher observations combined with the secondary data from the literature reviews has enabled the examination of respondents' views on the importance of tourism to their destinations (Section 5.1.4, Section 5.2.4 and Section 5.3.4). The social constructionist methodology was vital in enabling the respondents to report their views of tourism and climate change and to paint a collective picture of how their historical and cultural beliefs influenced their reality. These collective perceptions have been used to assess the vulnerability of their destinations to the impacts of climate change (Section 5.1.12, Section 5.2.12 and Section 5.3.12) and make an assessment of its responsiveness and resilience to climate change.

Respondents from island tourism destinations in the Indian Ocean clearly feel very vulnerable to the impacts of climate change and impacts were already being observed by the respondents, such as, changing weather patterns, beach erosion and flooding. The

tourism stakeholders were extremely aware of their destination's dependence on a predictable stable weather pattern and geographic features to attract tourists. The direct impacts of climate change were already being observed, such as, increased storm intensity, temperature increases and less predictable weather patterns, which were compromising natural attractions, such as coral reefs. The findings of this study support the literature which suggests that the impacts of climate change are already apparent in tourism destinations (Section 3.5.1), and also show that stakeholders in these destinations could readily identify a number of impacts.

Consequently, destinations were taking reactive and proactive adaptive actions dependent upon the severity of the impacts, the cohesion of the working relationship between stakeholders and the environmental consciousness exhibited in the destination which provides an indicative assessment of the climate change resilience of the tourism destination.

### **7.3.2 Research objective 2**

*To establish both the public and private sectors' levels of awareness of climate change within Indian Ocean Island tourism destinations.*

Research data was collected about the respondents' level of awareness of climate change in a number of ways. Firstly, respondents were asked to identify current and future impacts that they attributed to climate change. All respondents in all destinations (except one public sector stakeholder in the Maldives) were able to identify numerous changes (Section 5.1.4, Section 5.2.4 and Section 5.3.4). This ratifies the work of tourism academics (Gössling & Hall, 2006) that the effects of global environmental changes are already visible and more dramatic changes, particularly climate changes are predicted which are expected to have major impacts on a whole range of tourism destinations. The impacts identified by the respondents were then further analysed to provide a detailed cross-comparison of the impacts and their implications for the tourism destinations (Section 6.2). The level of awareness of the respondents was not only linked to the impacts of climate change, but also to the implications and responses of the destinations to climate change (Chapter Five) and this provided an indication of the destination's resilience to climate change. In the reporting of the findings in Chapter Five the respondents were always identified to illustrate the sector origin of the stakeholder, so that

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differences between the views of public and private sector stakeholders could be established. This did prove significant in the findings as the more cohesion there was between the respondents in different sectors, the more action had been taken and planned by the tourism sector to respond to the impacts of climate change (Section 5.1.12, Section 5.2.12 and Section 5.3.12) indicating the resilience of the destination to climate change.

### **7.3.3 Research objective 3**

*To examine what actions are being taken in relation to adapting to the effects of climate change and mitigating the causes of climate change by key private and public sector stakeholders in Indian Ocean Island tourism destinations.*

The literature review in Chapter Two identified the adaptation and mitigation actions taken or planned by the international community (Section 2.4). In Chapter Three the current and future adaptation and mitigation options were established (Section 3.6 and Section 3.7). This provided the background for assessing the actions that were taken by the stakeholders within the destinations. The actions of the public and private sector stakeholders in regard to mitigation and adaptation were established in each of the destinations in Chapter Five (Section 5.1.9, Section 5.1.10, Section 5.2.9, Section 5.2.10, Section 5.3.9, Section 5.3.10) respectively and then a comparative analysis was conducted in Chapter Six (Section 6.3.4 and Section 6.3.5).

All the Indian Ocean island tourism destinations were taking action to respond to climate change; it was the extent of actions and the focus of the action that varied. In Sri Lanka, the emphasis was on mitigation through the Earth Lung Project. In the Maldives, the most vulnerable, attention concentrated on reactive adaptation and in the Seychelles both adaptation and mitigation actions were evident.

However, the value of this research is that it is best seen in a holistic manner, presenting the whole picture, rather than breaking it down into small elements. Section 7.1 on climate change resilience illustrates, adaptation is very complex, social and ecological aspects have to be analysed and addressed in an integrative manner and it is the intricate interconnections between the variables that have enabled the development of the new framework outlined in Figure 7.1. As this research demonstrates stakeholder networking is key to effective adaptation measures. Governments need to enhance their adaptive

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capacity by providing the mechanisms for tourism stakeholder collaboration and cohesion as this will help to overcome the socioeconomic and political barriers that impede adaptation process. Therefore, whilst each of the original research questions has been answered, the findings and analysis provide a richer insight into the responsiveness of Indian Ocean island tourism destinations to the impacts of climate change and this in turn provides an understanding of the climate change resilience to these destinations.

#### **7.4 CONTRIBUTION TO KNOWLEDGE**

The contributions to knowledge can be classed as threefold, namely a theoretical contribution, a methodological contribution and a practical contribution as identified below.

When this research project commenced in 2006 there had been very little research conducted into tourism and climate change. The UNWTO conference on Tourism and Climate Change in Davos, 2008, encouraged academics to conduct research in this area to help to provide information on the impacts of climate change and develop tools to gauge the feasibility of various responses (Section 3.4). This research responds directly to that agenda, by conducting empirical research on Indian Ocean Island tourism destinations, through investigating the differences between tourism private and public sector stakeholders' actions (Section 3.4) regarding adaptation (Section 3.6) and mitigation (Section 3.7) to climate change, and through using this analysis to make an examination of the responsiveness of the destination to the impacts of climate change (Section 5.5.1, Section 5.5.2, Section 5.5.3) and subsequently the climate change resilience of the destination (Section 7.1).

This research had responded to the agenda of moving from the realm of pure science to that of social science (Section 7.1) where decision making, feasibility and technical options need to be considered in the context of economic, political, and cultural conditions. The specific context was essential in gaining an insight into the responsiveness of the destinations to climate change and informed the model (Figure 7.1) which was developed to illustrate factors required for climate change resilience in a tourism destination. Stakeholder awareness and recognition of the impacts of climate change within their tourism destination seemed to be a precursor to the actions they took in



response to the challenges of climate change. This finding could be used by other tourism destinations as a predictive indicator or the responsiveness, but more research needs to be conducted to confirm this.

Heller and Zavaleta (2009) stressed the need to have more operational examples of adaptation principles and recommended the development of a practical adaptation planning process that feed existing policies and programs and enhances greater integration of social science into adaptation planning frameworks. This research has contributed to filling the aforementioned gap specifically by compiling a set of current operational case studies from Indian Ocean island tourism destinations and by highlighting the challenges faced in developing climate change resilience.

A further original contribution of this research is the inclusion of the concepts of environmental consciousness and climate change resilience, which have only had limited application previously within tourism research. They have provided a new perspective from which tourism academics can examine climate change issues within tourism destinations (Section 6.3 and 7.1). Specifically, the responsiveness and resilience of tourism destinations has not previously been researched or published within the mainstream academic tourism journals, so this research provides new insights (Figure 7.1) and contributes to our knowledge of tourism and climate change.

The use of a social constructionist methodology has been an original aspect of this work as it brings a new dimension to the research (Section 4.1.7 and Section 7.1.1). The majority of research connected to climate change utilises a positivist approach. In contrast, this research has surfaced the perceptions of stakeholders' and enabled them to express their culture and history to provide a more comprehensive understanding and wider perspective on climate change. This has clearly informed and enriched the findings to provide new insights on the responsiveness and resilience of Indian Ocean island tourism destinations to the challenges of climate change.

In addition, the contribution to knowledge from this research is the generation of qualitative case study research that explores the awareness and responses of key tourism stakeholders to the impacts of climate change (Section 5.1, 5.2 and 5.3). Through the use

of a social constructionist methodology this research provides an understanding of the resilience of Indian Ocean island tourism destinations to the phenomenon of climate change (Section 2.2, 3.53, 7.1) from the perspectives of the tourism stakeholders, not climatologists or scientists who may have limited knowledge of the tourism context within a particular tourism destination.

This research could be used by practitioners in other tourism destinations, since it offers reliable data, to illustrate how these Indian Island tourism destinations have responded to climate change and as a result provided an indication of the future resilience of the destination to climate change. Through an examination of how other tourism destinations have responded to climate change (via awareness of impacts, cohesion of stakeholders and environmental consciousness) this could be used to inform policy decisions to develop a more practical way for implementation (Figure 7.1).

In particular the actions identified in Figure 7.1 could be used as a toolkit for tourism stakeholders in other destinations to develop more effective tourism processes, practices and policies in responding to the challenges of climate change.

## 7.5 APPRAISING THE RESEARCH PROCESS

The use of a social constructionist methodology has been an important aspect of this research design and has added both to the richness of the data and informed the development of the model (Figure 7.1). For example, the original conceptual framework placed the emphasis on the economic and geographic factors within the generating region. This inductive approach led to identification of new factors, such as, respondents being extremely concerned about the dilemmas surrounding long haul flights. The destinations need tourists to visit the islands to support their economy and some of this money may be used to combat climate change, but the flight transporting tourists to the islands contributes to the problem of climate change and this became an important aspect of the analysis. This illustrates that the social constructionist methodology enabled the respondents to identify and prioritise different factors, such as, the issue of Sri Lankan women working in the Middle East. The analysis has highlighted the central importance of the social, historic and cultural backgrounds of the respondents to understanding how these factors influence the response of the stakeholders within the different destinations (Section 4.1.7 and 7.1). In addition, respondents placed different emphases and meanings on certain factors, such as the importance of the environment to the Sri Lankan culture and conversely the lack of importance of the environment in the Maldives (Section 6.1.7).

The use of data triangulation (Section 4.1.10) has overcome limitations associated with reliance upon a single source of data. Furthermore it is encouraged within the social constructionist methodology. The comparisons of data from different sources has facilitated a reflexive analysis that has enriched and informed the research process, and indeed the differences between the public and private stakeholders would have been difficult to pick up without the use of multiple sources.

As the research took place outside the Researcher's normal setting it was important to recognise that taken-for-granted assumptions and features of culture varied greatly. Whilst the Researcher was aware of these differences and they emerged on a number of occasions for instance, when respondents explained the importance of the environment within their culture (Section 5.1.4. Section 5.2.4 and Section 5.3.4), it is also inevitable that the Researcher's interpretations have also been shaped by her social and cultural background.

Limitations of the research lie in the number of destinations that were included in the study as an increase in sample size would have made the study more robust. Following on from this a different number of interviews was conducted in each of the destinations and it would have been more effective to have the same number in each destination. In particular, a larger sample of respondents in Sri Lanka would have offered a broader perspective into the issue, but it was extremely difficult to find more people willing to participate. This was possible due to respondents being wary of the Researcher given the unsettled political environment.

It is important to note that the research findings are time and location specific. The findings were collected between May and September 2008 and if the fieldwork had been conducted at a different time, earlier or later the findings might well have been different. Ideally, further fieldwork should be conducted on a longitudinal basis to establish the progress of adaptation and mitigation action within these destinations.

## 7.6 AREAS FOR FUTURE RESEARCH

Areas for future research include the expansion of the sample to other tourism island destinations in the Indian Ocean, such as Mauritius, Madagascar and Reunion. These destinations will be at different stages of the TALC, so it would provide an insight into their unique contexts and may raise new issues. In addition, increasing the sample will help to add validity and reliability to the research and test the application of the framework to assess the responsiveness of the tourism destinations to the impacts of climate change (Figure 7.1). Also, expanding the geographic area to other island tourism destinations such as the South Pacific and the Caribbean could further help assess generalizability of the framework.

Whilst the published research on climate change (2.4) starts to provide an understanding of actions that can be taken to respond to climate change these are not specifically embedded in the tourism sector. The current state of tourism research is as an embryonic state (Section 3.6 and Section 3.7), it has established that a problem exists, but it has not yet moved onto the solution finding phase, which will be more helpful for practitioners, as the problem is far from academic. So, an area for future research is to identify effective adaptation and mitigation strategies used in other sectors and assess whether they could be utilised into the tourism industry. Findings from this study could inform this area of research.

Building on this exploratory study, further research needs to be conducted into climate change resilience. Specifically whether tourism destinations have the capacity to understand and recognise the slowly changing impacts within their destinations and how tourism stakeholders influence the processes and institutions that respond to these changes.

Further research is also necessary to better understand what factors and processes create 'lock in' within adaptation initiatives and how tourism stakeholders can influence these factors.

The area of stakeholder participation is under researched within the tourism discipline as identified in Section 3.4. This research has further highlighted that it is the interactions

between the key stakeholders that seems to determine the responsiveness of the destination, so more work is needed in this area, as a strong collaborative approach appears to be a pre-requisite for suitable adaptation and mitigation.

The concepts of environmental consciousness and pro-environmental behaviour are concepts that could be used to inform other areas of tourism research. Specifically, this research has examined the supply side of tourism, but the application of environmental consciousness to the demand side, that of the tourist, would be interesting to examine. Particularly, as this may influence their propensity to fly and holiday in particular destinations, which is likely to become a more important issue as the impacts of climate change become more evident. In addition, the environmental consciousness of the stakeholders needs more detailed explorations, the range of factors that promote or inhibit environmental consciousness from both internal and external factors perspectives and whether these categorically influence pro environmental behaviour.

Adopting a systems approach would appear to facilitate more effective networking between the stakeholders within the destinations, but this would need more research to test whether a systems approach improves levels of cohesion between stakeholders in the destinations.

All the tourism island destinations had conflicts between economic development derived through tourism and ecological protection. Research into ecological modernisation would help to establish if tourism stakeholders consider the conflicting tensions between these two opposing aims.

This thesis has moved forward the tourism and climate change research to offer a practical assessment of climate change impacts and responsiveness in Indian Island tourism destinations. It provides a basis for further research in terms of testing the framework in a widened geographic area and further examining individual elements (awareness of impacts, cohesion of stakeholders and environmental consciousness) in building resilience to the challenges of climate change.

## 7.7 CONCLUSION

*To conclude, this research offers insight into the impact of climate change on three specific Indian Ocean island tourism destinations. The research highlights that climate change impacts are already being experienced by these destinations. The findings presented in Chapters 5 and 6 suggest that the ability to build capacity, responsiveness and resilience in these destinations is very dependent upon political, economic, social, technological, environmental and geographic factors and these factors are unique, dynamic and complex. Whilst all the destinations were involved in climate change initiatives, more adaptive action had been taken than mitigation actions. This is probably because the destinations have been forced to implement reactive adaptation rather than having the time and resources to implement anticipatory adaptation. However, it was acknowledged that anticipatory adaptation more effectively increases climate change resilience. A model is offered to examine the resilience of tourism destinations to the challenges of climate change. There is no one factor that leads to an increased responsiveness to deal with the impacts of climate change, but it is a unique combination of factors (awareness of impacts, cohesion of stakeholders and environmental consciousness) that influences the actions taken and subsequent resilience. The interaction between tourism stakeholders is paramount, the more cohesive the relationship the more environmentally conscious the stakeholders. This in turn enables the building of greater capacity in the tourism sector to respond in a more anticipatory manner rather than fire fighting and being reactive, which will be important for the future competitiveness of these destinations. The model has the potential for academics to apply in different tourism destinations and for practitioners to apply in order to assess their destinations' resilience to the challenges of climate change.*





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## APPENDICES

Appendix 1 List of Annex 1 Parties and Non Annex 1 Parties

Annex I			
	<a href="#">Australia</a>		<a href="#">Liechtenstein</a> **
	<a href="#">Austria</a>		<a href="#">Lithuania</a>
	<a href="#">Belarus</a> **		<a href="#">Luxembourg</a>
	<a href="#">Belgium</a>		<a href="#">Malta</a>
	<a href="#">Bulgaria</a>		<a href="#">Monaco</a> **
	<a href="#">Canada</a>		<a href="#">Netherlands</a>
	<a href="#">Croatia</a> **		<a href="#">New Zealand</a>
	<a href="#">Czech Republic</a> **		<a href="#">Norway</a>
	<a href="#">Denmark</a>		<a href="#">Poland</a>
	<a href="#">Estonia</a>		<a href="#">Portugal</a>
	<a href="#">European Union</a>		<a href="#">Romania</a>
	<a href="#">Finland</a>		<a href="#">Russian Federation</a> **
	<a href="#">France</a>		<a href="#">Slovakia</a> **
	<a href="#">Germany</a>		<a href="#">Slovenia</a> **
	<a href="#">Greece</a>		<a href="#">Spain</a>
	<a href="#">Hungary</a>		<a href="#">Sweden</a>
	<a href="#">Iceland</a>		<a href="#">Switzerland</a>
	<a href="#">Ireland</a>		<a href="#">Turkey</a> **
	<a href="#">Italy</a> **		<a href="#">Ukraine</a> **
	<a href="#">Japan</a>		<a href="#">United Kingdom of Great Britain and Northern Ireland</a>
	<a href="#">Latvia</a>		<a href="#">United States of America</a>

Non-Annex I			
	<a href="#">Afghanistan</a>		<a href="#">Burundi</a>
	<a href="#">Albania</a> **		<a href="#">Cambodia</a>
	<a href="#">Algeria</a>		<a href="#">Cameroon</a>
	<a href="#">Angola</a>		<a href="#">Cape Verde</a>
	<a href="#">Antigua and Barbuda</a>		<a href="#">Central African Republic</a>
	<a href="#">Argentina</a>		<a href="#">Chad</a>
	<a href="#">Armenia</a> **		<a href="#">Chile</a>
	<a href="#">Azerbaijan</a>		<a href="#">China</a>
	<a href="#">Bahamas</a>		<a href="#">Colombia</a>
	<a href="#">Bahrain</a>		<a href="#">Comoros</a>
	<a href="#">Bangladesh</a>		<a href="#">Congo</a>
	<a href="#">Barbados</a>		<a href="#">Cook Islands</a>
	<a href="#">Belize</a>		<a href="#">Costa Rica</a>
	<a href="#">Benin</a>		<a href="#">Cuba</a>
	<a href="#">Bhutan</a>		<a href="#">Cyprus</a>
	<a href="#">Bolivia</a>		<a href="#">Côte d'Ivoire</a>
	<a href="#">Bosnia and Herzegovina</a>		<a href="#">Democratic People's Republic of Korea</a>
	<a href="#">Botswana</a>		<a href="#">Democratic Republic of the Congo</a>
	<a href="#">Brazil</a>		<a href="#">Djibouti</a>
	<a href="#">Brunei Darussalam</a>		<a href="#">Dominica</a>

	<a href="#">Burkina Faso</a>		<a href="#">Dominican Republic</a>
	<a href="#">Ecuador</a>		<a href="#">Jamaica</a>
	<a href="#">Egypt</a>		<a href="#">Jordan</a>
	<a href="#">El Salvador</a>		<a href="#">Kazakhstan</a> **
	<a href="#">Equatorial Guinea</a>		<a href="#">Kenya</a>
	<a href="#">Eritrea</a>		<a href="#">Kiribati</a>
	<a href="#">Ethiopia</a>		<a href="#">Kuwait</a>
	<a href="#">Fiji</a>		<a href="#">Kyrgyzstan</a>
	<a href="#">The former Yugoslav Republic of Macedonia</a>		<a href="#">Lao People's Democratic Republic</a>
	<a href="#">Gabon</a>		<a href="#">Lebanon</a>
	<a href="#">Gambia</a>		<a href="#">Lesotho</a>
	<a href="#">Georgia</a>		<a href="#">Liberia</a>
	<a href="#">Ghana</a>		<a href="#">Libyan Arab Jamahiriya</a>
	<a href="#">Grenada</a>		<a href="#">Madagascar</a>
	<a href="#">Guatemala</a>		<a href="#">Malawi</a>
	<a href="#">Guinea</a>		<a href="#">Malaysia</a>
	<a href="#">Guinea-Bissau</a>		<a href="#">Maldives</a>
	<a href="#">Guyana</a>		<a href="#">Mali</a>
	<a href="#">Haiti</a>		<a href="#">Marshall Islands</a>
	<a href="#">Honduras</a>		<a href="#">Mauritania</a>
	<a href="#">India</a>		<a href="#">Mauritius</a>
	<a href="#">Indonesia</a>		<a href="#">Mexico</a>
	<a href="#">Iran (Islamic Republic of)</a>		<a href="#">Micronesia (Federated States of)</a>

	<a href="#">Iraq</a>		<a href="#">Mongolia</a>
	<a href="#">Mongolia</a>		<a href="#">Saint Kitts and Nevis</a>
	<a href="#">Montenegro</a>		<a href="#">Saint Lucia</a>
	<a href="#">Morocco</a>		<a href="#">Saint Vincent and the Grenadines</a>
	<a href="#">Mozambique</a>		<a href="#">Samoa</a>
	<a href="#">Myanmar</a>		<a href="#">San Marino</a>
	<a href="#">Namibia</a>		<a href="#">Sao Tome and Principe</a>
	<a href="#">Nauru</a>		<a href="#">Saudi Arabia</a>
	<a href="#">Nepal</a>		<a href="#">Senegal</a>
	<a href="#">Nicaragua</a>		<a href="#">Serbia</a>
	<a href="#">Niger</a>		<a href="#">Seychelles</a>
	<a href="#">Nigeria</a>		<a href="#">Sierra Leone</a>
	<a href="#">Niue</a>		<a href="#">Singapore</a>
	<a href="#">Oman</a>		<a href="#">Solomon Islands</a>
	<a href="#">Pakistan</a>		<a href="#">Somalia</a>
	<a href="#">Palau</a>		<a href="#">South Africa</a>
	<a href="#">Panama</a>		<a href="#">Sri Lanka</a>
	<a href="#">Papua New Guinea</a>		<a href="#">Sudan</a>
	<a href="#">Paraguay</a>		<a href="#">Suriname</a>
	<a href="#">Peru</a>		<a href="#">Swaziland</a>
	<a href="#">Philippines</a>		<a href="#">Syrian Arab Republic</a>
	<a href="#">Qatar</a>		<a href="#">Tajikistan</a>
	<a href="#">Republic of Korea</a>		<a href="#">Thailand</a>

	<a href="#">Republic of Moldova</a> **		<a href="#">The former Yugoslav Republic of Macedonia</a>
	<a href="#">Rwanda</a>		
	<a href="#">Timor-Leste</a>		
	<a href="#">Togo</a>		
	<a href="#">Tonga</a>		
	<a href="#">Trinidad and Tobago</a>		
	<a href="#">Tunisia</a>		
	<a href="#">Turkmenistan</a> **		
	<a href="#">Tuvalu</a>		
	<a href="#">Uganda</a>		
	<a href="#">United Arab Emirates</a>		
	<a href="#">United Republic of Tanzania</a>		
	<a href="#">Uruguay</a>		
	<a href="#">Uzbekistan</a> **		
	<a href="#">Vanuatu</a>		
	<a href="#">Venezuela (Bolivarian Republic of)</a>		
	<a href="#">Viet Nam</a>		
	<a href="#">Yemen</a>		
	<a href="#">Zambia</a>		
	<a href="#">Zimbabwe</a>		

\* Observer State

\*\* Party for which there is a specific COP and/or CMP decision

## Appendix 2 Djerba Declaration on Tourism and Climate Change

The participants gathered at the First International Conference on Climate Change and Tourism, held in Djerba, Tunisia, from 9 to 11 April 2003, convened by the World Tourism

Organisation, upon an invitation of the Government of Tunisia,

Having listened to the presentations by the representatives of the:

- Tunisian Government
- Intergovernmental Oceanographic Commission (IOC) – UNESCO
- Intergovernmental Panel on Climate Change (IPCC)
- United Nations Convention to Combat Desertification (UNCCD)
- United Nations Environment Programme (UNEP)
- United Nations Framework Convention on Climate Change (UNFCCC)
- World Meteorological Organisation (WMO)
- World Tourism Organisation (WTO)

and by representatives from the private and public sectors, as well as the points of view of a number of national governments, tourism companies, academic institutions, NGOs and experts;

*Acknowledging* that the objectives of this Conference are fully in line with the concerns, pursuits and activities of the United Nations system in the field of climate change, and more generally, in that of sustainable development;

*Recognizing* the key role of the Kyoto Protocol as a first step in the control of greenhouse gas emissions;

*Taking into consideration* that in convening this Conference WTO did not intend a purely science-based debate, neither to cover all the well-known social and environmental implications that climate change can have on societies, but rather to put emphasis on the relationships between climate change and tourism, given the economic importance that this sector of activity is having on many countries, especially small island and developing states, and with a view to raising awareness of these relationships and strengthening cooperation between the different actors involved;

*Having carefully considered* the complex relationships between tourism and climate change, and particularly the impacts that the latter are producing upon different types of tourism destinations, while not ignoring that some transport used for tourist movements and other components of the tourism industry, contribute in return to climate change;

*Aware* of the importance of water resources in the tourism industry and of its links with climate change;

*Recognizing* the existing and potentially worsening impact of climate change, combined with other anthropogenic factors on tourism development in sensitive ecosystems, such as the drylands, coastal and mountain areas as well as islands, and

*Taking into consideration* that the right to travel and the right to leisure are recognized by the international community, that tourism is now fully integrated in the consumption patterns of many countries, and that WTO forecasts indicate that it will continue to grow in the foreseeable future,

Agree the following:

1. *To urge* all governments concerned with the contribution of tourism to sustainable development, to subscribe to all relevant intergovernmental and multilateral agreements, especially the Kyoto Protocol, and other conventions and similar declarations concerning climate change and related resolutions that prevent the impacts of this phenomenon from spreading further or accelerating;

3. *To encourage* international Organisations to further the study and research of the reciprocal implications between tourism and climate change, including in the case of cultural and archaeological sites, in cooperation with public authorities, academic institutions, NGOs, and local people; in particular, *to encourage* the Intergovernmental Panel on Climate Change to pay special attention to tourism in cooperation with WTO and to include tourism specifically in its Fourth Assessment Report;

3. *To call upon* UN, international, financial and bilateral agencies to support the governments of developing, and in particular of least developed countries, for which tourism represents a key economic sector, in their efforts to address and to adapt to the adverse effects of climate change and to formulate appropriate action plans;

4. *To request* international Organisations, governments, NGOs and academic institutions to support local governments and destination management Organisations in implementing adaptation and mitigation measures that respond to the specific climate change impacts at local destinations;

5. *To encourage* the tourism industry, including transport companies, hoteliers, tour operators, travel agents and tourist guides, to adjust their activities, using more energy efficient and cleaner technologies and logistics, in order to minimize as much as possible their contribution to climate change;

6. *To call upon* governments, bilateral and multilateral institutions to conceive and implement sustainable management policies for water resources, and for the conservation of wetlands and other freshwater ecosystems;

7. *To call upon* governments to encourage the use of renewable energy sources in tourism and transport companies and activities, by facilitating technical assistance and using fiscal and other incentives;

8. *To encourage* consumer associations, tourism companies and the media to raise consumers' awareness at destinations and in generating markets, in order to change consumption behaviour and make more climate friendly tourism choices;

9. *To invite* public, private and non-governmental stakeholders and other institutions to inform WTO about the results of any research study relevant to climate change and tourism, in order for WTO to act as a clearing house and to create a database on the subject and disseminate know-how internationally; and



10. *To consider* this Declaration as a framework for international, regional and governmental agencies for the monitoring of their activities and of the above mentioned action plans in this field.

The participants expressed their thanks to the Tunisian Government and people for the warm hospitality and excellent facilities provided to host this Conference in the island of Djerba.  
**Djerba, Tunisia, 11 April 2003**

The international community is taking concerted action against climate change around a commonly agreed framework led by the United Nations. This UN framework will seek to establish a long term post-Kyoto roadmap with rapid deployment and targeted milestones. The tourism sector has an important place in that framework, given its global economic and social value, its role in sustainable development and its strong relationships with climate. To support this action the UN World Tourism Organisation (UNWTO), jointly with the United Nations Environment Programme (UNEP) and the World Meteorological Organisation (WMO), with the support of the World Economic Forum (WEF) and the Swiss Government, convened the Second International Conference on Climate Change and Tourism, in Davos, Switzerland, from 1 to 3 October 2007. This event, building on the results of the First International Conference organised on this topic in Djerba, Tunisia in 2003, gathered 450 participants from over 80 countries and 22 international Organisations, private sector Organisations and companies, research institutions, NGOs and the media, with the aim of responding in a timely and balanced way to climate change imperatives in the tourism sector. In preparation of this Conference the organizers commissioned a report to provide an extensive review of current impacts and analyse options for possible actions.

The Conference agreed that:

- climate is a key resource for tourism and the sector is highly sensitive to the impacts of climate change and global warming, many elements of which are already being felt. It is estimated to contribute some 5 percent of global CO<sub>2</sub> emissions.
- tourism - business and leisure - will continue to be a vital component of the global economy, an important contributor to the Millennium Development Goals and an integral, positive element in our society.
- given tourism's importance in the global challenges of climate change and poverty reduction, there is a need to urgently adopt a range of policies which encourages truly sustainable tourism that reflects a "quadruple bottom line" of environmental, social, economic and climate responsiveness.
- the tourism sector must rapidly respond to climate change, within the evolving UN framework and progressively reduce its Greenhouse Gas (GHG) contribution if it is to grow in a sustainable manner;

This will require action to:

- mitigate its GHG emissions, derived especially from transport and accommodation activities;
- adapt tourism businesses and destinations to changing climate conditions;
- apply existing and new technology to improve energy efficiency;
- secure financial resources to help poor regions and countries.

The Conference calls for the following actions:

**1) Governments and International Organisations:**

- Incorporate tourism in the implementation of existing commitments under the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol, and respond to the call by the United Nations Secretary-General for launching, at the 13th session of the UNFCCC Conference of the Parties in Bali, December 2007, an effective and comprehensive climate change framework for the post-2012 period.

- Implement concrete, simultaneous actions for mitigation, adaptation, technology and financing, consistent with the Millennium Development Goals.
- Provide financial, technical and training support to tourism destinations and operators in developing countries (especially in the least developed countries and Small Island Developing States) to ensure that they can participate in the global climate response framework, through established initiatives, such as the Clean Development Mechanism.
- Promote, at all levels, interdisciplinary partnerships, networks and information exchange systems essential to sustainable development of the sector.
- Collaborate in international strategies, policies and action plans to reduce GHG emissions in the transport (in cooperation with ICAO and other aviation Organisations), accommodation and related tourism activities.
- Introduce education and awareness programs for all tourism stakeholders – public and private sector – as well as consumers.
- Develop regional and local climate information services tailored to the tourism sector and promote their use among tourism stakeholders. Build capacities for interpretation and application of this information, strengthening collaboration with WMO’s National Meteorological Services.
- Implement policy, regulatory, financial, managerial, educational, behavioural, diversification, research and monitoring measures, for effective adaptation and mitigation.

## **2) Tourism Industry and Destinations**

- Take leadership in implementing concrete measures (such as incentives) in order to mitigate climate change throughout the tourism value chain and to reduce risk to travellers, operators and infrastructure due to dynamic climate variability and shift. Establish targets and indicators to monitor progress.
- Promote and undertake investments in energy-efficiency tourism programmes and use of renewable energy resources, with the aim of reducing the carbon footprint of the entire tourism sector.
- Integrate tourism in the formulation and implementation of regional, national and local level adaptation and mitigation strategies and implementation plans. The Nairobi Work Programme on Impacts, Vulnerability and Adaptation to Climate Change, coordinated by UNFCCC, represents an important opportunity for the tourism sector to enhance knowledge, increase capacities and stimulate action.
- Strive to conserve biodiversity, natural ecosystems and landscapes in ways which strengthen resilience to climate change and ensure a long-term sustainable use of the environmental resource base of tourism - in particular those that serve as “earth lungs” (carbon sinks), sequestering GHGs through forest management and other biological programmes, or that protect coastlines (e.g. mangroves and coral reefs).
- Seek to achieve increasingly carbon free environments by diminishing pollution through design, operations and market responsive mechanisms.
- Implement climate-focused product diversification, to reposition destinations and support systems, as well as to foster all-season supply and demand.
- Raise awareness among customers and staff on climate change impacts and engage them in response processes.

### **3) Consumers:**

- In their choices for travel and destination, tourists should be encouraged to consider the climate, economic, societal and environmental impacts of their options before making a decision and, where possible to reduce their carbon footprint, or offset emissions that cannot be reduced directly.
- In their choices of activities at the destination, tourists should also be encouraged to opt for environmentally-friendly activities that reduce their carbon footprint as well as contribute to the preservation of the natural environment and cultural heritage.

### **4) Research and Communications Networks:**

- Encourage targeted, multi-disciplinary research on impacts of climate change in order to address regional gaps in current knowledge, develop tools for risk assessment and cost-benefit analyses with which to gauge the feasibility of various responses.
- Include environmental and climate specific subjects in the study curricula of tourism training programmes and extend these to broader educational systems.
- Promote responsible travel that supports “quadruple bottom line” sustainable tourism, incorporating climate, environmental, social and economic considerations.
- Raise awareness on tourism’s economic role as a tool for development, and present information on causes and effects of climate change based on sound science, in a fair, balanced and user-friendly manner.

### **The Conference**

- sets out a range of specific actions to be taken by all stakeholders in the sector to immediately begin to establish and implement a long range carbon-neutral roadmap;
- invites governments and international Organisations; the tourism industry; consumers; research and communications networks to implement these recommendations, with concrete commitments and action plans, and to use the UNWTO on-line Climate Change and Tourism Information Exchange Service as a platform, for committed stakeholders to register their pledges and activities toward adaptation and mitigation on an on-going basis;
- stresses the need that UNWTO, in collaboration with UNEP and WMO, continue to lead this process, and to consider convening a Third Conference on Climate Change and Tourism, at an appropriate time in the future, to review progress, to maintain response levels and to identify further needs and actions;
- urges action by the entire tourism sector to face climate change as one of the greatest challenges to sustainable development, and to the Millennium Development Goals in the 21st Century.

The Davos Declaration and results of this conference will provide the basis for the UNWTO Minister’s Summit on Tourism and Climate Change, scheduled at the World Travel Market, London, UK, 13 November 2007. It will be submitted for adoption at the UNWTO General Assembly in Cartagena de Indias, Colombia, 23-29 November 2007, and also will be presented at the United Nations Climate Change Conference in Bali, Indonesia, in December 2007.

	Popular tourism destination	Geographic location	Language	Economic reliance upon tourism	Tourism arrival numbers for the year 2007 (UNWTO 2009)	Areas of vulnerability to climate change	
1	Antigua and Barbuda	✓	Caribbean, island in the North Atlantic Ocean	English Spanish	Tourism continues to dominate the economy, accounting for nearly 60 percent of GDP and 40 percent of investment	935,000 visitors 262,000 tourists	<ul style="list-style-type: none"> <li>• Sea level rise</li> <li>• Extensive inundation of low-lying coastal communities</li> <li>• Saline intrusion into groundwater</li> <li>• Increase in the intensity and frequency of hurricanes resulting in increased damage to buildings and infrastructure from flooding, wind and landslides.</li> <li>• Beach erosion and damage to hotels and tourism related Infrastructure</li> <li>• Change in rainfall patterns</li> <li>• Temperature rises</li> </ul>
2	Bahamas	✓	Caribbean, island in the North Atlantic Ocean	English Bahamian	Tourism together with tourism-driven construction and manufacturing accounts for approximately 60 percent of GDP	4,601,000 visitors 1,528,000 tourists	<ul style="list-style-type: none"> <li>• Sea level rise</li> <li>• Extensive inundation of low-lying coastal communities</li> <li>• Saline intrusion into groundwater</li> <li>• Increase in the intensity and frequency of hurricanes resulting in increased damage to buildings and infrastructure from flooding, wind and landslides.</li> <li>• Beach erosion and damage to hotels and tourism related Infrastructure</li> <li>• Change in rainfall patterns</li> <li>• Temperature rises</li> </ul>
3	Barbados	✓	Caribbean, island in the North Atlantic Ocean	English Belize	the economy has diversified into light industry and tourism with about three-quarters of GDP and 80 percent of exports being attributed to services.	1,191,000 visitors 575,000 tourists	<ul style="list-style-type: none"> <li>• Sea level rise</li> <li>• Extensive inundation of low-lying coastal communities</li> <li>• Saline intrusion into groundwater</li> <li>• Increase in the intensity and frequency of hurricanes resulting in increased damage to buildings and infrastructure from flooding, wind and landslides.</li> <li>• Beach erosion and damage to hotels and</li> </ul>

4	Cape Verde	√	Group of islands in the North Atlantic Ocean	Portuguese and Creole	The economy is service-oriented, with commerce, transport, tourism, and public services accounting for about three-fourths of GDP.	267,000 tourists	<ul style="list-style-type: none"> <li>tourism related Infrastructure</li> <li>Change in rainfall patterns</li> <li>Temperature rises</li> <li>Tropical weather patterns</li> <li>Sea level rises and damage to shoreline</li> <li>Increased heat index</li> <li>Coastal erosion and storm damage</li> </ul>
5	Cuba	√	Caribbean, island between the Caribbean Sea and the North Atlantic Ocean	Spanish	No major reliance	2,152,000 visitors 2,119,000 tourists	<ul style="list-style-type: none"> <li>Sea level rise</li> <li>Extensive inundation of low-lying coastal communities</li> <li>Saline intrusion into groundwater</li> <li>Increase in the intensity and frequency of hurricanes resulting in increased damage to buildings and infrastructure from flooding, wind and landslides.</li> <li>Beach erosion and damage to hotels and tourism related Infrastructure</li> <li>Change in rainfall patterns</li> <li>Temperature rises</li> </ul>
6	Fiji	√	South Pacific ocean	English Fijian	Tourism major service industry and 66 percent of GDP	542,000 visitors 540,000 tourists	<ul style="list-style-type: none"> <li>Sea level rises</li> <li>Inundation and flooding are the common threats to these islands because of their low-lying setting;</li> <li>Exacerbated by the social trends of population growth and migration to main islands, in particular to the capital cities.</li> <li>Other threats include beach erosion, saltwater intrusion</li> </ul>
7	Grenada	√	Caribbean, island between the Caribbean Sea and Atlantic Ocean	English Creole French	Grenada relies on tourism as its main source of foreign exchange especially since the construction of an international airport in 1985.	406,000 visitors 130,000 tourists	<ul style="list-style-type: none"> <li>Sea level rise</li> <li>Extensive inundation of low-lying coastal communities</li> <li>Saline intrusion into groundwater</li> <li>Increase in the intensity and frequency of hurricanes resulting in increased damage to buildings and infrastructure from flooding, wind and landslides.</li> <li>Beach erosion and damage to hotels and tourism related Infrastructure</li> <li>Change in rainfall patterns</li> </ul>

8	Jamaica	√	Caribbean, island between the Caribbean Sea and Atlantic Ocean	English Creole - Patois	The Jamaican economy is heavily dependent on services, which now account for more than 60 percent of GDP. The country continues to derive most of its foreign exchange from tourism, remittances, and bauxite/alumina	2,880,000 visitors 1,701,000 tourists	<ul style="list-style-type: none"> <li>• Temperature rises</li> <li>• Sea level rise</li> <li>• Extensive inundation of low-lying coastal communities</li> <li>• Saline intrusion into groundwater</li> <li>• Increase in the intensity and frequency of hurricanes resulting in increased damage to buildings and infrastructure from flooding, wind and landslides.</li> <li>• Beach erosion and damage to hotels and tourism related Infrastructure</li> <li>• Change in rainfall patterns</li> <li>• Temperature rises</li> </ul>
9	Madagascar	√	Indian Ocean	Malagasy French	Agriculture, including fishing and forestry, is a mainstay of the economy, accounting for more than one-fourth of GDP and employing 80 percent of the population.  Tourism on the decline due to political instability	344,000 tourists	<ul style="list-style-type: none"> <li>• Tropical weather patterns</li> <li>• Sea level rises and damage to shoreline</li> <li>• Increased heat index</li> <li>• Coastal erosion and storm damage</li> </ul>
10	Maldives	√	Indian Ocean	English Dhivehi	Tourism, Maldives' largest economic activity, accounts for 28 percent of GDP and more than 60 percent of foreign exchange receipts. Over 90 percent of government tax revenue comes from import duties and tourism-related taxes.	676,000 tourists	<ul style="list-style-type: none"> <li>• Tropical weather patterns</li> <li>• Sea level rises and damage to shoreline</li> <li>• Increased heat index</li> <li>• Coastal erosion and storm damage</li> </ul>
11	Mauritius	√	Indian Ocean	English Hindu	The economy rests on sugar, tourism, textiles and apparel, and	933,000 visitors 907,000 tourists	<ul style="list-style-type: none"> <li>• Tropical weather patterns</li> <li>• Sea level rises and damage to shoreline</li> <li>• Increased heat index</li> <li>• Coastal erosion and storm damage</li> </ul>

					financial services, and is expanding into fish processing, information and communications technology, and hospitality and property development.		
12	St. Kitts and Nevis	√	Caribbean, island between the Caribbean Sea and Atlantic Ocean	Creole English	The economy of Saint Kitts and Nevis is heavily dependent upon tourism revenues, which has replaced sugar, the traditional mainstay of the economy until the 1970s.	376,000 visitors 117,000 tourists	<ul style="list-style-type: none"> <li>• Sea level rise</li> <li>• Extensive inundation of low-lying coastal communities</li> <li>• Saline intrusion into groundwater</li> <li>• Increase in the intensity and frequency of hurricanes resulting in increased damage to buildings and infrastructure from flooding, wind and landslides.</li> <li>• Beach erosion and damage to hotels and tourism related Infrastructure</li> <li>• Change in rainfall patterns</li> <li>• Temperature rises</li> </ul>
13	St. Lucia	√	Caribbean, island between the Caribbean Sea and Atlantic Ocean	Creole - French English	Tourism is the main source of foreign exchange and specific tourism sector projects are increasing revenues	905,000 visitors 287,000 tourists	<ul style="list-style-type: none"> <li>• Sea level rise</li> <li>• Extensive inundation of low-lying coastal communities</li> <li>• Saline intrusion into groundwater</li> <li>• Increase in the intensity and frequency of hurricanes resulting in increased damage to buildings and infrastructure from flooding, wind and landslides.</li> <li>• Beach erosion and damage to hotels and tourism related Infrastructure</li> <li>• Change in rainfall patterns</li> <li>• Temperature rises</li> </ul>
14	St. Vincent and the Grenadines	√	Caribbean, island between the Caribbean Sea and Atlantic Ocean	English French	Success of the economy hinges upon seasonal variations in agriculture, tourism, and construction activity as well as remittance inflows. Much of the workforce is employed in banana production	328,000 visitors 90,000 tourists	<ul style="list-style-type: none"> <li>• Sea level rise</li> <li>• Extensive inundation of low-lying coastal communities</li> <li>• Saline intrusion into groundwater</li> <li>• Increase in the intensity and frequency of hurricanes resulting in increased damage to buildings and infrastructure from flooding, wind and landslides.</li> <li>• Beach erosion and damage to hotels and tourism related Infrastructure</li> <li>• Change in rainfall patterns</li> </ul>



15	Seychelles	✓	Indian Ocean	English French	and tourism, but persistent high unemployment has prompted many to leave the islands. Growth has been led by the tourist sector, which employs about 30 percent of the labor force and provides more than 70 percent of hard currency earnings, and by tuna fishing.	592,000 visitors 494,000 tourists	<ul style="list-style-type: none"> <li>• Temperature rises</li> <li>• Tropical weather patterns</li> <li>• Sea level rises and damage to shoreline</li> <li>• Increased heat index</li> <li>• Coastal erosion and storm damage</li> </ul>
16	Solomon Islands		South Pacific Ocean	English Solomon	The bulk of the population depends on agriculture, fishing, and forestry for at least part of its livelihood.	13,700,000 tourists	<ul style="list-style-type: none"> <li>• Sea level rises</li> <li>• Inundation and flooding are the common threats to these islands because of their low-lying setting;</li> <li>• the problem is exacerbated by the social trends of population growth and migration to main islands, in particular to the capital cities. Other threats include beach erosion, saltwater intrusion</li> </ul>
17	Sri Lanka	✓	Indian Ocean	Sinhali Tamil English	Sri Lanka's most dynamic sectors are now food processing, textiles and apparel, food and beverages, port construction, telecommunications, and insurance and banking. Tourism is seen as an important growth area after the current conflict is over	4,601,000 visitors 1,528,000 tourists	<ul style="list-style-type: none"> <li>• Tropical weather patterns</li> <li>• Sea level rises and damage to shoreline</li> <li>• Increased heat index</li> <li>• Coastal erosion and storm damage</li> </ul>
18	Trinidad and Tobago	✓	Caribbean, island between the Caribbean Sea and	English, Hindi, Creole-English,	Trinidad and Tobago is the leading Caribbean producer of oil and gas, and its economy is	526,000 visitors 449,000 tourists	<ul style="list-style-type: none"> <li>• Sea level rise</li> <li>• Extensive inundation of low-lying coastal communities</li> <li>• Saline intrusion into groundwater</li> <li>• Increase in the intensity and frequency of</li> </ul>

			Atlantic Ocean	Creole-French	heavily dependent upon these resources but it also supplies manufactured goods, notably food and beverages, as well as cement to the Caribbean region. Oil and gas account for about 40 percent of GDP and 80 percent of exports, but only 5 percent of employment. The country is also a regional financial center, and tourism is a growing sector, although it is not as important domestically as it is to many other Caribbean islands.		<ul style="list-style-type: none"> <li>hurricanes resulting in increased damage to buildings and infrastructure from flooding, wind and landslides.</li> <li>Beach erosion and damage to hotels and tourism related Infrastructure</li> <li>Change in rainfall patterns</li> <li>Temperature rises</li> </ul>
19	Tuvalu		Group of islands in the South Pacific Ocean	Tuvaluan Polynesian	The country has no known mineral resources and few exports and is almost entirely dependent upon imported food and fuel. Subsistence farming and fishing are the primary economic activities.	1,100,000 tourists	<ul style="list-style-type: none"> <li>Sea level rises</li> <li>Inundation and flooding are the common threats to these islands because of their low-lying setting;</li> <li>the problem is exacerbated by the social trends of population growth and migration to main islands, in particular to the capital cities. Other threats include beach erosion, saltwater intrusion</li> </ul>
20	Vanuatu	√	Group of islands in the South Pacific Ocean	English French Bislama	Primarily based on small-scale agriculture, which provides a living for over 70 percent of the population. Fishing, offshore financial services, and tourism.	167,000 visitors 81,000 tourists	<ul style="list-style-type: none"> <li>Sea level rises</li> <li>Inundation and flooding are the common threats to these islands because of their low-lying setting;</li> <li>The problem is exacerbated by the social trends of population growth and migration to main islands, in particular to the capital cities. Other threats include beach erosion, saltwater intrusion</li> </ul>

Dear Michael Nalletamby

I was a delegate at the UNWTO Conference on Tourism and Climate Change in Davos, in October and we spoke about the research that I am conducting into tourism and climate change for my Ph.D and you very kindly agreed to assist me.

I am a full time Lecturer at Nottingham Trent University in the UK and I as you know, I am also undertaking a Ph.D. I have completed my literature reviews and developed a suitable methodology and am now at the stage of completing the fieldwork in the next 6 months. The area of my research is to explore the actions that tourism public and private sector stakeholders are taking to adapt and mitigate to climate change in low lying coastal areas. I am using four case studies:- Cyprus (as a pilot study) Sri Lanka, the Maldives and the Seychelles. I believe each should provide an excellent case study due to their unique natural heritage, the importance of tourism for economic growth and the tourism initiatives that are being pursued.

In order to complete my research I would need to conduct a series of interviews with a range of public and private stakeholders, which would mean visiting the Seychelles. Provisionally, I am looking to conduct the research towards the end of June 08, as when we met you suggested this would be a suitable time. I plan to conduct the research in Sri Lanka and the Maldives earlier in June. However, I have some flexibility as to when I could visit. Regarding the public sector stakeholders, I would like to speak to yourself, a couple of your colleagues from the Tourist Organisation at a regional level, or possibly within different government departments, if this is more appropriate; and a couple of representatives of the Seychelles government who develop policies related to Climate Change (at both national and local level). In the private sector I would need to interview approximately 6 stakeholders, such as hoteliers, tour operators and the managers of visitor attractions. Maybe it would help if I phoned you to discuss the specific details, I'm happy to do this if you wish to suggest a suitable time.

I am going to speak to some of the tour operators to see if they could help by letting me use some excess capacity on flights and finding some relatively cheap accommodation. However, if this does not prove fruitful I would very much appreciate your help and advice as I am I am funding the study myself.

I do hope that you will be able to assist me, by helping me to develop suitable contacts and help with the logistics of my visit, would you recommend I should be based in Mahe? I would obviously make the findings of my research available to you, to assist in future planning and policy decisions.

Thank you in anticipation and I look forward to hearing from you.

Yours faithfully,  
Rachel Welton  
Nottingham Business School  
Nottingham Trent University

Appendix 6 The interview consent form.

My name is Rachel Welton and I am currently undertaking some research that will form part of my PhD study into tourism and climate change. I am examining how climate change will effect small island developing states that have a high level of economic reliance upon tourism and what actions both private and public sector stakeholders are initiating, to adapt and mitigate to climate change.

All the individuals involved in the research will remain anonymous, if they wish. Please identify if you would like me to anomonise your responses. Then the respondents will be referred to by name or job position, so please be assured that you can be open and honest in your response. All response will be treated in the strictest confidence.

The questions will be asked to a number of different public and private sector stakeholders and obviously some of the questions will be more appropriate to some groups, than others. So whilst some questions may seem rather odd, please do attempt to answer them. Since there is no right or wrong answers, do not to worry about these but please do your best to answer them. I am interested in your knowledge, opinions personal experience and observations.

Please feel perfectly free to interrupt, ask clarification as we go through the interview, or even criticize a line of questioning etc.

Please will you give your permission to record the interview. I find that if I. record the interviews I don't have to worry about missing part of your answer and it enables we to engage with you more effectively. At a later point I will then be able to transcribe the interview and analyse the data more effectively.

Please will be sign here to show that you give your permission to take part in the research and for me to record the interview.

Signature.....

Date.....

CONSENT FORM

Coastal tourism: the response of Indian Ocean island tourism destinations to climate change.

Rachel Welton  
Nottingham Business School  
Nottingham Trent University  
Burton Street  
Nottingham  
NG3 4JB

Please initial box

1. I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions.
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving reason.
3. I agree to take part in the above study.

Please tick box

Yes

No

4. I agree to the interview / focus group / consultation being audio recorded
5. I agree to the use of anonymised quotes in publications

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Name of Participant

---

Date

---

Signature

---

Name of Researcher

---

Date

---

Signature

## Appendix 7 Interview schedule for Public stakeholders

Introduction - basic information, informed consent form.

Introduce self again, purpose of interview

Warm up questions

Can you tell me about your organisation and how it fits in with the other national government departments / organisations?

What are the main objectives of your organisation?

What is your role in the organisation?

How long have you been in that position / connected to the organisation.

How many people are employed in the department and at what level?

Could you provide me with a brief outline of your career history so far? Establish education levels

Which are the main tour operators that you work with?

Main body of interview.

1. Can you explain the importance of tourism to your country?

Prompts: GDP, Employment

2. What are the projected growth levels that have been built into the future tourism plan?

3. Do you have a specific tourism and climate change strategy /plan/policy document?

Need to clarify language usage at this stage to assess if they cover both causes (mitigation) and effects (deals with the effects of climate change)?

If yes, please could you outline the key purposes of the documents?

What were the key drivers, when was it written, who involved, when did they will they become policy,

How effective has the implementation been?

Could I have a copy of it / them?

If no, is the issue of tourism and climate change covered in other strategy documents, is a tourism and climate change policy being developed? Why are there no official documents? Do discuss is it an issue?

4. What are the current impacts of climate change to your country and in particular, how does this effect the tourism industry?

5. What are the future predictions for climate change in your country and how will this effect the tourism industry.

6. What information does your organisation provide to other government departments in connection to climate change?

7. What information does your department provide to other stakeholders in the tourism industry in connection to climate change?
8. How does your organisation provide information for other stakeholders (such as, tour operators, hoteliers, airline lines, dive operators) so that they help to achieve the overall objectives of the strategy?
9. Do you have any way of monitoring the actions of the private sector (such as, tour operators, hoteliers, airline lines, dive operators), to see what progress has been made?
10. What adaptations are being undertaken in your sector to respond to climate change (want to know both now and in the future)

Prompts:

Are any new economic routes being explored for GDP?

What new technologies are being used?

What education / training takes place both within and beyond the tourism industry?

Are any new tourism market / products being considered.

How much importance is given to changing the minds of the supply chain?

Social constructionism – identify themes –as prompts

11. How much attention is given to mitigation of climate change within your sector – please can you tell me of some initiatives that cover the following

Prompts: Technology – use of renewable energy sources, economic - taxation, socio-cultural changes – ecotourism

Reducing energy usage – altering destination management and marketing to influence destination choices; change of shifts in transport; increase the length of stay in the destination, encouraging the use of new technologies by airlines.

Improving energy efficiency – (often as a mechanism to decrease energy demand), accommodation sector, and transportation sector and visitor attractions

Increasing the use of renewable energy – photovoltaic, solar thermal, geothermal, biomass and energy regeneration from waste.

Sequestering carbon through sinks – carbon off setting schemes

12. What are your views on mitigation initiatives; should be left to the individual stakeholders to voluntarily comply, or should there be some compulsion through regulation?
13. What role should developing /developed countries play in the mitigation of climate change – why,
14. What role does your organisation play in the education of the local people and tourists on climate change?
15. How much at the forefront of your mind is climate change, when you are busy and making day to day operational decisions.  
Prompts  
Do you think this is representative of most of your colleagues?  
Do you have any tools/mechanism to ensure that recognition of climate change is built into planning and decision making?

Cool off – a few straightforward questions to defuse tension?

Are you optimistic or pessimistic about the future of the tourism industry in your country in fifty and one hundred years?

How vulnerable do you consider your country to be to climate change? If I asked you to rate on a scale of 1-5 high/low,

On a scale of 1-5, how adaptable do you think public sector stakeholders are to the impacts of climate change?

How does that compare? On a scale of 1-5, how adaptable do you think private sector stakeholders are to the impacts of climate change?

Is there anything else that you feel would be useful for me to know?

Closure Thank you and goodbye – when the recorder goes off sometimes interviewees come out with some interesting material. If this is the case, I would ask them if it is OK to turn the tape on and keep recording



## Interview schedule for Private stakeholders

Introduction - basic information, informed consent form.

Introduce self again, purpose of interview

Warm up questions

Can you tell me about your organisation and your role of the organisation within the tourism sector in this country?

How many people are employed by your organisation and at what level?

What is your role in the organisation?

How long have you been in that position / connected to the organisation.

Could you provide me with a brief outline of your career history so far? Establish education levels

What are the main objectives of your organisation?

Which other tourism organisations do you regularly work with?

Main body of interview.

1. How important is tourism to your country?

Prompts: GDP, Employment

2. Do you have an idea of the projected growth levels within the tourism sector.

3. Do you know if the country has any specific tourism and climate change strategy /plan/policy documents?

Need to clarify language usage at this stage to assess if they cover both causes (mitigation) and effects (deals with the effects of climate change)?

If yes, please could you outline the key purposes of the documents?

What were the key drivers, when was it written, who – become policy,

How effective has the implementation been?

If no, is the issue of tourism and climate change covered in other strategy documents,

Is a tourism and climate change policy being developed?

Why are there no official documents?

4. From your perspective what are the current impacts of climate change to your country and in particular, how does this affect your organisation?

5. Do you know what the future predictions for climate change in your country are and how will this affect the tourism industry?

6. What information does the government provide to your organisation in connection to climate change (maybe through the NTO)?

If yes,  
How did you receive the information?  
When did you receive it?  
How useful was the information?  
Has it ;led to you doing ANYTHING DIFFERENTLY  
How could the information have been improved?

If no,  
What information would you like to receive? How would that inform you  
What would be the best method of providing you with the information?

7. What if anything does the government ever provide any incentives / or regulate about the initiatives that your organisation is involved in to address climate change?
8. Can you tell me what the government does to find out what climate change initiatives your organisation are involved in and to see what progress has been made?
9. How effective do you consider the national government / NTO in leading on tourism and climate change? -examples
10. What adaptations are being undertaken in your organisation to respond to climate change (want to know both now and in the future) examples

Prompts:

Are any new economic routes being explored for GDP – product diversification?  
What new technologies are being used?  
What education / training takes place both within your organisation and in the broader tourism industry?  
Are any new tourism markets / products being considered.  
How much importance is given to changing the minds of the supply chain?

11. How much attention is given to mitigation of climate change within your organisation – please can you tell me of some initiatives that cover the following:  
Prompts: Technology – use of renewable energy sources, economic - taxation, socio-cultural changes – ecotourism, examples

Reducing energy usage – altering destination management and marketing to influence destination choices; change of shifts in transport; increase the length of stay in the destination, encouraging the use of new technologies by airlines.

Improving energy efficiency – (often as a mechanism to decrease energy demand), accommodation sector, and transportation sector and visitor attractions

Increasing the use of renewable energy – photovoltaic, solar thermal, geothermal, biomass and energy regeneration from waste.

Sequestering carbon through sinks – carbon off setting schemes

12. What are your views on mitigation initiatives - should they be left to the individual organisation, like your own, or, to voluntarily comply, or should there be some compulsion through regulation?
13. Do you think that the role of developing /developed countries to adaptation and mitigation of climate change should be the same?
14. What role does your organisation play in the education of the local people and tourists on climate change?
15. How much at the forefront of your mind is climate change, when you are busy and making day to day operational decisions.  
Prompts  
Do you think this is representative of most of your colleagues?  
Do you have any tools/mechanism to ensure that recognition of climate change is built into planning and decision making?

Cool off – a few straightforward questions to close the interview?

Are you optimistic or pessimistic about the future of the tourism industry in your country in fifty and one hundred years?

On a scale of 1-5, how vulnerable do you consider your country to be to climate change?

On a scale of 1-5, how adaptable do you think public sector stakeholders are to the impacts of climate change?

On a scale of 1-5, how adaptable do you think private sector stakeholders are to the impacts of climate change?

Do you have any other information that you feel would be useful for me to know?

Closure Thank you and goodbye – when the recorder goes off sometimes interviewees come out with some interesting material. If this is the case, I would ask them if it is OK to turn the tape on and keep recording

Appendix 8 Interview participants in the research

No	File reference	Date of interview	Respondent code	Country	Informant Position Blue – Public sector Purple – Private sector	
1	SI01	22nd May 2008	Participant SL Pub 1	Sri Lanka	Chairman, Sri Lanka Tourist Board	Public
2	SL02		Participant SL Pub 2	Sri Lanka	Head of the Department. Department of Zoology, Colombo University,	Public
3	SL05		Participant SL Pub 3	Sri Lanka	Managing Director of and Head of Rotary	Public
4	SL10	23rd May 2008	Participant SL Pri 1	Sri Lanka	Honorary D.G Wild Life,	Private
5	SL11		Participant SL Pri 2	Sri Lanka	Serendib Leisure Management.	Private
	SL07		Participant SL Pri 3	Sri Lanka	Tour Operator	Private
6	SL08		Participant SL Pri 4	Sri Lanka	Eco tourism, Jetwing house,	Private
7	SL09	28th May 2008	Participant SL Pri 5	Sri Lanka	Managing Director Jetwing Travels,	Private
8	SI07	24th May	Participant SL Pri 6	Sri Lanka	Dive Operator	Private
9	SL04		Participant SL Pub 4	Sri Lanka	Director of tourism Police and Domestic Tourism	Public
10	SL06	29th May 2008	Participant SL Pri 7	Sri Lanka	General Manager, Amangalla Resort,	Private
11	SL03		Participant SL Pub 5	Sri Lanka	Head of tourism policy and strategy	Public
12		1st July 2008	Participant Mal Pub 1	Maldives	Executive Director Civil Aviation Dept Ministry of Tourism and Civil Aviation	Public Sector
13		1st July 2008	Participant Mal Pub 2	Maldives	Senior Flight Operations Officer Civil Aviation Dept Ministry of Tourism and Civil Aviation	Public Sector
14		2nd July	Participant Mal Pri 1	Maldives	Maldives Association of Travel Agents and Tour Operators	Private Sector
15		2nd July	Participant Mal Pri 2	Maldives	General Manager Leisure Maldives	Private Sector

16		2nd July	Participant Mal Pri 3	Maldives	Liveaboard Association of Maldives Director of World Select Travel	Private Sector
17		3rd July	Participant Mal Pri 4	Maldives	Maldives Association of Yacht Agents	Private Sector
18		3rd July	Participant Mal Pri 5	Maldives	Director Seal Superyachts	Private Sector
19		3rd July	Participant Mal Pub 3	Maldives	Deputy Director Maldives Tourism Promotion Board	Public Sector
20		6th July	Participant Mal Pri 6	Maldives	Dive Association of Maldives	Private Sector
21		6th July	Participant Mal Pri 7	Maldives	President Maldives Association of Construction Industry	Private Sector
22		6th July	Participant Mal Pri 8	Maldives	Chair Maldives Association of Tourism Industry	Private Sector
23		6th July	Participant Mal Pub 4	Maldives	Deputy Minister Tourism and Civil Aviation Ministry	Public Sector
24		7th July	Participant Mal Pub 5	Maldives	Director General Ministry of Environment, Energy and Water	Public Sector
25		8th July	Participant Mal Pri 9	Maldives	General Manager Paradise Island Resort	Private Sector
26		10th July	Participant Mal Pub 6	Maldives	Head of the Tourism Planning Department Tourism and Civil Aviation Ministry	Public Sector
27		11th July	Participant Mal Pri 10	Maldives	Conservation Director Banyon Tree Resort	Private Sector
28		1st Sept	Participant Sey Pub 1	Seychelles	Chairman Island Development Company	Public Sector
29		1st Sept	Participant Sey Pri 1	Seychelles	Big Blue Divers	Private Sector
30	T	2nd Sept	Participant Sey Pri 2	Seychelles	Customer and Quality Services Mason's	Private Sector
31		2nd Sept	Participant Sey Pub 2	Seychelles	Chief Executive Officer, Seychelles Island Foundation	Public Sector
32		3rd Sept	Participant Sey Pub 3	Seychelles	International Policy Director Seychelles Tourism Board	Public Sector
33		3rd Sept	Participant Sey Pub 4	Seychelles	Events and Product Diversification Section - Seychelles Tourism Board	Public Sector
34			Participant Sey Pub 5	Seychelles	Service Quality Director Seychelles Tourism Board	Public Sector
5			Participant Sey Pri 3	Seychelles	Manager Customer Serves Creole Travel	Private Sector
36		4th Sept	Participant	Seychelles	Chief Executive Officer –	Public

			Sey Pub 6		Seychelles Tourism Board	Sector
37			Participant Sey Pub 7	Seychelles	– Principal Secretary Environment	Public Sector
38			Participant Sey Pub 8	Seychelles	Seychelles Meteorological Dept	Public Sector
39			Participant Sey Pri 4	Seychelles	Dive Seychelles	Private Sector
40		5th Sept	Participant Sey Pri 5	Seychelles	Yacht Operator	Private Sector
41			Participant Sey Pri 6	Seychelles	Silhouette Cruises	Private Sector
42			Participant Sey Pri 7	Seychelles	Seychelles Tourism and Hospitality Association	Private Sector
43		8th Sept	Participant Sey Pub 9	Seychelles	Chief Executive Officer Planning Authority	Public Sector
44			Participant Sey Pub 10	Seychelles	STB Marketing Manager	Public Sector

Appendix 9 Supplementary informants

<b>File ref</b>	<b>Date of interview</b>	<b>Respondent code</b>	<b>Informants name</b>	<b>Informant Position</b>
<b>DAV 1</b>	1.10.07	Informant Dav 1	Prof. Geoffrey Lipman	<b>Assistant Secretary-General UNWTO</b>
<b>DAV 2</b>	1.10.07	Informant Dav 2	Mr Christopher Rodrigues	<b>Chairman Visit Britain</b>
<b>DAV 3</b>	1.10.07	Informant Dav 3	Mr Radhames Martinez Aponte	<b>Under secretary of tourism Dominican Republic</b>
<b>DAV 4</b>	2.10.07	Informant Dav 4	Mr Mahmood Shougee,	<b>Minister and Tourism and Civil Aviation, Maldives</b>
<b>DAV 5</b>	2.10.07	Informant Dav 5	Mr Bruce Poon Tip	<b>CEO, G.A.P. Adevntures, Canada</b>
<b>DAV 6</b>	2.10.07	Informant Dav 6	Mr Andrew Skeat	<b>Executive Director, Great Barrier Reef Marine Park Authority, Australia</b>
<b>DAV 7</b>	3.10.07	Informant Dav 7	Mr Jeff Gazzard	<b>Green Skies Alliance</b>
<b>DAV 8</b>	3.10.07	Informant Dav 8	Mr Michel Lavernhe	<b>Director of Environmental Affairs, Air France</b>
<b>DAV 9</b>	3.10.07	Informant Dav 9	Dr Wolf Michael Iwand	<b>Executive Director – Sustainable Development TUI AG</b>
<b>DAV 10</b>	3.10.07	Informant Dav 10	Ms Helene Roques	<b>Director Sustainable Development, Accor Group</b>
<b>GOT 1</b>	14.09.09	Informant Goth 1	Arthur Oberascher	<b>President of European Travel Commission</b>
<b>GOT 2</b>	14.09.09	Informant Goth 2	Luigi Cabrini	<b>Director Sustainable Development UNWTO</b>
<b>GOT 3</b>	15.09.09	Informant Goth 3	Jean-Claude Baumgarten	<b>President WTTC</b>
<b>GOT 4</b>	15.09.09	Informant Goth 4	Thea Chiesa	<b>Head of Aviation, Travel and Tourism Industry, World Economic Forum</b>
<b>GOT 5</b>	15.09.09	Informant Goth 5	Carla Aguirre	<b>Head of Research Visit Sweden</b>
<b>GOT 6</b>	<b>15.09.09</b>	<b>Informant Goth 6</b>	<b>Philippe Fonta</b>	<b>Head of Sustainable Development, Airbus</b>

Appendix 10 Pro forma to conduct transcription of the interviews

Sector	File	
<b>Key themes</b>	<b>Selective transcription</b>	
		<b>Comments / thoughts</b>
<b>Importance reliance of tourism</b>		
<b>Tourism and climate change documents</b>		
<b>Ability to predict the effects of climate change fairly accurately.</b>	Current	
	Future	
<b>Incentives - Regulation</b>		
<b>Adaptations</b>		
<b>Mitigation</b>		
<b>Role of developed / developing country</b>		
<b>Education</b>		
<b>CC in decision making</b>		
<b>Optimistic / pessimistic Vulnerability to CC</b>	Score	
<b>Adaptability to CC</b>	Private Score	Public Score
<b>Summary</b>		
<b>Respondent:</b>	<b>Position</b>	



