2007-04-01

An Examination of Indicators of Sustainable Development for Tourism

June Phelan
Technological University Dublin

An Examination of Indicators of Sustainable Development for Tourism

June Phelan (B.A. Int., MSc.)

A thesis presented in fulfilment of the requirements for a
Postgraduate Diploma in Research

Presented to the:
School of Hospitality and Tourism,
Dublin Institute of Technology,
Cathal Brugha Street

Supervisor:
Dr. Kevin Griffin
April 2007

Declaration

I certify that this thesis which I now submit for examination for the award of Postgraduate Diploma is entirely my own work and has not been taken from the work of others save and to the extent that such work has been cited and acknowledged within the text of my work.

This thesis was prepared according to the regulations of the Dublin Institute of Technology and has not been submitted in whole or in part for an award in any other Institute or University.

The work reported on in this thesis conforms to the principles and requirements of the Institute's guidelines for ethics in research.

The Institute has permission to keep, to lend or to copy this thesis in whole or in part, on condition that any such use of the material of the thesis be duly acknowledged.

Signed: _____ Date: April 2007

Candidate

Abstract

Sustainable tourism development has been recognised as the dominant paradigm for developing the tourism industry in the twenty first century. This concept gained importance in response to increasing environmental awareness and unease at the rapid use and depletion of natural resources. The United Nations World Tourism Organisation (UNWTO) identifies sustainable tourism development as a preferred means for the future development of the industry.

Indicators are an established means of achieving and measuring progress achieved towards sustainable tourism development. Consequently, indicators of sustainable development for tourism have been proposed as the building blocks for sustainable tourism development. Information derived from indicators can used in planning and managing tourism activities at a destination. Ultimately the identification and inclusion of indicators in planning and monitoring, in the longer term can potentially lead to a destination being managed more sustainably. Research investigating the role of indicators of sustainable development for tourism is still in its infancy when compared to other industries.

The UNWTO have been instrumental in developing indicator frameworks that have been duly adopted by the industry. This thesis reviews academic literature on indicators of sustainable development from a general perspective and also indicators of sustainable development for tourism. The thesis is exploratory and investigates existing literature on the concepts of indicators of sustainable development and indicators of sustainable development for tourism. This thesis serves as a comprehensive review of indicators for tourism and will be beneficial in assisting future primary research in this field. Much of the impetus for reviewing academic literature on indicators of sustainable development for tourism derived from the necessity to understand core concepts required to undertake work on the EPA project, described here within.

This body of work also details the applied research that the author was involved in as part of her Postgraduate Diploma in Research.

Acknowledgements

I would like to thank to thank most sincerely my supervisor Dr. Kevin Griffin of the School of Hospitality Management and Tourism at Dublin Institute of Technology for his academic support and guidance over the past two years.

I would also like to thank Dr. Sheila Flanagan, my advisory supervisor as well as the staff of faculty for their assistance and guidance. I want to thank all the staff in the Cathal Brugha street library who greatly assisted me in locating extra 'reading material'.

I would like to thank the Environmental Protection Agency for funding this research. To my colleague on the project and friend, Peter Roe, sincerest gratitude for the numerous chats and academic tête-à-têtes! To my other colleagues in the postgrad office, especially Denise and Claire, a sincere thanks, I wish you all the very best in the future. I would like to thank all the people who participated in interviews and David McDonald and the folk of the Isle of Gigha for giving a practical insight into life on a 'sustainable' island.

Special appreciation to my dearest friends, especially those make the weekends fun: Barbara; Carine; Cats; Cepa; Claire; Gesche; Emer; Elly; Ethel; John; Josie; Lynda; Neasa; Netty; Nóilín; Owen, Sarah and Séan.

To my family, I offer deepest gratitude. Mum and Dad, your constant support, trustfulness and understanding has given us the confidence and inner strength to try for the best. Kate, my sister, you make a great travelling partner and 'reality checker'! To my boys: John, sound advice, Richie, Mr. gadget, Ken and Joe (collectively and individually) my homies! Thanks to Mags, Shona and Jacqui for giving me an excuse to discover the other hemisphere! Aunty Maymes, thank you for the great company, wonderful stories and yummy dinners! Margaret, thank you, I think you'd be pleased of new paths yet to be discovered.

Glossary of Terms

CSD	(United Nations) Commission on Sustainable Development
DCMS	The Department for Culture, Media and Sport
DEFR	The Department of the Environment, Transport and the Regions
DIT	Dublin Institute of Technology
DIT-ACHIEV Model of Sustainable Tourism Indicators	"Dublin Institute of Technology-Administration, Community, Heritage, Infrastructure, Enterprise and Visitor" Model of Sustainable Tourism Indicators
DPCSD	Department for Policy Coordination and Sustainable Development
DPSIR Framework	The Driving Force-Pressure-State-Impact-Response (DPSIR) Framework
DSR Framework	The Driving Force-State-Response (DSR) Framework
EEA	European Environmental Agency
EPA	Environmental Protection Agency
ETC	English Tourist Council
GDP	Gross Domestic Product
GNP	Gross National Product
IISD	International Institute of Sustainable Development
ISDs	Indicators of Sustainable Development
IUCN	The World Conservation Union
NGO	Non-governmental Organisation
NTBs	National Tourist Boards
OECD	Organisation for Economic Co-operation and Development
PSR Framework	The Pressure-State-Response (PSR) Framework
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNDESA	United Nations Division of Economic and Social Affairs
UNDSD	United Nations Division for Sustainable Development
UNEP	United Nations Environment Programme
UNWTO	United Nations World Tourism Organisation
VICE Model	The Visitor Satisfaction, Industry Profitability, Community Acceptance and Environmental Protection Model
WCED	World Commission on the Environment and Development
WTTC	World Travel and Tourism Council

Table of Contents

List of Addenda

List of Figures

List of Maps

List of Tables

PART 1: POSTGRADUATE DIPLOMA IN RESEARCH THESIS

Chapter One

Introduction to Thesis

CHAPTER ONE: INTRODUCTION TO THESIS

1.1 Background to Postgraduate Diploma

The researcher was funded by the Irish Environmental Protection Agency (EPA) to work on a two-year research programme which was managed by the Tourism Research Centre at Dublin Institute of Technology. The objective of this project was to investigate sustainable tourism development and practical measures for its implementation in Ireland. The official title of the EPA project was '*Sustainable Tourism Development: Towards the Mitigation of Tourism Destination Impacts*' (hereafter referred to as the EPA project).

This researcher was involved in two of the three core strands of the project[1]. Alongside, research work conducted as part of the EPA project, this researcher has undertaken an extensive literature review for her postgraduate diploma in the fields of:

- Sustainable development;
- Sustainable tourism development;
- Indicators of sustainable development;
- Indicators of sustainable development for tourism.

The work undertaken as part of the EPA project has underpinned the academic research carried by the researcher and helped to develop the overall thought process in the mind of the author. Although, it can be argued that the EPA project was a commercial study, it nonetheless facilitated the researcher in terms of providing a platform from which to carry out in-depth research at a higher level and provided the funding for the research to date. The EPA project has developed the researcher's analytical and research skills, helped to refine the selected field of study and perhaps most importantly given the researcher the confidence and self-belief to pursue study at a higher level.

1.2 Criteria for Postgraduate Diploma in Research

Following the criteria for the postgraduate diploma as set out by DIT, the aim of this thesis is to demonstrate a range of characteristics and capabilities on the part of the researcher, including:

[1] The researcher's level of commitment and precise involvement in this project is outlined in detail in appendix A.

- An understanding of the theory and methods in the area;
- Knowledge of specialist areas near the forefront of the field;
- Mastery of specialist skills and tools and their application in research and/or advanced practice in the field;
- Competence in the relevant research methodology and/or advanced professional practice and/or problem-solving and creative activities;
- Ability to function professionally and ethically independently, under supervision and/or in cooperation with fellow researchers;
- Give a comprehensive and coherent account of the work done, including the context and background of work and a critical appreciation of the results of the work and their relevance to the field. (DIT, 2003)

This report is comprised of two elements; part one details the academic research carried out by the researcher, part two relates to the consultancy (EPA) project the researcher was involved in and also details the research outputs achieved.

1.3 Introduction to Part One: Postgraduate Diploma Thesis in Research

This body of work represents the academic research conducted by the author over the past two years and together with part two is presented in the form of postgraduate thesis. The following is a brief presentation of the contents of each of the chapters.

1.3.1 Chapter One: Introduction

Chapter one sets out the requirements of the postgraduate diploma; introduces and provides an overview of the thesis. The chapter outlines the principle activities of the researcher over the past two years and serves as a general backdrop from which to launch the postgraduate diploma.

1.3.2 Chapter Two: Methods

Chapter two explains the methodological approach adopted by the researcher, namely, desk-based exploratory work. The chapter outlines the methods used and the overall research plan and justifies the choice of methodology. The benefit of this chapter is that it can assist other researchers employing a similar method, if appropriate. The chapter also details the limitations of the research.

1.3.3 Chapter Three: Sustainable Tourism Development

Chapter three traces the theoretical origins of sustainable development and its application to the tourism industry, alluding to difficulties in implementing sustainable (tourism) development. The chapter is important because it explains the critical role indicators of sustainable development play in operationalising the concept of sustainable development generally and specifically within the tourism industry.

1.3.4 Chapter Four: Indicators of Sustainable Development

Chapter four reviews the origins and conceptual theories behind the development and use of indicators of sustainable development. The chapter is important because it traces the evolution of indicators in detail and also shows the application and use from traditional economic indicators to holistic indicators of sustainable development.

1.3.5 Chapter Five: Indicators of Sustainable Development for Tourism

Chapter five looks at the application of indicators for use in the development of sustainable tourism practices. This chapter examines research conducted by the UNWTO on indicators of sustainable development for tourism as this organisation remain the definitive authority on the subject, having pioneered research in the field by carrying international workshops with leading academics as well as sponsoring and monitoring pilot studies in a variety of tourism destinations. This chapter also presents a case study on the development of indicators of sustainable development for tourism in England.

1.3.6 Chapter Six: Conclusions and Recommendations

Chapter six presents conclusions drawn by the author from her investigation of the literature on indicators of sustainable development and indicators of sustainable development for tourism. This chapter also explains the novelty of the research conducted as the author attempted to link academic research with practical application. Recommendations and suggestions for further research are also outlined.

1.4 Introduction to Part Two: Applied Research &Outputs

This second main section looks at the EPA project. It details the appendices (A-D) to part one of this thesis. This section specifically sets out the outcomes of the EPA

project and other academic outputs achieved during the course of the postgraduate diploma in research.

Appendix A outlines the researcher's role and involvement in the project. This appendix describes the outcomes of the EPA project including the *DIT-ACHIEV model of Sustainable Tourism Indicators.*

Appendix B outlines the findings and results of strand one of the EPA project and details specifically the author's findings from strand one by providing a copy fof the interim report. Appendix C is a copy of a poster submitted to the ENVIRON Conference in University College Dublin in January 2006 and Appendix D is a copy of the Conference paper presented at the *"Cutting Edge Research in Tourism: New Directions, Challenges and Applications"* at the University of Surrey, June 2006

Chapter Two

Methods

CHAPTER TWO: METHODS

2.1 Introduction

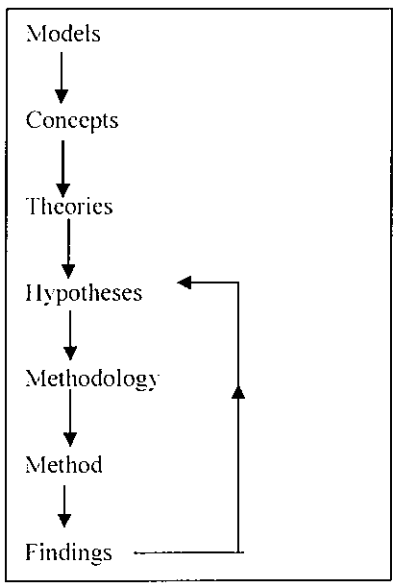
This chapter describes the methodology that was employed in conducting the literature review which forms the basis of the postgraduate diploma thesis and offers reasons why this method was chosen over alternative methods. Firstly, an introduction to the research philosophy is presented followed by the research problem and the research objectives. The secondary research method used is explained in detail. The primary objective of the methodology chapter in research work is to explain the process employed so that other researchers may utilise a similar process if appropriate.

2.2 Nature of Applied Research

Lang and Heiss (1975, p.1) define research as *'a systematic and unbiased way of solving a problem (by answering questions or supporting hypotheses) through generating verifiable data'*. They claim the hallmark of a good researcher is a specific way of thinking and tackling a problem, stating that a *'good researcher is a person who approaches a problem with an open, unbiased mind and solves it in an orderly, systematic manner'* (Lang & Heiss, 1975, p.1).

Dewey (1933) proposed a schema for research problem solving which involves six steps: indeterminate situation; clarification (definition) of situation; formulation of hypothesis; collection, organisation and analysis of data; formulation of all possible conclusions and finally; verification, rejection or modification of results. A related visual representation by Silverman (2000) depicts the process involved in qualitative research (see figure 2.1).

Figure 2.1: Research Process



Source: Silverman (2000, p.79)

Dewey's and Silverman's models detail how a researcher should develop their research agenda. Silverman's simple model is useful as it enables the researcher to consider the relationship between each component and understand how they are inextricably linked to each other. It emphasises that the preliminary findings should be utilised as *'a feedback mechanism through which hypotheses are modified in the light of findings'* (Silverman, p.80). This model serves to remind the researcher to keep the research objectives at the forefront of the process at all times.

The researcher referred constantly to this model in order to understand and direct the research undertaken. However, the researcher did not apply all stages of the model, as no primary research was conducted as part of this postgraduate diploma. The principal objective of the Postgraduate Diploma in Research is an extensive literature review, supplemented by other work conducted by the researcher, which in this case includes an extensive literature review on Indicators of Sustainable Development for Tourism as well as an interim report delivered to the EPA; a poster and a paper delivered at Conferences.

2.3 Research Philosophy

Research needs to be approached using scientific methods as these are the *'most reliable way to move from limited, biased perceptions and opinions to fact or tentative truth'* (Lang and Heiss, 1975, p. 3). Dewey (1933) is accredited with formulating the scientific way in which problems can be solved using either the inductive or deductive approach. Hussey and Hussey (1997) refer to these two universally accepted research philosophies as positivist (deductive) and phenomenological (inductive). These research philosophies or research paradigms are commonly referred to as quantitative (deductive) or qualitative (inductive) paradigms.

Hussey and Hussey (1997, p.52) argue that *'the positivistic approach seeks the facts or causes of social phenomena, with little regard to the subjective state of the individual'*. They stress that the positivistic paradigm tends to produce quantitative data which is highly precise, specific and reliable. Another positive characteristic associated with using quantitative methods is that the findings generalise from sample to population thereby testing the hypothesis.

Malhotra and Birks (1999, p.156) define qualitative research as *'an unstructured, primarily exploratory methodology based on small samples, intended to provide insight and understanding'*. Hussey and Hussey (1997, p.53) argue that the *'qualitative approach stresses the subjective aspects of human activity by focusing on the meaning rather than the measurement of social phenomena'*. They explain that qualitative research allows the reader to gain an understanding of human behaviour from the researcher's point of reference and although, this research paradigm does not generalise a social phenomena it can identify new trends (Hussey and Hussey, 1997).

A more recent research approach being utilised is the mixed methods approach, which entails using a mixture of both qualitative and quantitative methods to collect and analyse data in a single study (Creswell, 2003). Newman and Benz (1998) observed that most research practices lie somewhere on a continuum between the two, therefore using a mixed method approach is considered to provide greater understanding. Creswell (2003) does admit that the 'mixed methods approach' is less well known but stated that its origins date back to 1959 when mixing different methods was used to test psychological traits. One of the principal reasons for its adoption was a recognition that

because '*all methods have limitations, researchers felt that biases inherent in any single method could neutralise or cancel the biases of other methods*' hence the converging of both methods (Creswell, 2003, p.15).

2.4 Rationale for Research

The Irish tourism industry has witnessed unprecedented levels of growth in recent years. Though there are many contributing factors, which have encouraged the expansion of the tourist industry, the natural environment remains one of the core attractions to the island of Ireland. The primary motivation for any tourist to travel is to discover or experience something new and unfamiliar (Bloy, 2000) and the natural environment is frequently cited as the principle motivation for travel. While the environment is important to tourism, recent environmental indicators have highlighted the extent of the damage which has occurred since the turn of the century (EPA, 2000). Warnings from the EPA suggest that the tourism industry could cause irreparable damage to the environment if not properly managed thus implementing sustainable tourism measures is of paramount importance (EPA, 2000).

Ireland has been marketed both in the past and present, using images of a vibrant and living landscape. If Ireland is to continue using the natural environment as its marketing tool in order to maintain its position as a "green" destination, care must be taken to protect and enhance the natural environment. Sustainable tourism development is a holistic approach to planning for future tourism developments. This approach can safeguard the natural environment and ensure the continuity of the travel and tourism industry. The identification of indicators of sustainable tourism development plays an important role in monitoring and planning future developments. The relationship between tourism and the environment in which it operates (natural, socio-economic, and cultural) is causal. However, the development of indicators of sustainable development for tourism can support positive destination management as decision-makers are given powerful information from which to make important decisions.

2.5 Research Hypothesis

Malhotra (1999, p. 53) defines a hypothesis as '*an unproven statement or proposition about a factor or phenomenon that is of interest to the researcher*'. The hypothesis plays an intrinsic role in the research design, as it will strongly influence the variables to

be included in the research design. Malhotra and Birks (1999, p. 49) argue that the hypothesis is a possible answer to the research question(s) stating that '*research questions are interrogative, hypothesis are declarative and can be tested empirically*'.

In the case of this postgraduate thesis, no research hypothesis is required because this thesis is an exploratory review of literature. However, it is suggested that if primary research is to be carried out a hypothesis should be proposed.

2.6 Research Objectives

Malhotra and Birks (1999) explain that research questions are refined statements relating to the specific components of the problem. Research questions serve to gather specific information which, when analysed, will answer the research problem and test the hypothesis. The principle objective of this postgraduate study is to conduct an exploratory literature review into indicators of sustainable development for tourism. This entailed tracing the origins of indicator development from principally an economic perspective to subsequently an environmental perspective which includes other aspects of human life. Indicators of sustainable development for tourism are a relatively new phenomenon, although the UNWTO has done much to cement theories through practical applications in pilot studies and the publication of guidelines for destination managers.

The research objectives are generally divided into two categories: 'Secondary Research Objectives' and 'Primary Research Objectives'. However, in this instance, no primary objectives are described as no formal primary research was conducted as part of the postgraduate diploma in research.

2.6.1 Secondary Objectives

The 'secondary research objectives' have been achieved following an exhaustive literature review and are as follows:

- To review the literature on indicators of sustainable development and indicators of sustainable development for tourism, so that the reader is fully versed in these themes and their link to the future success of the travel and tourism industry;
- To introduce the key authors, theorists, models and organisations that have influenced thinking on the development of indicators in recent years;

- To uncover practical applications of destinations using indicators of sustainable development for tourism.

2.7 Research Design

Research design describes the creation of a master framework to guide the research and to facilitate the collection, measurement, analysis and reporting of data (Domegan and Fleming, 2003). The design must ensure the research is valid and reliable, strongly linked to the research objectives, and formulated to elicit data.

To meet the 'Secondary Research' objectives, the author established that the following was necessary: exploratory secondary research.

Exploratory secondary research was employed which would determine the 'research-ability' of the topic. Using an exploratory method, the researcher has been able to ascertain previous research undertaken in the area, and identify the need for further research, thus meeting the secondary objectives.

2.7.1 Secondary Research

A researcher must firstly conduct desk research, which Domegan and Fleming (1999, p.77) define as the *'systematic collection and analysis of secondary sources of data'*. Secondary research is collected for purposes other than problem at hand (Malhotra and Birks, 1999). Secondary data offers many advantages over primary research as it is easily accessible, inexpensive and quickly obtained. Malhotra and Birks (1999, p.99) state that an *'examination of available secondary data is a prerequisite to the collection of primary data'* and argue that only when the secondary research is exhausted should the primary research proceed. They explain that secondary research can provide valuable insights into existing literature and lay the foundations for future primary research. However, Malhotra (1999, p.113) argues that because *'secondary data have been collected for purposes other than the problem at hand, their usefulness to the current problem may be limited in several important ways, including relevance and accuracy'*. Yin (1994) insists that a comprehensive literature review permits the researcher to develop sharper and more insightful information about the topic and gain precision in formulating questions for the primary research.

In this thesis secondary research will involve the identification and analysis of previously published information on field of indicators of both sustainable development and sustainable tourism development. A thorough review of available literature has been undertaken to gain an understanding and a comprehensive insight into the relevant subject matters which involved extensive research and critiquing existing secondary data. This involved an extensive search for, and research of, published articles and reports, journals, books, reports and theorists and organisations in the relevant areas.

The completion of the secondary research is summarised in chapters three, four and five thereby fulfilling the secondary research objectives.

2.8 Justification of Secondary Research

McCracken (1988, p.31) argues that a good literature review is a critical process that makes the investigator the '*master not the captive of previous scholarship*'. The literature review helps the researcher decide how the primary research should be carried out.

There are, however, a number of advantages and disadvantages associated with the use of secondary data (Malhotra, 1999). Malhotra (1999) highlights a number of the advantages as information can be obtained quickly. In addition, secondary data can be used to help identify and define the problem, to develop an approach to the problem and formulate an appropriate research design. Secondary data can answer certain research questions and when it is undertaken, can help to interpret primary data in a more meaningful way.

The advantages offered by secondary data are significant; however, there are also a number of disadvantages the researcher must be aware of. The principle disadvantage is the fact that it has not been collected specifically for the researchers' purpose. Its' use therefore may be limited in terms of its relevance and accuracy. Other disadvantages include that the fact that the objectives, nature and methods of collection used to gather the secondary data may not be appropriate to the current situation, and that the secondary data may not be sufficiently current and may not be entirely verifiable or dependable in all situations. Malhotra (1999) suggests that before using secondary data sources, it is important to evaluate them with these factors in mind.

2.8.1 Limitations of Research

In undertaking this work, the researcher feels that the exploratory research has provided a realistic and valid picture of the interdependence between tourism and other aspects of human life and how these relationships need to be monitored to indicate changes in equilibrium. Indicators play an intrinsic part in aiding decision-makers take corrective action to mitigate against negative consequences and threaten future sustainability. However, from the outset this thesis did not attempt to measure the use of indicators of sustainable development for tourism as this is a desk based exploratory literature review. In order to fully assess the use and determine the usefulness of indicators of sustainable development for tourism a field-based study would be required.

Another limitation is the topic itself, developing indicators of sustainable development for tourism is a relatively new phenomenon. While some information is available, generally a small pool of authors is responsible for publishing material most notably the UNWTO. In addition to this limitation, the author, owing to the limited amount of tourism-specific literature available, relied heavily on literature from other fields.

2.9 Conclusion

The secondary research outlined in chapter three, four and five will confirm that a study on indicators of sustainable development for tourism would be of relevance in light of the increasing usage of monitoring systems in many industries globally. The secondary research objectives set out have been achieved and the literature is presented in chapters three, four and five. While some limitations are noted, the overall aim of exploring literature on indicators of sustainable development for tourism is considered reliable and valid.

Chapter Three

Sustainable Tourism Development

CHAPTER THREE: SUSTAINABLE TOURISM DEVELOPMENT

3.1 Introduction

Sustainability is a complex concept incorporating many different strands: environmental, ecological, economic, social, political, cultural factors (France, 1997). Sustainable development has emerged as the dominant development paradigm of the twentieth century, driving forward global policy-making and strategy in addition to informing and directing sectoral policies and activities, including those of the tourism industry (WCED, 1987; UNWTO, 1996). The widespread interest in the concept of sustainable tourism development is hardly surprising.

This chapter traces the origins of sustainable development, core components of the concept and how sustainable development has evolved and has been applied to other industries namely; tourism (Farsari & Prastacos, n.d.). Sustainable (tourism) development is an extensive phenomenon with far-reaching potential; this chapter only serves as an introduction to the concept in order to provide a platform to discuss indicators of sustainable development for tourism.

At the outset, there is a need for conceptual clarity. This thesis is looking at indicators of sustainable development for tourism not indicators of sustainability. It has been claimed that the term "sustainability" belongs to the field of ecology and refers to the potential of an ecosystem to subsist over time (Reboratti, 1999). By adding the word "development", the focus of sustainability shifts from ecology to that of society. *'The chief focus of sustainable development is on society, and its aim is to include environmental considerations in the steering of societal change, especially through changes to the way in which the economy functions'* (Baker, 2006, p.7). Sustainable development is a dynamic concept and indicators as will be evidenced later play an important role in assessing the progress achieved towards sustainable development.

3.2 The Evolution of Sustainable Development

Hardy *et al* (2002) note that reference is being constantly made to sustainable tourism development in strategic tourism planning and policy documents. Authors argue, that despite its common usage, there is still considerable debate concerning its meaning and its practical implementation (Hardy *et al*, 2002; Baker, 2006). Therefore, it is necessary

to trace the origins and development of this concept in order to gain a comprehensive understanding of where sustainable development fits in with the tourism industry.

The origins of sustainable development can be traced back to the 1960's and 1970's. The concept emerged in response to increasing environmental awareness and unease surrounding its use (Bramwell & Lane, 1993; Hall, 1998; Baker, 2006). The emergence of sustainable development is said to have marked the convergence between economic development and environmentalism (Hardy *et al*, 2002). In 1972, this convergence culminated in the United Nations (UN) Stockholm Conference on 'Humans and the Environment', resulting in the *Declaration on the Human Environment*. The conference marked the beginning of a new era of international cooperation on the environment (Baker, 2006). The report encouraged nations to adopt more environmentally sound practices and environmental ministries and agencies were set up in over 100 countries as a result of the conference (Hall, 1998). The UN has played a prominent role in developing global environmental governance and has many dedicated agencies responsible for the promotion of sustainable development.

3.3 The Concept of Sustainable Development

The term 'sustainable development' came into the public arena in 1980 when the International Union for the Conservation of Nature and Natural Resources presented the *World Conservation Strategy* (IUCN, 1980). This strategy commonly referred to as the *Brandt Commission Report* contributed to the evolution of sustainable development, emphasising that economic development should care for the environment (Romeril, 1998). The goal of the strategy was to ensure that future generations would be able to avail of the same benefits as present generations, a factor fundamental to sustainable development. The focus of this strategy was rather limited as it addressed purely ecological sustainability without encompassing wider social and economic issues (Baker, 2006).

A major step in the evolution of sustainable development was the publication of the 1987 UN World Commission on the Environment and Development (WCED) report entitled *Our Common Future*, commonly referred to as the *Brundtland Report*, which brought sustainable development further into the political arena and had a positive effect on government and non-governmental organisations. The report is regarded as one of

the seminal environmental documents of the twentieth century. In this report the links between the social, economic and ecological dimensions of development were explicitly addressed (WCED, 1987, Baker, 2006).

> *'In making the links between the economy, society and the environment, the Brundtland Report puts "development", a traditional economic and social goal, and "sustainability", an ecological goal, together to devise a new development model, that of sustainable development'.* (Baker, 2006, p. 20)

The WCED (1987, p.43) defined sustainable development as *'development that meets the needs of the present without comprising the ability of future generations to meet their own needs'*. This definition now much popularised, has achieved authoritative status among an increasing number of agencies who subscribe to some or all its objectives (Lafferty & Meadowcroft, 2000). The report: Our Common Future, explained that environmental protection is inherent in the concept of sustainable development, and this report focused on the sources of environmental problems rather than the symptoms. The report also developed the theme that we have not inherited the earth from our parents but have borrowed it from our children, thus, placing greater responsibility on present generations to be stewards of the future. The Brundtland concept of sustainable development is global in its focus, not just addressing the causes of unsustainable development but also putting forward solutions to combat these problems in the future (Baker, 2006). The Brundtland Report encouraged governments to adopt the principles of sustainable development by providing a framework for the integration of environmental policies and development strategies into a new sustainable development paradigm: one that breaks with the perception that environmental protection can be achieved only at the expense of economic development (Baker, 2006).

Tribute is paid to the Brundtland Report because its *'formulation presents an optimistic view, especially in relation to the capacity of humankind to engage collectively and constructively in bringing about a sustainable future'* (Baker, 2006, p.22). Other authors are critical of the lack of consensus in finding a suitable definition of sustainable development; there have been a myriad of attempts to define its exact meaning. Jacobs (1991) argues that this ambiguity of definition and lack of consistency in policy-making severely diminishes its usefulness, making it difficult to devise a set of measurable criteria to evaluate whether concrete attempts have been made to operationalise the concept. This is where the role of indicators of sustainable development is fundamental. Meadowcroft (1999), however, believes that the proliferation in meanings and

application of the term do not undermine its usefulness but reflect the complex issues inherent in the concept.

One of the outcomes of the Brundtland Report was for an Earth Summit to be attended by heads of state. The *UN Conference on Environment and Development*, later known as the *Rio Earth Summit*, was duly held in 1992. The Summit was attended by the largest number of heads of state ever, indicating the importance that had become attached to the problem of environmental damage and the need to find ways of reconciling environmental protection with economic development policies (Baker, 2006). The Rio Earth Summit had two keys agenda: first, the link between the environment and development; second, the practical issues surrounding the promotion of sustainable development, especially with regard to introducing policies that could balance environmental protection with social and economic development. Several agreements were reached at the Rio Earth Summit: *The Rio Declaration on Environment and Development*; *Agenda 21*; *The UN Framework Convention on Climate Change*; *The UN Convention on Biological Diversity* and *The Forest Principles*.

The Rio Earth Summit set out an ambitious programme for the promotion of sustainable development. The Rio Declaration on Environment and Development set out 27 principles of sustainable development. Perhaps, the most important action agreed was Agenda 21 which *'was not only an astute analysis of the causes and symptoms of unsustainable forms of development, but an authoritative set of ideas on how to promote sustainable development in practice'* (Baker, 2006, p.56). Agenda 21 is a detailed blueprint for implementing sustainable development and a lengthy plan of action consisting of 40 chapters (Hopkins & Price, 2002). Chapter 40 of Agenda 21 in its entirety is dedicated to the role indicators play in the promotion of sustainable development. Following the adoption of Agenda 21, there has been considerable discourse on sustainable development. Another outcome of the Rio Summit was the establishment of a new UN institution: *Commission on Sustainable Development* (CSD), whose primary role is to monitor progress on the agreements reached at the Earth Summit and to establish indicators of sustainable development. The role of the CSD is discussed further in chapter four.

Hardy *et al* (2002, p. 480) assert that *'the international acceptance of sustainable development appears to be a success because of its timing'* as *'scientific, economic, socio-cultural and environmental problems were converging'*. All of these factors are prevalent in the tourism industry; hence tourism has a major part to play in sustainable development. The UNWTO have played a pioneering role in interpreting global policy on sustainable development, making it more applicable and usable in the tourism industry, as many of the earlier UN documents did not specifically discuss tourism. The *Lanzarote Conference* on Sustainable Tourism in 1995 was the thematic successor to the Rio Earth Summit. The UNWTO at this conference openly declared that *'the application of the principles of the Rio Declaration to tourism development is of fundamental strategic value'* (Aronsson, 2000). The conference resulted in two documents: *Charter for Sustainable Tourism* and *The Sustainable Tourism Plan of Action*. The Charter for Sustainable Tourism is a declaration which sets out eighteen principles on how tourism should be controlled in order to participate in the global strategy for sustainable development. The Sustainable Tourism Plan of Action outlines the special strategies and proposals for action to be developed by the countries who signed the declaration (Aronsson, 2000).

The UNWTO committee on sustainable tourism met in Thailand in March 2004 and recent developments in the field were presented and discussed. The Thailand Meeting also reinforced the UNWTO's commitment to sustainable tourism development.

> *'Sustainable tourism development guidelines and management practices are applicable to all forms of tourism in all types of destinations, including mass tourism and the various niche tourism segments. Sustainability principles refer to the environmental, economic and socio-cultural aspects of tourism development, and a suitable balance must be established between these three dimensions to guarantee its long-term suitability'.* (UNWTO, 2004)

The role of indicators was also reinforced at the Thailand Meeting.

> *'Sustainable tourism development requires the informed participation of all relevant stakeholders, as well as strong political leadership to ensure wide participation and consensus building. Achieving sustainable tourism is a continuous process and it requires constant monitoring of impacts, introducing the necessary preventive and/or corrective measures whenever necessary'.* (UNWTO, 2004)

3.4 Concept and Definition of the Tourism Industry

The tourism industry is one of the fastest growing economic sectors of modern society. There is no other economic activity that cuts across so many sectors, levels and interests

as tourism. The tourism industry is a complex system of interrelated economic, socio-cultural and environmental factors. The industry is broadly based on and includes a wide range of services which are highly dependent on other primary and secondary industries (Goodwin, 2003). Therefore, it is difficult to find a universally accepted definition of tourism. The definition supplied by the UNWTO in 1991 is considered to go beyond the stereotypical image of 'holiday-making' (Goeldner *et al*, 2000):

> '*Tourism comprises the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes*'. (UNWTO, 1991)

From an historical and anthropological point of view, the origins of tourism and tourists can be traced through the centuries. *Homo sapiens* have a natural instinct to seek out new lands and new experiences (Fennell, 2003), initially; the primary motivation for travel was survival, closely followed by trade (Goeldner *et al*, 2000). The tourism industry since the late eighteenth century has developed at an unprecedented rate, with mass tourism having become one of the largest economic providers of the twentieth century (Middleton & Hawkins, 1998). The rapid expansion of the tourism industry has been attributed to several factors. Notably, the increased notion of free and leisure time have resulted from industrialisation, urbanisation and economic development. The growth of mass tourism could only have occurred in a post-war industrial era as increased earnings encouraged the masses to seek free time in which to unwind, and technological advances allowed the development of improved infrastructural systems making travel more accessible to multitudes of people (Shaw & Williams, 2002). It was during the nineteenth century that tourism became an option for the population at large. Poon (1993) concurs that the growth of tourism *en masse* was the logical outcome of key social, economic, political and technological influences after World War 2.

Mass tourism is regarded as a distinctively modern form of tourism. Initially, it was hailed as a panacea to solve all western tourism destinations' woes in the 1960s and as an appropriate industry for economic development within new world countries. One cannot dispute that mass tourism is at its most basic, mass human agglomeration (at a tourist destination). For all the benefits previously attributed to mass tourism such as increased ability to travel, wider choice of destinations and lower prices for consumers and the hard currencies that tourists bring to the destination (Kirsteges, 2003), many of

the disadvantages of mass tourism have also been recognised such as environmental degradation, loss of habitats and cultural infringements.

Consequently, in recent years, there has been much discussion and debate on the attributes of the tourism industry. This debate has served to highlight both the positive and negative characteristics of the mass tourism industry. Many solutions have been put forward in response to the negative effects on the environment in an attempt to lessen the overall impacts of mass tourism, principally the concept of 'wise growth' or sustainable tourism development.

3.5 Problems emerging from Tourism Activities

Since the 1970s, the issue of maintaining a balanced relationship between tourism and the environment has received considerable attention (Briassoulis & Van de Straaten, 1992). Initially the debate focused on the positive impacts of mass tourism. Kirsteges (2003) remarked that up until recently the environment had been regarded as a 'free' resource and industries felt that central governments were primarily responsible for its upkeep. The natural environment acts as one of the core ingredients in the tourist product offering, making a destination attractive and economical viable. Yet, the tourism industry is often regarded as a *'double-edge sword: it can be a potential blessing and it can be a blight'* (Poon, 1993, p.5). Poon (1993) is often quoted for saying that tourism development contains the seeds of its own demise and this adage has rung true as with the mass growth of the industry came much destruction to the natural environment and many indigenous groups feel that their socio-cultural fabric has changed or been eroded. Middleton & Hawkins (1998) insist that by the end of the twentieth century the impact of human activity on the environment had become increasingly evident. Dowling (1992) commented that the advent of mass tourism in the 1960's also paved the way for increased environmental awareness, thus, two unrelated tourism dimensions interacted, fuelling research into both phenomena.

Authors agree that the tourism and travel industry will have to take a more proactive role in developing environmental protection policies (Middleton & Hawkins, 1998; Kirsteges, 2003). *'It will not be tenable over the next decade for travel and tourism to claim its position as the world's largest industry while collectively and individually ducking the environmental responsibilities which such size and impact inevitably*

imposes' (Middleton & Hawkins, 1998, p.25). Tourism plays an important role in national economies of many countries and it is likely to become an even greater contributor in the future (Hjalager, 1996) yet, there have been calls for the total abandonment of tourism (Kirsteges, 2003). Sustainable tourism development has been advocated as possible solution that could balance all interests.

3.5.1 Shift towards Sustainable Tourism Practices

Poon (1993) envisaged the emergence of a new form of tourism, a form that would counter balance the adverse effects of mass tourism. Called *'soft tourism, ecotourism, sustainable tourism, new tourism, responsible tourism or environmentally sound tourism, it is not just a fad. It has to be become a way of life if the industry and indeed this planet is to be sustained'* (Poon, 1993, p.6).

Authors have long recognised the negative impacts of mass tourism and in response alternative forms of tourism have been suggested as a means of solving the problems associated with mass tourism. Butler (1990) states two plausible reasons why mass tourism has not been wholly rejected; firstly, because of its economic importance and secondly, because of the socio-psychological security enjoyed by many tourists who find certain comfort in having their holiday pre-arranged. This does not mean that mass tourism cannot be developed in a manner which is more sustainable.

3.6 Sustainable Tourism Development

> *'Sustainable tourism has been proposed as a model that can have utility in creating the impetus for structural change within society, one that ventures away from a strictly socio-economic focus to one where development meets the goals of the present without comprising the ability of future generations to meet their own needs'.* (Fennell, 2003, p. 8)

The UNWTO, WTTC and the Earth Council (1997) have been instrumental in modifying the Brundtland Report definition of sustainable development to include tourism. The UNWTO, WTTC and the Earth Council (1997) define sustainable tourism as *'tourism that meets the needs of present tourists and host regions, while protecting and enhancing opportunities for the future'.*

The UNWTO offers the following more comprehensive definition of sustainable tourism:

> *'Sustainable tourism development meets the needs of present tourists and host regions, while protecting and enhancing opportunities for the future. It is envisaged as leading to the management of all resources in such a way that economic, social and aesthetic needs can be fulfilled, while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems'.* (UNWTO, 1998, p.19)

From an economic perspective, sustainability makes perfect sense as it preserves the natural environment which is a source of existence for the tourism industry within the marketplace. The definition put forward by the UNWTO emphasises the requirement to find a balance between economic, environmental, socio-cultural issues and the needs of the host community.

Sustainable tourism development like sustainable development suffers from a plethora of ambiguous definitions. Stabler & Goodall (1996) state that over three hundred definitions exist, thus rendering the meaning of "sustainable" vague. The definition put forward by the UNWTO has come to be commonly accepted as the definition of sustainable tourism development. Sustainable tourism development is intended to be a positive approach to reduce tensions and frictions caused by the complex interactions between the tourism industry, visitors, the environment and the communities which host holiday-makers (Bramwell & Lane, 1993).

Mann (2000) argues that sustainable tourism development needs to shift towards greater emphasis on implementation, and although many sustainable tourism strategies have been devised, as yet few examples of successful initiatives exist. Sustainable tourism development needs to be interpreted in terms of what destinations and the tourism industry can do to implement and operationalise sustainable tourism development (Mann, 2000), in other words, what steps destinations, tourists and tourism businesses can take to make sustainable tourism development become a reality, and what changes tourism destinations and the tourism industry need to implement in their daily operations and business practices in order to become more sustainable.

Given the multidimensional dynamic complexity of the tourist sector, it is not easy to identify a path for the sustainable development of the industry (Müller, 1994). The conflicting objectives involved, teamed with ambiguous definitions make the implementation of sustainable tourism development a thorny path to follow. *'The*

primary focus of sustainable tourism development policies has been on the protection of the physical and socio-cultural environment in destination areas, which, although a fundamental requirement, is just one ingredient of any sustainable development policy' (Müller, 1994, p.131). Other factors such as economic health; well-being of the locals; unspoilt nature; protection of resources; healthy and vibrant culture and optimal satisfaction of guests need to be taken into account when trying to find a balance for the sustainable development of a destination (Marios & Stelios, 2003).

However, it appears from the literature that in implementing sustainable tourism development less attention has been paid to local communities than to economic or environmental factors (Hardy *et al*, 2002). Despite calls for an integrated approach from academic literature, which would provide for the inclusion of local communities, this change is only occurring slowly. Butler (1998) and Bramwell & Lane (2000) argue that truly sustainable tourism can only be achieved by consulting those affected by tourism, namely the host community. Butler (1993) reiterates this by defining sustainable tourism development as *'tourism, which is developed and maintained in an area in such a manner, and at such a scale, that it remains viable over an indefinite period and does not degrade or alter the environment (human and physical) in which it exists to such a degree that it prohibits the successful development and well-being of other activities and processes'*. McCool (1995) emphasises, that in order for sustainable tourism to be successful, the following must be considered: how tourists value and use natural environments; how communities are enhanced through tourism; identification of tourism's social and ecological impacts; and management of these impacts.

3.6.1 A Critique of Sustainable Tourism Development

Over the last twenty years, the concept of sustainable tourism development has become almost universally accepted as a desirable and politically appropriate approach to tourism development (Sharpley, 2003). It has achieved *'virtual global endorsement as the new [tourism] industry paradigm'* (Godfrey, 1996) and there are a myriad of concepts and models regarding sustainable tourism currently being examined both academically and in practice. Despite the widespread support for the principles and objectives of sustainable tourism development, it remains a contested concept. In the early 1990s, it was heralded as the solution to all environmental ills. Hjalager (1996)

argues that scientific research into issues of sustainability and the environment within the tourism industry are in the initial phases when compared to other industries.

McKercher (1991, p.131) observed that there is a lack of common understanding and acceptance of a definition of sustainability, stating that *'the inherent vagueness of sustainability is its greatest weakness'*. Sustainable development has been somewhat of a 'buzzword' since its inception in the 1980's, but the sustainable tourism debate is often patchy and flawed (Liu, 2003). Müller (1997) defends sustainable tourism development giving a plausible explanation why sustainable tourism is difficult to achieve in practice, noting the plethora of theoretical statements and the shortage of implementation skills. Hence there has been little actual deployment of effective policies, while those case studies that do explore ways of applying sustainable tourism practice are often designed for small-scale tourism ventures rather than mass tourism destinations.

Cater (1994) identifies several conflicting points between the principles and practice of sustainability, expressing the opinion that eco-tourism and sustainable tourism development are overworked terms that have been neatly co-opted by political and business interests to confer an aura of respectability to their activities. Similarly, Sisman (1994) stated that many businesses having discovered the concept of sustainable tourism development, immediately jumped on the bandwagon, stating that sustainability fitted in nicely with their existing policies. Hardy *et al* (2002, p. 490) in this respect warn that the concept of sustainable development risks losing popularity *'as a result of being perceived as little more than a marketing label'*.

Liu (2003) cited several inherent flaws which stagnate the development of sustainable tourism practice. Firstly, that all too often little attention is paid to either the demand or supply of tourism destinations. Second, sustainability *'is often limited to the preservation and conservation of resources and fails to appreciate that resources are a complex and dynamic concept, evolving with changes in the needs, preferences and technological capabilities of society'* (Liu, 2003, p.461).

3.7 Conclusion

The author has elaborated on aspects of sustainable development and sustainable tourism development in so far as it is relevant to indicators of sustainable development and indicators of sustainable development for tourism. The aim of this chapter was to give an overview of diverse aspects of sustainable development and sustainable tourism development. Sustainable development has become the *'catchword of our decade, used and misused in many contexts'* (Dahl, 1997, p.69). It has been notoriously difficult to define, not to mention operationalise. Indicators of sustainable development and indicators of sustainable development for tourism have for their part assisted in implementing sustainable (tourism) development.

Chapter Four

Indicators of Sustainable Development

CHAPTER FOUR: INDICATORS OF SUSTAINABLE DEVELOPMENT

4.1 Introduction

Since the Rio Earth Summit (1992), national and international governments and agencies have been attempting to implement strategies for sustainable development. The concepts and benefits associated with sustainable development have been endorsed in most fields from economics to tourism. Developing indicators to monitor changes in trends over time and space is one pragmatic method of both implementing and monitoring sustainable development. Thus, indicators of sustainable development (ISDs) are increasingly demanded at local, regional, national and international level.

4.2 Definition of Indicators

The concept of indicators is not new, others factors have been monitored which are indicative of phenomena, for example, GNP measures the economic performance of a country, body temperature can be indicative of illness. Mukherjee (1975) stated an indicator *'is meant to indicate something beyond the property it expresses prima facie, otherwise the term forfeits its conceptual relevance'*. Holling *et al* (1978) defined an indicator as a *'measure of system behaviour in terms of meaningful and perceptible attributes'*, in 1988, McQueen and Noak defined an indicator as a *'measure that summarises information relevant to a particular phenomenon, or a reasonable proxy for such a measure'*. Adriaanse (1993), who conducted seminal research in indicator development in the Netherlands, defined indicators as *'a quantitative model and a form of information that makes a certain phenomenon perceptible that is not immediately detectable'*.

Gallopín (1997) called for clarity and consensus about the exact definition of an indicator as Bakkes *et al* (1994) pointed out that current definitions of indicators and the use of terminology in the area is confusing as many ambiguities and contradictions regarding the general concept of an indicator exist. Nonetheless, Gallopín (1997, p.141) states that in its most general sense an indicator is a sign, which can be defined as *'something which stands for something to somebody in some respect or capacity'*. Gallopín (1997, p.15) clarifies his meaning of indicators by stating that indicators *'can be defined as individual variables or variables that are a function of other variables'*. Hart (1997) describes an indicator as *'something that helps you to understand where*

you are, *which way you are going and how far you are from where you want to be'*. This definition describes an indicator in simplistic yet comprehensive and understandable terms. The Organisation for Economic Cooperation and Development (OECD) in 1997 saw an indicator as:

> *'an empirical interpretation of reality and not reality itself. Indicators are commonly used to present a quantitative account of a complex situation or process. They can also be used to point out or identify something, which is not immediately visible, audible or perceived in a precise situation. Indicators usually translate data and statistics and can be aggregated and attributed weighted values in order to produce composite measures known as indices. Finally, three major functions of indicators are simplification, quantification and, communication'.* (OECD, 1997, p.14)

In an attempt to clarify what an indicator was, in 2003 the OECD, refined their original definition of an indicator as:

> *'a parameter, or value derived from parameters, which points to, provides information about, describes the state of a phenomenon/environment/area, with a significance extending beyond that directly associated with a parameter value'.* (OECD, 2003, p. 6)

The OECD also offered the following definitions to clarify the meanings of an index and parameter. An index is *'a set of aggregated or weighted parameters or indicators'* and *a parameter is 'a property that is measured or observed'* (OECD, 2003, p.7). Gallopín (1997) affirmed that an indicator can be a set or an individual variable, which is an operational representation of an attribute of a system which when pragmatically interpreted, conveys information about a trend or condition, it is this information which can be used in decision-making purposes.

4.3 Functions of Indicators

The most important function of indicators is to provide information about a variable or set of variables in order to determine trends and serve as a basis for policy and decision-making. Indicators simplify a complex reality and communication is their major function (EEA, 1999).

An indicator should point to an issue or condition. The purpose of an indicator is to show how efficiently a system is working, and if there is a problem, the indicator should highlight this difficulty and help determine a solution (Sustainable Measures, 2005). Gallopín (1997) states that the most important feature of an indicator is its relevance to

policy and decision-making when compared to other information. *'Desirable indicators are variables that summarise or otherwise simplify relevant information, make visible or perceptible phenomena of interest, and quantify, measure, and communicate relevant information'* (Gallopín, 1997, p. 15). Miller & Twining-Ward (2005, p. 108) re-iterate this stating that while *'statistics provide raw data with no meaning attached, indicators (of sustainable development) provide meaning that extends beyond the attributes directly associated with the data'*.

Gallopín (1997) sees indicators as serving five major functions:

- Assessing conditions and trends;
- Comparing places and situations;
- Assessing conditions and trends in relation to goals and targets;
- Providing early warning information;
- Anticipating future conditions and trends.

The United Nations Department of Economic and Social Affairs (UNDESA, 2004) in chapter 40 of Agenda 21 sets out the need for indicators to increase focus on sustainable development, to assist decision-makers at all levels to adopt sound national sustainable development policies. In a guidelines and methodology document published by the UN (2001) the multiple roles ISDs are laid out:

- Indicators translate physical and social science knowledge into manageable units of information which can facilitate the decision-making process;
- Indicators help measure process towards the goals of sustainable development;
- Indicators serve as early warning signals to alert to potential economic, social and environmental damage;
- Indicators serve as important communication tools.

4.4 Historical Origins of Indicators

Miller & Twining-Ward (2005) suggest that the concept of monitoring is an age-old phenomenon, referring to the census taken by the Romans to assist in tax collection. However, as populations rose and countries developed, accurate collection of information was more difficult to obtain, hence the growth in usage and subsequent reliance on indicators as proxies for actual phenomena. In 1924, the U.S Congress under the direction of President Hoover, appointed a sociologist; William Ogburn as

Director of the Research Committee on Social Trends (Rossi and Gilmartin, 1980). The aim of Ogburn's work was to assess where social stresses were occurring and where the major efforts should be taken to deal with them constructively (Carley, 1981). Ogburn's committee investigated 32 indicators annually and published reports that went far beyond economic performance that examined socio-cultural and human welfare issues. The slump in the American economy in the 1930s doomed the fate of the Committee on Social Trends.

Monitoring indicators of economic change and performance re-emerged in the 1960s. Using economic ratios of GNP and GDP, while informing governments of a country's wealth and economic well-being also highlighted their shortcomings, as these ratios offer little in terms of societal information (Miller & Twining-Ward, 2005, Sirakaya *et al*, 2001, Hart, 1999, Gross, 1966, Carley, 1981). Henderson (1999) provides the following comparison *'trying to run a complex society on a single indictor like GNP is ... like trying to fly a 747 with only one gauge on the instrument panel'*. Measuring GNP is considered to over-emphasise economic and monetary issues and conversely is not seen as a comprehensive or holistic measurement of society at large. During the 1960s dissatisfaction grew among researchers and government decision-makers with the amount, or lack of, available social information and its quality (Sirakaya *et al*, 2001). Calls were duly made for the monitoring of factors, other than economic factors, which could inform decision-makers about societal issues i.e. social indicators (Miller & Twining-Ward, 2005, Sirakaya *et al*, 2001, Hart, 1999, Carley, 1981). It was envisaged that social indicators would monitor quality of life issues and social change (Carley, 1981), from 1966 the term 'social indicator' came into common use (Sirakaya *et al*, 2001). From the outset, it was understood that social indicators needed to be developed alongside traditional economic measures, rather than attempting to replace economic indicators entirely (Miller & Twining-Ward, 2005).

During the late 1960s and 1970s, concerns were aired about environmental degradation and damage, thus calling for the inclusion of environmental indicators in indicator sets. In 1989, OECD called for further work in an attempt to integrate environmental and economic indicators in decision-making (OECD, 1993). The work conducted by the OECD on environmental indicators has been instrumental in developing conceptual frameworks on ISDs such as the Pressure-State-Response (PSR) Framework. The Rio

Earth Summit in 1992 heralded a new era in indicator development with the emergence of Agenda 21.

4.5 Sustainable Development and Indicators

Since the Rio Earth Summit in 1992, the growth in indicator generation, implementation and monitoring has been monumental. The principle reason attributed is that indicators are now seen by many as a core element in operationalising sustainability (Bell & Morse, 1999).

4.5.1 Agenda 21 and Indicators of sustainable development

Pintér *et al* (2005) state that indicators have an integral role to play in good governance; however, it was not until the early 1990s that the sustainable indicator "movement" took off when sustainable development became an integral consideration in policy-making. Agenda 21 is an international document for the attainment of sustainable development and a culmination of negotiations that took place primarily at the Rio Earth Summit (1992) and subsequently at the *Johannesburg Summit* (2002). Agenda 21 places considerable importance on the need to monitor sustainable development using indicators (Miller & Twining-Ward, 2005). Chapter 40 of Agenda 21 calls on all countries and the international community to develop indicators of sustainable development (UN, 2007). The UNDESA (2006) reaffirms Bell & Morse's opinion stating that ISDs are important tools to both increase focus on sustainable development and help decision-makers adopt sound sustainable policies at all levels.

Chapter 40 of Agenda 21 is considerable, containing no less than 30 articles, and is dedicated to the ISD process and the role that indicators can and will play in sustainable development. Article one of Chapter 40 calls for information for decision-making. This article makes the point that *'in sustainable development, everyone is a user and provider of information'* and that *'the need for information arises at all levels, from that of senior decision maker at the national and international levels to the grass-roots and individual levels'* (UNDESA, 2004). The article immediately alludes to two key unique characteristics of indicators; firstly, the need for information and secondly, the role that information can provide to stakeholders at all levels of governance and decision-making. Article one concludes by outlining the two principal programmes to be implemented for indicator generation; firstly, "bridging the gap" between data that

already exists at different sectoral levels and secondly, "improving the availability of information", implying that the information gathered could and should be applied for the management of sustainable development.

Each of the two programmes will now be discussed in detail, as each contains a basis for action, objectives, activities and means of implementation. Chapter 40 is quite detailed in that it provides considerable theoretical guidance for the ISD process. The first programme area; "Bridging the data gap", acknowledges that while considerable data is already in existence, other and different types of data need to be collected at local, provincial, national and international levels, to indicate the status and trends of the planet's ecosystem, natural resources, pollution and socio-economic variables. This programme area also alludes to the information gap between developed and developing countries and calls for *'improved coordination among environmental, demographic, social and development data and information activities'* (UNDESA, 2004). This programme is also critical of commonly used indicators such as GNP and measurements of pollution levels/flows and states that *'indicators of sustainable development need to be developed to provide solid basis for decision-making at all levels and to contribute to a self-regulating sustainability of integrated environment and development systems'* (UNDESA, 2004).

The "bridging the data gap" programme sets out four objectives:

- To gather cost-effective and relevant data which should be determined by identifying the end users;
- To strengthen the capacity of all levels of governance to collect and use multi-sectoral information in the decision-making process, while enhancing their capabilities to collect data, especially in developing countries;
- To develop and/or strengthen all levels of government both in the developed and developing world to ensure that adequate planning for sustainable development is achieved based on a timely, reliable and useable information;
- To make relevant information accessible in a form and at a time when it is required for use. (adapted from UNDESA, 2004)

The objectives of the first programme will be achieved through six activities:

- Development of indicators of sustainable development: national and international governments and Non-Governmental Organisations (NGOs) are encouraged to develop ISDs in order to identify appropriate indicators.
- Promotion of global use of indicators of sustainable development: this will allow for the controlled and coordinated collection and transference of information for international usage.
- Improvement of data collection and use: this will entail both countries and NGOs carrying out inventories to discern gaps in data and take measures to fill these gaps.
- Improvement of methods of data assessment and analysis: this is perhaps the most critical aspect in the process of developing ISDs. This activity sets out that the *'relevant international organisations should develop practical recommendations for coordinated, harmonised collection and assessment of data at national and international levels'* (UNDESA, 2004). The UNDESA suggest establishing centres dedicated to continuous and accurate data collection and empathise that governments make use of technology to process the data into readable and understandable information.
- Establishment of a comprehensive information framework: this remains an ongoing difficulty, as many of the indicator frameworks to date look at specific dimensions for example the PSR or DPSIR frameworks which are traditionally considered environmental frameworks.
- Strengthening the capacity for traditional information: this activity calls on governments to provide local communities with the resources necessary to collect data at a local level which could support better decision-making at grassroots level.

The second goal of Chapter 40 of Agenda 21 is "improving the availability of information", which calls for the appropriate use of information at the required time and at the relevant scale of aggregation. This programme also refers to two increasing problems in developing countries: lack of managerial knowledge at decision-making level, and the inaccessibility of information when required. The second goal of Agenda 21 has three objectives:

- Strengthening existing national and international mechanisms to process and exchange data to ensure effective and equitable availability of information at all levels;
- To strengthen information handling and communication of information within countries, especially in developing countries;
- To make sure that developing countries fully participate in the ISD process.

The objectives of programme two will be achieved through five activities:

- Production of usable information for decision-making: this calls for special emphasis to be placed on transforming existing information into useful units for decision-making and targeting information to the specific end user groups, thereby making information more appropriate to planning and public knowledge.
- Establishment of standards and methods for handling information: this activity suggests that governments be responsible and support the efficient and harmonised exchange of information across different sectoral levels and country boundaries.
- Development of documentation about information: this activity calls for cross agency support, stating that the UN system and governments as well as the private sector and NGOs should share information on sustainable development.
- Establishment and strengthening of electronic networking capabilities: this activity encourages the exchange of ISD information electronically, including embracing forthcoming technologies that could enhance indicator development and dissemination.
- Making use of commercial sources: The UN suggests that governments take advantage of private commercial research companies to help fill gaps in data.

Chapter 40 of Agenda 21 is revolutionary because it calls on both developed and developing countries and the international community to develop ISDs. This is a lengthy article describing the criteria that ISDs need to meet. Three overriding themes of this document are: firstly, the need to develop indicators to increase the focus on sustainable development which as previously suggested is one method of making the concept of sustainable development more operational; secondly, indicators can assist decision-makers at all levels in adopting sound sustainable development policies and;

thirdly, the requirement that the developed world assist developing countries to develop ISDs.

4.5.2 Role of the United Nations and Indicators of Sustainable Development

Agenda 21 is a comprehensive plan of action to be taken globally; nationally and locally by organisations of the UN system in every aspect of Human life which impacts on the environment (UN, 2004). Agenda 21 and other environmental declarations (The Rio Declaration on Environment and Development, Statement of Principles of the Sustainable Management of Forests) were adopted by the UN and 178 governments at the *Rio Earth Summit* in 1992 (United Nations, 2004). Agenda 21 is essentially a blueprint for sustainable development and its adoption made sustainable development a universally accepted goal (Moldan & Billharz, 1997). In 1992, the UN set up a committee whose sole remit is achieving sustainable development; The United Nations Commission on Sustainable Development (CSD). The CSD's role is to ensure effective follow-up of the United Nations Conference on Environment and Development (UN, 2004).

4.5.3 Commission on Sustainable Development

The principal mandate of the CSD is to put into practice, and keep track of, the implementation of Agenda 21 by monitoring and reporting on progress achieved towards sustainable development. The United Nations Division for Sustainable Development prepared a specific work programme on indicators, which was then adopted by the CSD in 1995. This programme consisted of five principle objectives:

- Enhanced informational exchange among all interested actors;
- Development of methodology sheets which would be made available to governments;
- Training and capacity-building at regional and national levels;
- Testing the menu of indicators and monitoring experiences in three to four countries; and
- Monitoring and evaluating these indicators and making necessary adjustments'.

(UN, 2006)

At one of the first meetings of the CSD, many delegates insisted on the need for a set of standards to measure progress towards achieving sustainable development (Moldan &

Billharz, 1997). Indicators are a requirement from a general sense because they show whether policy-makers are on the right track and in what direction they are headed. In the specific context of the CSD, indicators are needed which can be used in all countries to enable sharing of information, in order to build a common basis for assessing progress achieved towards sustainability (Moldan & Billharz, 1997). During the first phase of the CSD's work (1995-1996) an initial set of indicators was drawn up consisting of 134 indicators across four dimensional categories; social; economic; environmental and institutional. These indicators were pilot tested in 12 different countries during the second phase of the CSD's work to develop guidelines for the implementation of the indicators. Following these pilot studies, a second set of ISDs was produced in 2000, having established during the pilot studies that most countries found the original set too large and unmanageable (UN, 2006).

Two previous editions of ISDs were published in 1996 and 2005; however, the CSD reviewed these, incorporating new thinking on indicators in addition to the Millennium Development Goal Indicators. To date (2007), the CSD has revised and finalised a third set of ISDs. This new set of indicators of sustainable development consists of 50 core indicators which are included in a larger set of 98 ISDs. The CSD feel that the third set of ISDs *'allows for a more comprehensive and differentiated assessment of sustainable development by countries'* (UN, 2007, p.1). The CSD has had a proactive role and been instrumental in encouraging work and developing ISDs.

> *'The focus of the CSD and its secretariat on indicators provided a very useful and timely forum for the discussion of national-level indicators with the involvement of governments, international organisations, and various stakeholders at a time when thinking on the role of indicators in sustainable development was immature and evolving'.* (UN, 2006)

It is the intention of the CSD that these indicators will serve as a reference to countries developing national ISDs (United Nations, 2007). These indicator sets cover social, environmental, economic, and institutional dimensions and incorporate common core indicators such as: equity; health; education; housing; freshwater; biodiversity as well as more specific sub-indicators such as ratio of average female wage to male wage, nutritional status of children and consumption of ozone depleting substances. The CSD also published their indicator sets and methodological data to serve as a reference for all countries developing their own national ISDs.

4.5.4 International Institute for Sustainable Development

Another organisation which has played a pioneering role in developing ISDs is the International Institute for Sustainable Development (IISD). This organisation was established in 1990 and is a Canadian-based not-for-profit organisation which operates in more than 30 countries (IISD, 2007). The IISD is a research institute promoting change towards sustainable development and is dedicated to effectively communicating its findings to governments and decision-makers in the pursuit of sustainable development.

The IISD with a group of international researchers and practitioners came together at a conference entitled *"The Principle of Sustainable Development Performance Measurement"* in November 1996 in Bellagio, Italy. The aim of this conference was to measure and assess progress achieved towards sustainable development and to synthesise insights from practical efforts. These objectives resulted in the *'Bellagio Principles: Guidelines for Practical Assessment of Progress Toward Sustainable Development'*, commonly known as the *"Bellagio Principles"* (Hardi, 1997; Bellagio Principles, 1996; IISD, 2007). Ten principles were selected to serve *'as guidelines for the whole of the assessment process including the choice and design of indicators, their interpretation, and communication of the result'* (Bellagio Principles, 1997). Instead of debating the choice of ideal indicators of sustainable development, the discussion oriented around more basic and pragmatic elements thus the principles that emerged are thought to provide a link between theory and practice (Bellagio Principles, 1997). The principles are designed to be used as a complete set and the indicators identified are interrelated. The principles are intended for use at all levels: community, non-government, corporation, national government and international institution.

Figure 4.1 outlines the ten Bellagio Principles which reinforce the concept of sustainable development and are not complicated to understand. According to Hardi (1997) the principles deal with four aspects of assessing progress achieved towards sustainable development. The first principle provides the starting point for any indicator assessment, establishing a vision for sustainable development that needs to be guided by clear goals. *'Any assessment of change needs a frame of reference to identify if change has taken place and to set a context for judging whether that change is good or bad'* (Bellagio Principles, 1997, p.11).

Principles two through to five deal with the practical aspects of indicator development and the content of indicators. A core element of the principles is that the indicators have an interdisciplinary and integrated approach representing a 'whole' (holistic) system which can evolve successfully in a changing dynamic environment. The principles demand a broad scope in terms of time, high representation in terms of human activities and also to encompass extensive physical boundaries. The principles note that indicator lists should not be exhaustive as new data is continuously emerging which can refocus and redirect assessment needs depending on the cause and effect relationships between different aspects of human life.

Principles six to eight deal with issues pertaining to the process of assessment. Communication is central to effective usage of indicators and the need to involve all the key stakeholders in decision-making is fundamental to sustainable development. Principles nine and ten deal with the necessity for continuous monitoring and assessment. The need for ongoing assessment is two-fold. First, there is a strategic need to monitor actions taken in order to determine future direction, secondly, to enhance knowledge.

Figure 4.1: The Bellagio Principles

1. GUIDING VISION AND GOALS

Assessment of progress toward sustainable development should:

- Be guided by a clear vision of sustainable development and goals that define that vision.

2. HOLISTIC GOALS

Assessment of progress toward sustainable development should:

- Include review of the whole system as well as its parts;
- Consider the well-being of social, ecological, and economic sub-systems, their state as well as the direction and rate of change of that state, of their component parts, and the interaction between parts;
- Consider both positive and negative consequences of human activity, in a way that reflects the costs and benefits for human and ecological systems, in monetary and non-monetary terms.

3. ESSENTIAL ELEMENTS

Assessment of progress toward sustainable development should:

- Consider equity and disparity within the current population and between present and future generations, dealing with such concerns as resource use, over-consumption and poverty, human rights, and access to services, as appropriate;
- Consider the ecological conditions on which life depends;
- Consider economic development and other, non-market activities that contribute to human/ social well-being.

4. ADEQUATE SCOPE

Assessment of progress toward sustainable development should:

- Adopt a time horizon long enough to capture both human and ecosystem time scales; thus responding to needs of future generations as well as those current to short term decision-making;
- Define the space of study large enough to include not only future conditions- where we want to go, where we could go.

5. PRACTICAL FOCUS

Assessment of progress toward sustainable development should be based on:

- An explicit set of categories or an organising framework that links vision and goals to indicators and assessment criteria;
- A limited number of key issues for analysis;
- A limited number of indicators or indicator combinations to provide a clearer signal of progress;
- Standardising measurement wherever possible to permit comparison;
- Comparing indicator values to targets, reference values, ranges, thresholds, or direction of trends, as appropriate.

6. OPENNESS

Assessment of progress toward sustainable development should:

- Make the methods and data that are used accessible to all;
- Make explicit all judgements, assumptions, and uncertainties in data and interpretations.

7. EFFECTIVE COMMUNICATION

Assessment of progress toward sustainable development should:

- Be designed to address the needs of the audience and set of users;
- Draw from indicators and other tools that are stimulating and serve to engage decision-makers;
- Aim, from the outset, for simplicity in structure and use of clear and plain language.

8. BROAD PARTICIPATION

Assessment of progress toward sustainable development should:

- Obtain broad representation of key grass-roots, professional, technical and social groups, including youth, women, and indigenous people- to ensure recognition of diverse and changing values;
- Ensure the participation of decision-makers to secure a firm link to adopted policies and resulting action.

9. ONGOING ASSESSMENT
Assessment of progress toward sustainable development should:

- Develop a capacity for repeated measurement to determine trends;
- Be iterative, adaptive, and responsive to change and uncertainty because systems are complex and change frequently;
- Adjust goals, frameworks, and indicators as new insights gained;
- Promote development of collective learning and feedback to decision-making.

10. INSITUTIONAL CAPACITY
Assessment of progress toward sustainable development should:

- Clearly assigning responsibility and providing ongoing support in the decision-making process;
- Providing institutional capacity for data collection, maintenance, and documentation;
- Supporting development of local assessment capacity.

Source: Bellagio Principles, 1997

4.6 Characteristics of Effective Indicators of Sustainable Development

An indicator highlights an issue or condition and should point out how well a system is working. There are four common characteristics of effective indicators according to Sustainable Measures (2005); firstly, effective indicators need to be relevant, this means the indicator should fit the purpose of what it is measuring. Secondly, effective indicators must be easy to understand, even by non-experts, if politicians and policy-makers are expected to make decisions for sustainable development, they need to understand the information presented to them. Thirdly, effective indicators must be reliable, an indicator must give decision-makers a clear and true picture. Finally, indicators must be based on accessible and timely data implying that the information is available and decision-makers are given this information while there is still time to act. Sustainable Measures (2005) alludes to one of the biggest difficulties with the generation of ISDs, that often the best indicators are those for which no data is available, while the indicators for which there is data are the least apt to measure sustainability. This can lead to over reliance on traditional quantitative indicators, and some academics would argue this manifests itself as an over dependence on economic indicators, thus neglecting other aspects of human life.

Seven desirable or universal requirements that indicators should have from a practical point of view are summarised:

- The values of the indicators must be measurable, if not measurable at least observable;
- Data should be already available or obtainable;

- The methodology used for data gathering, processing and constructing must be clear, transparent and standardised;
- The means for building indicators and their monitoring should be available and supported;
- The gathering of indicators and indicator sets should be cost-effective;
- The indicators should be accepted by policy and decision-makers;
- The support and participation of the public and local community in developing indicators is highly desirable. (adapted from Gallopín, 1997)

Gallopín (1997) derived these characteristics from various authors' work (Adriaanse, 1993, OECD, 1993 and Turnstall, 1994).

4.7 Criteria for Selecting Indicators

Certain criteria is suggested for selecting indicators. Butler (2006) recommends that indicators should relate to stated policy objectives, have clear interpretation and be understandable to non-scientists and non-experts. In 1993, the OECD established the following criteria for selecting (environmental) indicators. Although, the criteria set out was originally intended for selecting environmental indicators, the process has been applied to other indicators. The criteria has three core areas; firstly, policy relevance and utility for users, secondly; analytical soundness and finally, measurability (see figure 4.2). The first two areas relate to what an (environmental) indicator should be and the third area relates to data required to support the indicator. The OECD acknowledges that an indicator fulfilling all the criteria would be ideal but understand this may not be so in practice.

Figure 4.2: Criteria for Indicator Selection

Policy relevance and utility for users

An environmental indicator should:

- Provide a **representative picture** of environmental conditions, pressures on the environment or society's responses;
- Be simple, **easy to interpret** and able to show **trends over time**;
- Be **responsive to changes** in the environment and related human activities;
- Provide a basis for **international comparisons**;
- Be either **national in scope** or applicable to regional environmental issues of national significance;
- Have a **threshold or reference value** against which to compare it so that users are able to assess the significance of the values associated with it.

Analytical Soundness

An environmental indicator should:

- Be theoretically **well founded** in technical and scientific terms;
- Be based on international standards and **international consensus** about its validity;
- Lend itself to being linked to economic models, forecasting and information systems.

Measurability

The data required to support the indicator should be:

- Readily available or made available **at a reasonable cost/benefit** ratio;
- Adequately **documented** and of **known quality;**
- **Updated** at regular intervals in accordance with reliable procedures.

Source: OECD, 1993

The UN suggest that indicators of sustainable development should be developed *'through dynamic interactive processes and dialogues among a wide range of stakeholders, including government representatives, technical experts and civil society representatives'* (UNDESA, 2006, p.4). Harger and Meyer (1996) feel that the following criteria should be considered when developing ISDs:

- Simplicity: the final set of indicators should be accessible to all users and be simple and easy to understand;
- Scope: the indicators selected should cover a wide spectrum of issues covering such aspects as environment, economy and society;
- Quantification: indicators should be based on data that is readily available;
- Assessment: the indicators selected should be capable of being monitored to establish temporal changes and changing conditions;
- Sensitivity: the indicators selected need to be reflective of the human aspects they are representing;
- Timeliness: the indicators selected should identify negative trends in time for corrective action to be taken.

Many of the criteria put forward for selecting and developing indicators, from various sources correlate and re-iterate each other. This suggests a degree of uniformity with regard to the criteria indicators are expected to fill.

In relation to ISDs, the CSD has outlined the following criteria for selecting indicators to be included in the Driving Force-State-Response (DSR) framework. Although similar to criteria set out by other organisations, these criteria address the relevance of indicators to Agenda 21 and sustainable development (Mortensen, 1997). The following criteria have been put forward by the CSD:

- Indicators must be primarily national in scale and should be selected on their ability to monitor progress towards sustainable development at national level;
- Relevant to the main objective of assessing progress towards sustainable development;
- Understandable, clear, simple and unambiguous;
- Realisable within the capacities of national governments, given logistic, time, technical and other constraints.

When interpreting these four criteria, it means that the indicators selected should be understood and useful to decision-makers at national level and be conceptually well founded, while also limited in number, remaining open-ended and adaptable to future developments.

Mortensen (1997, p.48) sees limiting the number of indicators as important to ensure that the indicators provide direction on only the main aspects of sustainable development rather than on all possible aspects of sustainable development. Indicators should be:

- Relevant to agenda 21 and covering broadly all aspects of sustainable development;
- Representative of international consensus, to the greatest extent possible;
- Dependent on data that is readily available or available at a reasonable cost to benefit ratio, adequately documented, of well known quality, and updated at regular intervals.

4.8 Users of Indicators

There has been a remarkable expansion in the development of indicators in the past ten years in both developed and to a lesser extent in developing countries (Miller & Twinning-Ward, 2005, Pintér *et al*, 2005). Gallopín (1997) recognises that users of indicators vary across societal, environmental and economic dimensions. He also states that the users vary on scale from global or international right down to local level but argues that most indicators are developed for use at national level. Countries are urged to develop indicators at sub-national level to monitor trends at local and community level with sustainable development indicators *'seen as useful in a wide number of settings, by a wide range of actors: international and intergovernmental bodies; national governments and government departments; economic sectors; administrators of geographic or ecological regions; communities; non-governmental organisations; and the private sector'* (Pintér *et al*, 2005, p. 2).

Pintér *et al* (2005, p.3) argue that while sustainability indictors have grown in prominence and popularity, *'their effectiveness in influencing actual policy and practices has often remained limited'*. The IISD concur with this statement, reinforcing the potential for indicators to play a greater role in articulating and tracking progress towards sustainability in a wide range of settings.

4.9 Indicator Frameworks

As Gallopín (1997) correctly pointed out sustainable development embraces many different issues and dimensions, therefore organising different indicators relevant to sustainable development requires a framework. Conceptual frameworks for indicators can help identify, clarify and develop what to measure and what to expect from indicators. This process can also serve as a communication vehicle (Gallopín, 1997; UNDESA, 2006). The Ghent workshop[2] concluded that indicator frameworks are important because:

> *'Indicator frameworks, organising individual indicators or indicator sets, in a coherent manner, have several additional uses. They can guide the overall data and information collecting process. They are useful communication tools to decision-makers, summarising key information derived from many different sectors. They suggest logical groupings for related sets of information, promoting their interpretation and integration. They can help to identify*

[2] GHENT Workshop was held in 1995 in Belgium to investigate the role of indicators of sustainable development.

> *important issues for which adequate information is lacking, thus identifying data collection needs. Finally, indicator frameworks can help to spread reporting burdens, by structuring the information collection, analysis and reporting process across the many issues and areas that pertain to sustainable development'.* (UNEP-DPCSD/Ghent Report, 1995, p.6)

Several different indicator frameworks exist. The UN state that

> *'the main differences among frameworks are the way in which they conceptualise the key dimensions of sustainable development, the interlinkages among these dimensions, the way they group the issues to be measured, and the concepts by which they justify the selection and aggregation of indicators'.* (UN, 2006, p.5)

The following section examines a number of indicator frameworks in more detail.

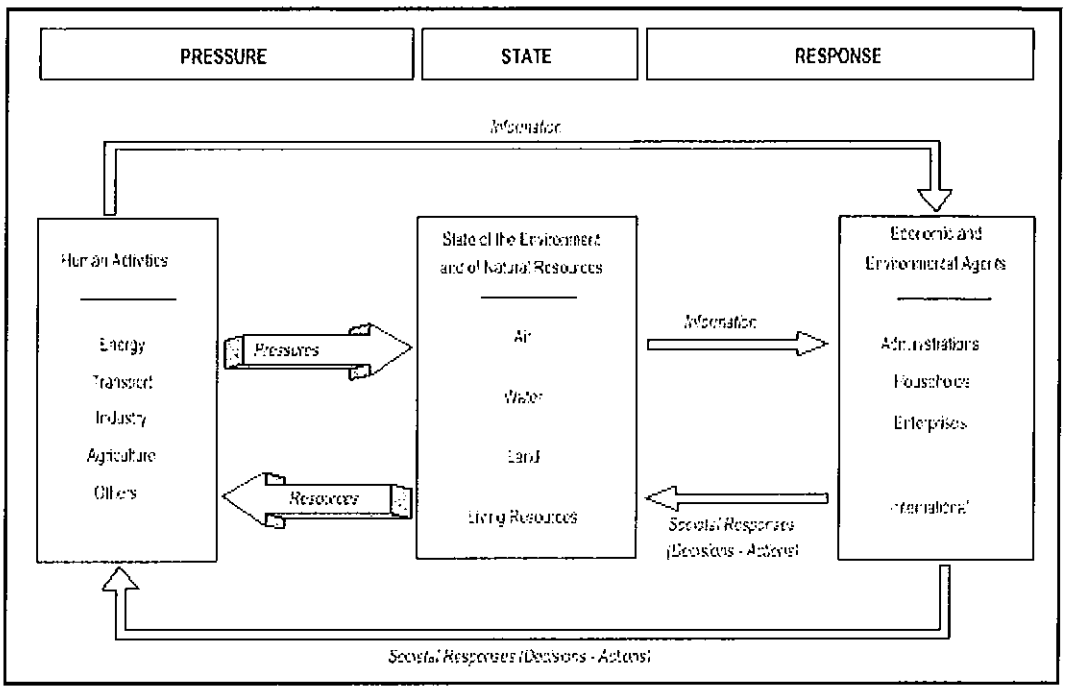
4.9.1 Issue or theme based indicators

This is the most widely used type of indicator framework especially at national level (UN 2006). It was previously used by the CSD. There are three types of issue based indicator frameworks; Pressure-State Response (PSR) Framework; Driving force-State-Response (DSR) framework and the Driving Force-Pressure-State-Impact-Response (DPSIR) framework.

The Pressure-State-Response (PSR) Framework

The PSR framework is based on the concept of causality (OECD, 1993; OECD, 2003). In the original PSR framework, developed by the OECD, human activities exert a 'pressure' on the environment and change its quality and the quantity of the natural resources, the 'state'. Society responds to these changes through environmental, economic and sectoral policies; the 'response'. The latter forms a feedback loop to the 'pressures' (OECD, 1993; OECD, 2003). Figure 4.3 details the PSR Framework. Within the PSR Framework three broad types of indicators can be distinguished, indicators of environmental change corresponding to the 'pressure' box, secondly indicators of environmental conditions relating to the 'state' of the natural resources. Finally, in the 'response' section, indicators of societal responses demonstrate to what degree society is responding to these environmental changes.

Figure 4.3: The PSR Framework



Source: OECD, 1993

The Driving Force-State-Response (DSR) Framework

The DSR Framework is based on the PSR Framework, developed by the OECD and adopted by the CSD as a tool for organising information on sustainable development and for developing, presenting and analysing indicators of sustainable development (Mortensen, 1997). The CSD replaced 'pressure' with 'driving force' in an effort to accommodate more accurately the addition of social, economic and institutional indicators (Gallopín, 1997) and it was duly named the DSR framework (Mortensen, 1997). This revised framework is more inclusive of the multiple dimensions of sustainable development, and is not solely based on indicators of environmental change. In this framework, 'driving forces' represent human activities, processes and patterns that have an impact on sustainable development; an example includes population growth (Mortensen, 1997). The 'state' provide an indication of the state of sustainable development at a given point in time, for example school life expectancy gives an indication of the state of education achieved. The 'response' signify the responses to changes in the 'state' of sustainable development, for example, whether society is willing and effective in responding to adverse changes through policy implementation or regulation (Mortensen, 1997).

The CSD prepared methodology sheets to accompany the DSR framework to guide national governments. This framework was adopted by the CSD because it has the advantage of being simple and easy to understand for decision-makers and covers the core themes of sustainable development. *'A major advantage of the DSR framework is that it organises information on sustainable development systematically in a way that guides the user of the framework and the indicators through all aspects of sustainable development'* ensuring that social, economic, environmental and institutional aspects are included in the framework (Mortensen, 1997, p.49).

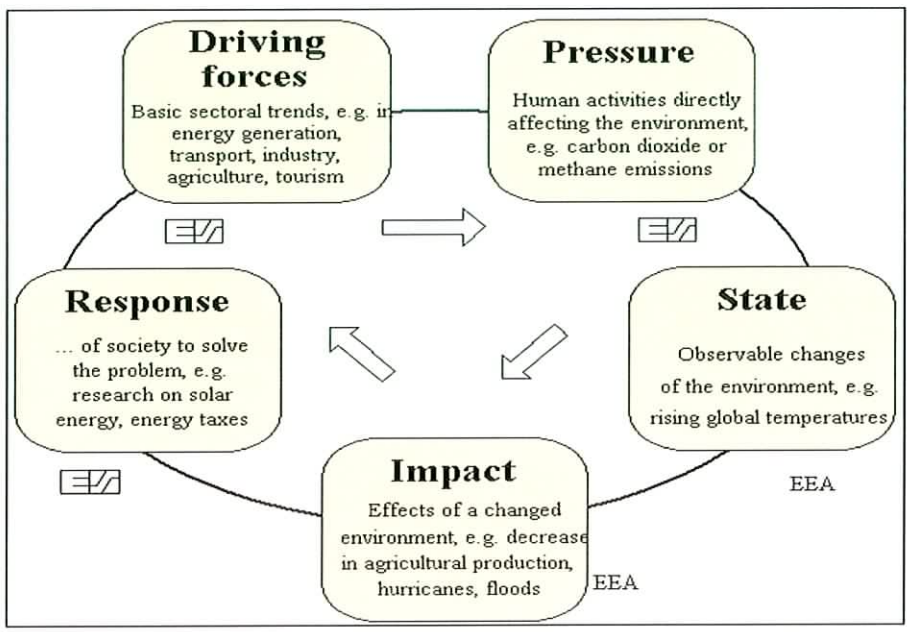
Driving Force- Pressure- State-Impact-Response (DPSIR) framework

The DPSIR framework was developed by the European Environmental Protection Agency as an extension of the PSR framework (EPA, 1999). Most national and international governments and environmental organisations base their work on indicators on this framework or a variation of it (Sweeney *et al*, 2000). The DPSIR framework is illustrated in figure 4.4.

The 'drivers' relate to indicators of either social, demographic or economic developments which exert a 'pressure' which in turn changes the 'state' of the environment (Sweeney *et al*, 2000). The 'state' of environmental change 'impacts' to some degree on human life which in turn encourages governmental or regulatory responses that feed into the 'driving forces' or impact directly the 'pressures' or 'states' through adaptation or curative action.

This framework has been criticised for simplifying complex interrelated dimensions without taking inter-linkages into account, a similar criticism is aired about the PSR framework, however, they do fulfil the criteria for selecting indicators which was identified in the previous section.

Figure 4.4: DPSIR Framework



Source: EEA, 1999

4.9.2 Capital Frameworks

Capital frameworks are being used increasingly by national and international governments as these frameworks identify and organise indicators along capital dimensions. Capital indicators, such as financial, environmental, social, institutional or natural environment link directly to concepts of sustainable development, thus in theory making these indicators readily measurable in terms of sustainable development (UN, 2006).

4.9.3 Headline Indicators

Headline indicators can be described as core sets of indicators linked to policy priorities. '*These short sets provide signals to high-level policy-makers and to the general public, thereby raising the profile of priority policy issues and in particular providing early warning about imminent trends*' (UN, 2006, p.5). Headline indicators are often supplemented by a larger set of indicators. The popularity of core indicators lies in the fact that a smaller number of indicators are easier to understand, implement and track when examining achievement gained towards policy goals. Some policy-makers feel that long, exhaustive lists of comprehensive indicators can mean that priority issues are not focused on and lost in the mêlée (UNDESA, 2006). However, there is a danger that core or headline indicators are more susceptible to political hijacking and electioneering.

4.9.4 Aggregate Indices

Aggregate indices have gained prominence on an international basis as theoretically they offer greater opportunities of cross comparability amongst countries. However, the UNDESA (2006, p.5) point out that *'most of these indices have not been accepted for actual decision-making due to a lack of consensus on measurement, weighting and indicator selection'*.

4.10 Indicator Considerations

Developing indicators to measure progress achieved towards sustainable development is no mean feat and several features need to be considered at the outset in order to determine the applicability and verity of the indicators selected for use. As Dahl (1997, p. 70) points out *'the challenge in developing indicators of the big picture of sustainability is to find simple ways of presenting the idea, despite the complexity and uncertainty'* without losing any critical information. The researcher will now examine a number of challenges facing ISDs.

4.10.1 Future challenges to Indicator development

The IISD (2005) recognises three major challenges that need to be tackled to realise the full potential of indicators. The IISD call for the integration of indicator sets with mainstream policy instead of being an 'add-on'. They call for less lip-service and more pragmatic action. Secondly, the IISD insist that the uncertainties and debates about what need to be measured and how to measure them from a methodological perspective needs to be addressed. In addition, comparable international standards need to be put in place. The third challenge relates technical difficulties, more specifically data collection, gathering and generation as well as the deeper problems of lack of long-term commitment and monitoring mechanisms.

4.10.2 Quantitative vs. Qualitative Indicators

Considerable debate exists as to whether indicators should be either quantitative or qualitative in measurement. Gallopín (1997, p.17) noted that *'most definitions of environmental or sustainable development indicators rule out the possibility of qualitative indicators, by restricting the concept to numerical variables, either explicitly or implicitly'*. The premise behind this is that a function of indicators is to measure or

quantify. However, Gallopín (1997) and subsequent authors state that in principle an indicator could be a qualitative (nominal) variable, a rank (ordinal) variable or a quantitative variable. In practice, quantitative indicators are more favourably regarded as decision-makers prefer to base their policy on concrete data.

Gallopín (1997) points out that there are three instances where qualitative indicators may be preferable to quantitative indicators, firstly, when no quantitative information is available, when the variable to be measured is non-quantifiable and when cost is the determinant for gathering the information.

4.10.3 Value Judgements or Weighting of indicators

The term 'value' has two common meanings relevant to indicators, first, the 'relative, worth, utility or importance' of the indicator itself, in terms of what it is monitoring, and secondly, how important it is or what is the state of the variable in comparison to other indicators within the same context (Gallopín, 1997). The 'state' in this instance refers to the weigh or emphasis that is placed on this indicator in the decision-making process. This 'state' can be assigned through several means for example; observation, measurement, calculation, inference or designation (Gallopín, 1997). In some cases, policy-makers want the variable sets to be reduced to one composite indicator or alternatively that the indicator lists are set out with weighting assigned in terms of importance. For these reasons, Gallopín (1997) warns that it is important to acknowledge that any indicator set is inevitably biased to some extent in terms of the emphasis placed on the indicators.

Dahl (1995, 1996) views the concept of sustainability in a dynamic system, such as human society, as a concept of balance maintained over time and sees indicators of sustainable development being parallel to indicators of unsustainable pressures and impacts or measures of imbalances. Based on this premise, Dahl (1997, p.79) advocates that indicators *'be ranged on a non-linear scale, where more extreme problems or larger deviations from the desirable level carry more weight than small deviations'*. These variables then become indicators of "unsustainability", which indicate the most damaging variables which require immediate responses from policy-makers.

4.10.4 Aggregation of Indicators

Certain authors and organisations (Ott, 1978; Hammond *et al*, 1995; The World Bank, 1995) find it more useful to develop indicators by aggregating lower-level data. Gallopín (1997) feels that making aggregation a requirement limits and restricts usage of potential indicators.

> *'Hierarchical systems theories show that different indicators ....of performance are usually required at different levels of the system (as well as by different levels in the hierarchy of users), and aggregation across levels is not always possible or meaningful'.* (Gallopín, 1997, p. 17)

Morrey (1997) notes that if the overall number of indicators needs to be reduced then a high level of aggregation is required, yet he warns that in so doing some of the important underlying trends may be lost or masked. Gallopín (1997) suggests instead of aggregating indicators that research should be conducted based on the needs of the end users of the indicators and also based on which indicators are deemed appropriate at different levels or scales.

4.10.5 The need to address inter-linkages

Each aspect of human activity is dependent on another; for instance, tourism depends on the natural environment and culture amongst others. Therefore, indicators must be developed that take the problems of complex interlinkages associated with sustainable development into consideration otherwise a true picture will not emerge, possibly comprising the ability of policy makers to plan for wise development. In 1997, Gallopín (p.18) called for a *'move beyond the usual, more or less exhaustive, lists of individual indicators to integrated or interlinked sets of indicators'*. He noted that developing integrated indicator sets would be especially beneficial for early warning or forecasting indicators.

4.10.6 Stakeholder participation

Dahl (1997) highlights difficulties in aggregating and weighting indicators and suggests that having the widest possible process of consultation and participation when designing the measures, the reasons for use and interpretation can alleviate these difficulties to a certain degree. Involving many stakeholders can truly reflect the consensus of society and the people most concerned, rather than imposing the view of external agencies.

Morrey (1997) suggests that by involving many stakeholders, indicators need not only be understood but must have relevance so that the stakeholders feel they, personally, have a part to play in changing an unsustainable trend. For this to be achieved, indicators must be presented in a manner that is understandable to the average person.

4.10.7 Planning and Indicators

The overriding function of indicators of sustainable development is providing policy and decision-makers with the information to take measured actions towards wise planning and development that will ultimately lead to sustainable development. Yet, it is noted that despite the increasing popularity of indicators their effectiveness in influencing policy and practices remains somewhat limited.

> *'The gap between the large potential but smaller actual influences of sustainable development indicators on more mainstream adoption of sustainable policies and practices suggests there is a latent potential for indicators to play a stronger role in articulating and tracking progress towards sustainability visions in a wide range of settings'.* (Pintér et al, 2005, p.3)

4.10.8 Monitoring and Indicators

The IISD (2005) in a document entitled *Proposals for the Way Forward* (for sustainable development indicators) stressed the importance of promoting periodic evaluations of ISDs for two specific reasons: firstly; to deal with emerging priorities and ideas and secondly; to strengthen the credibility of indicators. Bakkes *et al* (1994) recommend a three-phase approach to decision-making; problem identification, policy development and control. Control in this instance relates to the ongoing monitoring of policy. Moldan (1997) expands the original model to five-stages: problem identification; public awareness raising; formulation of policies; policy implementation; and policy evaluation. Again, evaluation is the final consideration included. The premise behind developing indicators as a measuring stick or as a benchmark is to track progress achieved towards sustainable development and as an aid for decision-making which implies that constant monitoring and evaluation is a prerequisite to ensure its functionality and usability.

4.11 Conclusion

The adoption of Agenda 21 made sustainable development a universally accepted goal (Moldan & Billharz, 1997) yet to put sustainability into practice and keep track of its implementation, indicators are needed. Indicators are measuring sticks, units by which to distinguish relativity and proximity. Moldan & Billharz (1997) stress that indicators need to be broad enough to encompass aspects of human activity which affect sustainable development such as economic, social, environmental, cultural and institutional dimensions aspects as well as other aspects which may come to the fore in the future. Indicators must also be comprehensive enough to take into account the stresses and impacts of human activities on the environment and how these relate to sustainable development. The use of indicators is far-reaching and can lead to "wise growth" and for these reasons, developing indicators is seen as the bedrock of sustainability. Indicators clearly show whether action is on the right track and in what direction it is headed.

The fundamental goal of sustainable development is to safeguard the world's resources for use in the present and future generations. This is a highly challenging and altruistic goal given today's rate of consumption especially in the developed world. In the next chapter, the researcher will elaborate on the indicators of sustainable development specifically within the field of tourism.

Chapter Five

Indicators of Sustainable Development For Tourism

CHAPTER FIVE: INDICATORS OF SUSTAINABLE DEVELOPMENT FOR TOURISM

5.1 Introduction

Tourism is a major sector of the world economy and is regarded as a global engine of development. Each year, increasing numbers of people travel. Tourism can be a positive force, with good planning and management but if poorly managed, the industry can be an engine for degradation. It is clearly in the interest of the tourism industry to maintain and sustain the basis for its prosperity; the destinations tourists visit.

The tourism industry grew enormously in the last century culminating in the advent of mass tourism in the 1960s. The economic benefits of the tourism industry are felt globally at all levels of society from national governments to remote villages and local communities. Tourism revenue in Ireland alone for 2006 accounted for 3.7 % of the GNP, totalling €6 billion (Fáilte Ireland, 2006).

More recently, however, the negative impacts of tourism have been acknowledged such as environmental degradation, social and cultural change, and economic instability, as already outlined in chapter 3. The recognition of the negative effects of tourism coincided with the concept of sustainable development; both factors have fuelled research into sustainable tourism development. It is recognised that the tourism industry can make an important contribution to achieving the objectives of sustainable development. The tourism industry has been using performance indicators to monitor the economic well-being of a destination (Miller & Twining-Ward, 2005). But by embracing the holistic concept of sustainable development, the industry needs to examine other aspects, thus, there has been a call for the development of indicators of sustainable development for tourism. Indicators, in this respect, are seen as effective means of quantifying, qualifying and measuring how well the tourism sector is succeeding in making the industry more sustainable.

The concept of sustainable development, as put forward in Brundtland Report, is the accepted means to provide for development whilst safeguarding the planet's resources for present and future generations. The concept of sustainable development has impacted greatly on thinking within the field of tourism. The tourism industry more

than any other international activity involves a critical interplay among economic, political, environmental and social elements (Lea, 1988). As evidenced in chapter 3, sustainable tourism development offers a solution to the negatively impacting effects of tourism on the world's ecological, social, cultural and economic environment. The UNWTO (2004) advocate the applicability of sustainable development to the tourism industry:

> *'With an effective means of understanding both the limits and opportunities afforded by the environment for tourism, and by providing a way to measure the effects of its actions, the tourism industry can best assure its viability. As such, properly planned tourism development, combined with protection of the environment, produces the concept of sustainable tourism'.* (WTO, 1996, p.8)

Indicators have been proposed as the key building blocks for sustainable tourism development and on a practical level are seen as tools which can respond to the issues most important to tourism destinations. Indicators are integral in planning for tourism in the future.

> *'Sustainable tourism development requires the informed participation of all relevant stakeholders, as well as strong political leadership to ensure wide participation and consensus building. Achieving sustainable tourism is a continuous process and it requires constant monitoring of impacts, introducing the necessary preventive and/or corrective measures whenever necessary. Sustainable tourism should also maintain a high level of tourist satisfaction and ensure a meaningful experience to the tourists, raising their awareness about sustainability issues and promoting sustainable tourism amongst them'.*
>
> (UNWTO, 2004, p.7)

It should be stated from the outset of this chapter, that the author has relied extensively on research conducted by the UNWTO on indicators of sustainable development for tourism as the organisation have been the instigators in this field of research. The UNWTO have refined earlier studies on indicators of sustainable development for tourism by examining international best practices, sponsoring pilot studies and holding workshops involving leading academics and consultants in the field (Manning, 1999).

5.2 The United Nations World Tourism Organisation and Indicators for Sustainable Development of Tourism

Farsari & Prastacos (n.d.) acknowledge that indicators for sustainable tourism were a relatively new field of research and interest prior to 1992, when the UNWTO began undertaking work in the area. The UNWTO was the first international organisation to develop and use indicators as an instrument to monitor and measure sustainable tourism

(Miller & Twining-Ward, 2005, Manning, 1999). The UNWTO since 1993 has set up sustainable tourism monitoring projects in different parts of the world and has become an important point of reference for any project involving indicators of sustainable tourism development. Thus, their role has been pioneering while grounded in practical considerations.

In response the Brundtland Report and the Rio Earth Summit, a task force was set up in 1993 by the UNWTO which sought to develop indicators to help concerned managers, regulators and communities better understand the tourism industry and identify emerging problems which could act as early warning triggers for future difficulties (Manning, 1999). The initial results of the taskforce were published in a report entitled '*Indicators for the Sustainable Management of Tourism*' which discussed the need for indicators, proposed a preliminary set of indicators and a framework for selection (Miller & Twining-Ward, 2005). According to Manning (1999) this task force immediately hit a stumbling block as different perceptions emerged as to what a "good" set of indicators was. Some scientists suggested using hundreds of indicators while others suggested having one numeric composite. The users, it should be remembered require a simple and timely set of actionable indicators. Thus, the task force quickly realised that there is no "ideal" of set of indicators and came to the conclusion that the indicators had be defined in terms of serving the end users and the attributes of the destination.

The UNWTO has published two sets of guidebooks detailing their research on indicators of sustainable tourism. The first was published in 1996 entitled, '*What Tourism Managers Need to Know: a Practical Guide to the Development and Use of Indicators of Sustainable Tourism*'. This guide was designed to provide information for managers and administrators of the tourism industry on indicators of sustainable development for tourism. The guide underlined the inter-linkages that exist between tourism and other facades of life, namely, including the natural and socio-cultural environment as well as economic factors.

The most recent publication by the UNWTO on sustainable tourism indicators, dates from 2004; *Indicators of Sustainable Development for Tourism Destinations; a Guidebook*. This guidebook is the most comprehensive work to date on indicators of

sustainable development for tourism and is culmination of previous work conducted by the UNWTO. The latest guidebook *'focuses on the use of indicators as a central instrument for improved planning and management, bringing managers the information they need, when it is required, and in a form which will empower better decisions'* (UNWTO, 2004, p. i). It should be stated that the UNWTO remain the principle authority on indicators of sustainable development for tourism and much of the discussion in this chapter centres on their premises.

5.3 Definition of Indicators of Sustainable Development for Tourism

An indicator should point out a particular issue or condition so that the relevant authorities can work towards rectifying the origin of the problem. The role of indicators of sustainable development for tourism is to provide information which decision-makers can use to avoid or reduce chances of taking poor decisions at tourist destinations (UNWTO, 1996). Indicators for sustainable tourism development are defined as:

> *'measures of the existence or severity of current issues, signals of upcoming situations or problems, measures of risk and potential need for action, and means to identify and measure the results of our actions. Indicators are information sets which are formally selected to be used on a regular basis to measure changes that are of importance for tourism development and management'.* (UNWTO, 2004, p.8)

As identified in chapter 3, the tourism industry depends greatly on other sectors of society.

> *'Indicators of sustainability for tourism differ from traditional development indicators because they take into consideration the web of complex interrelationships and interdependences of resources and stakeholders in the tourism system'.* (Sirakaya *et al*, 2001, p. 418)

Miller (2001, p.361) acknowledges that *'although it seems paradoxical to develop indicators for sustainable tourism when no satisfactory definition of the concept exists, the process of developing the indicators does help in determining the important tenets of the concept'*. Indicators of sustainable development for tourism are seen in this regard as building blocks for the sustainable development of a tourism destination.

5.4 Why use indicators?

There is a growing consensus that many traditional tourism destination management practices have resulted in undesirable environmental, social and cultural impacts. Some

of these negative impacts threaten to undermine the viability of the local tourism industry thus, reducing prospects for the industry's future prosperity.

> *'The development and use of indicators is increasingly viewed as a fundamental part of overall destination planning and management, and an integral element in efforts to promote sustainable development for the tourism sector at all scales. The stimulus for the tourism sector comes from the perception that many destinations have been at risk due to insufficient attention to the impacts of tourism and to the long-term sustainability of destinations'.*
>
> (UNWTO, 2004, p. 9)

The guiding vision for the usage of indicators of tourism sustainability is *'part of a more holistic approach to the planning and management of tourism destinations'* (Manning, 1999, p.181). Ultimately the identification and inclusion of indicators in planning and monitoring will lead to the destination being managed more sustainably. The UNWTO (1996, p. ii) suggest that *'indicators provide the information necessary to understand better tourism's links with, and impacts on, the natural and cultural environments within which the industry operates, and on which it largely depends'*. The organisation states that the primary reason for developing and monitoring indicators is to identify the cause and effect relationship between tourism and the environment in which it operates.

The UNWTO (2004) outlined several reasons for using indicators of sustainable tourism:

- Indicators can lead to better decision-making, thereby lowering risks or costs;
- Indicators identify emerging issues thus mitigating against negative impacts;
- Indicators identify the impacts of the tourism industry providing time for corrective action to be taken when needed;
- Indicators measure the implementation and performance of plans and management activities, thereby evaluating progress made towards the sustainable development;
- Indicators identify and recognise limits and opportunities, thereby, reducing the risk of planning mistakes;
- Indicators foster a policy of increased accountability by providing credible information that the public and other stakeholders can trust and use for wise decision-making;

- Indicators are part of a constant and continuous monitoring programme which is central to the continual improvement of a destination.

Ceron and Dubois (2003) outlined four reasons why indicators can ameliorate destination planning and management:

- Indicators are constructed and development with the intent of improving underlying information systems;
- Indicators clarify and give more concrete content and meaning to the concepts of sustainable development;
- Indicators are important focal points upon which to base increased dialogue and communication between the various stakeholders at the destination;
- Indicators assist in the decision-making process and issue resolution.

Indicators in relation to tourism are considered important for three key reasons; firstly, they examine the internal factors and structures of tourism, secondly, they examine the external environment which affects tourism and thirdly, they investigate the potential impacts tourism may have on the external environment in which it is operating (UNWTO, 2004). With knowledge comes responsibility, and information gathered for indicators can support better decision-making and actions. Indicators can act as early warning triggers allowing tourism managers to identify potential problems sooner with a view to taking timely action to stem the adverse effects of tourism.

Manning (1999), who has been the chief instigator on indicator development for the UNWTO and editor of their guidebooks, states that indicators foster integration between communities, resource sectors and the tourism industry. One cannot contest that increased communication between the diverse and divergent stakeholders at destination level is anything but positive. In addition, indicators increase the availability of strategic knowledge which can assist both host communities and the tourism industry to act in advance of unacceptable outcomes. The fundamental and Manning (1999) would argue the utopic goal of indicators is that the data sets will form part of a more holistic approach to the planning and management of tourism destinations, ultimately, leading in the long-term, to the development of common standards which can be used as building blocks for the establishment of a more sustainable tourism industry. *'The purpose of indicators is to simplify complex data for end-users in order to improve the quality of*

subsequent decisions taken' to achieve this indicators must be clearly understandable (Miller & Twining-Ward, 2005, p.122).

5.4.1 Indicators and Planning

Indicators have become a subject of attention within the tourism sector, in response to the global focus on sustainability following the Brundtland Commission (1986) and the Rio Earth Summit (1992).

> *'The goal of sustainable development for tourism and for the destinations of tourism has become increasingly accepted as providing the framework within which identification and evaluation of indicators is situated. Indicators should not be seen as an end in themselves; they are specific tools, part of a broader process of planning for tourism'.* (UNWTO, 2004, p.13)

Increasingly, indicators are being used for the planning and management of specific destinations. Destinations sometimes have (development or management) plans in place while others have no management plan but measuring indicators can strengthen a plan already in place or help to initiate the planning process.

5.5 Expected Users of Indicators

The role of indicators has expanded beyond measuring effects of change over time and they are now used to support the management processes at tourism destinations including policy development, regulation and enforcement and the development of certification and standards (UNWTO, 2004). Research, development and application of indicators is now being carried out on a global scale by governments, academic institutions, private companies and even local communities. The UNWTO (2004) do state from the outset that their recent guidebook is intended for use by destination managers and destination management organisations at local authority level. However, this does not exclude other users at local, regional, national and international levels.

In addition the UNWTO (2004) recognise that research contained in the guidebook may be of benefit to:

- Tourism administrators, government bodies, policy-makers and other public authorities at regional and national levels, who aggregate site specific data;
- Tour operators, transportation and accommodation companies, other service providers and other private (tourism) companies;
- On-site managers of specific or specialised attractions;

- Facility planners and managers for resorts, accommodation and other tourism establishments;
- Researchers, academics and students dealing with tourism-related development issues;
- Members of community groups, host community groups and interest groups who want to remain informed and participate in the development process;
- Informed tourists who wish to understand and assist in maintaining the source of their enjoyment.

5.6 Characteristics of Effective Indicators

Effective indicators should simplify the complex reality and their major function is communication (Sweeney, 2000). Indicators of sustainable development for tourism have similar characteristics to indicators of sustainable development. The characteristics of effective indicators of sustainable development for tourism are, according to the UNWTO (1996, 2004):

- Relevant: the indicators selected must be pertinent and relevant to addressing the key issues associated with planning and management of the destination;
- Practical and obtainable: accurate data must be available and generation of the information must be practical and cost effective;
- Understandable, credible and precise: information and indicators selected should be readily and easily understandable by the end users and be supported by reliable data sources;
- Temporal and Comparable: the indicators selected should have the ability to detect trends over time at a given destination;
- Predictive of sustainable development: the indicators chosen should be able to monitor progress achieved towards sustainable development;
- Threshold value: the indicators selected should have the ability to be used as benchmarks for comparing destinations over time with similar destinations.

In any destination, the best indicators are those which best respond to the key risks and concerns regarding the sustainable development of tourism, and those which also provide information that can help clarify issues and measure responses (UNWTO, 2004). Indicators are generally chosen from a range of possible data sets. Indicators should be chosen based on the destination's attributes and the relative importance of

these assets to the tourism product (UNWTO, 1996). The organisation stress the importance of not looking at indictors in isolation as they will just provide a static snapshot of a dynamic and organic human activity and ultimately, will be ineffective in measuring and monitoring change. The UNWTO emphasise that the procedure needs to be dynamic.

> *'As a consequence, the indicators development process is usually iterative: in effect a procedure of negotiation between the ideal information important to key issues and decisions surrounding them, and the realities of what can be obtained and at what cost. The procedure is dynamic as continuous improvement of information sources and processing, aiming at more accurate indicators, is an implicit objective'.* (UNWTO, 2004, p.8)

Continuous refinement and improvement of information sources and processing of data is required to develop accurate indicators. The tourism industry is highly dependent on the environment in which it exists for numerous reasons such as sourcing a skilled workforce or the natural environment serving as the principle attraction. Farsari and Prastacos (n.d., p.6) warn that indicators of sustainable tourism need to integrate tourism in an environmental and socio-cultural context. Again, this statement reaffirms early work conducted on ISDs which concluded that ISDs need to take a holistic approach by examining and monitoring several aspects of Human life.

5.7 Classification of Indicators of Sustainable Development for Tourism

Different types of indicators exist serving the different and diverse needs of destination managers and policy-makers. The UNWTO (1996) acknowledge that while in theory it is valuable to use indicators to measure progress made towards sustainable tourism development, the practical considerations of why the indicators are needed must be addressed first and foremost. As a result, the UNWTO have defined and classified indicators based on their role in supporting the types of decisions which governments and tourism managers encounter in planning and managing for tourism development. Six general types of tourism indicators have been identified as outlined in table 5.1.

Table 5.1: Types of Tourism Indicators

Indicator	Description
Early warning indicators	These indicators alert decision-makers to areas of concern by anticipating potential problems. An example of a destination in trouble may be a decline in repeat visits which may herald the demise of a destination.
Indicators of stress on the system	These point out key external factors or trends which must be considered in planning for tourism. Examples include water shortages or increased crime levels.
Measures of the current state of the industry	These indicators allow destination managers trace changes in resource usage, an example suggested is the occupancy rate of accommodation or water consumption per tourist per day.
Measures of the impact of tourism development on the bio-physical and socio-economic environments	These measurements allow decision-makers include known impacts in planning for the development of their destination. An example would include the extent of deforestation or income levels in the local community.
Measures of management effort	These indicators specify the actions taken by governments and industry to respond to particular problems. for example, the cleanup cost for coastal contamination.
Measures of management effect, results or performance	These allow decision-makers understand the effects of efforts directed at promoting sustainable tourism within the destination.

Source: UNWTO, 1996, 2004

The indicators required by the tourism industry to make tourism more sustainable are varied. While all the categories are valuable in supporting sustainable tourism practices, early warning indicators tend to be the most frequently employed as they provide destination managers with information to prevent any serious negative impacts on the destination (UNWTO, 2004). It should be noted however, that the same indicator can serve several purposes especially if it is monitored over time as its use can change.

5.7.1 Hierarchy of Indicators

Depending on the users of the indicators, information gathered during the indicator process will be applicable and appropriate at different levels (EU Commission, 1999). Indicators can be useful at a variety of different levels: international; European; national; regional; local; destination, site or establishment (UNWTO, 2004). The same indicator can be used at different levels and rolled up or aggregated to address broader issues, although, its original emphasis may shift. Indicators at different levels can support decision-making at all levels of tourism planning and management:

- National indicators: such as revenues earned from tourism, numbers of overseas tourists, can detect changes in the industry at national level, allow comparisons across national boundaries, and provide a basis for issues at a more localised level;

- Regional indicators: such as tourists numbers per region, can detect stresses in particular regions when compared to national and other regional figures and assist in developing regional and national plans;
- Specific destination indicators: these indicators relate to specific fragile destinations or high intensity use destinations, for example, coastal zones or cultural cities and identify particular assets and risks the destination is subject to;
- Key tourist use sites in destinations: these indicators relate to particular key attributes or attractions of a destination, for example, beaches, and provide information which permits strict site management and regulation.

The UNWTO (2004) stress that indicators generated at different levels are strongly interrelated and data collected at specific levels can be aggregated to create higher-level indicators.

5.8 UNWTO Indicator Sets

This section traces the evolution of indicators of sustainable development for tourism by examining at the two most recent publications by the UNWTO. This examination will serve to illustrate how indicators have evolved from focusing on the physical environment and tourism to how tourism affects other dimensions of human life namely, economy, society as well as the physical environment.

The UNWTO recognising the findings of the original task force organised the first guide (1996) into two sets of indicators. The first set of 11 core indicators published in 1996 (see table 5.2) were intended for general application at all destinations. These core indicators were supplemented by a second set of destination-specific indicators applicable in particular eco-systems or sites (UNWTO, 1996, Manning, 1999). In designing the core indicators, the UNWTO looked at indicator work conducted in other sectors and found that often long exhaustive lists of indicators were generated. The UNWTO's approach was to identify indicators useful to tourism managers in their decision-making, therefore, the initial indicators presented were demand driven responding to what decision-makers need to know. *'The core indicators were chosen because they constitute the base level of management information necessary to manage sustainable tourism in virtually any tourist destination'* (UNWTO, 1996, p.11). The core indicators were developed because they were practical enough to be used. These

indicators were laid out in such a way that non-experts would understand and the UNWTO provided guidelines for specific measurement of the indicators. A criticism aired regarding the 1996 publication is that the core 11 indicators were focused principally on the environmental impact of tourism, this is evidenced in the fact that seven of the eleven indicators focus on the environment (Miller & Twining-Ward, 2005).

Table 5.2: Core Indicators

Indicator	Specific Measures
1.Site Protection	Category of site protection according to IUCN index
2. Stress	Tourist numbers visiting site (per annum/ peak month)
3. Use Intensity	Intensity of use in peak period (persons/hectare)
4. Social Impact	Ratio of tourists to locals (peak period and over time)
5. Development Control	Existence of environmental review procedure or formal controls over development of site and use densities
6.Waste Management	Percentage of sewage from site receiving treatment (additional indicators may include structural limits of other infrastructural capacity on site, such as water supply)
7. Planning Process	Existence of organised regional plan for tourist destination region (including tourism component)
8. Critical Ecosystems	Number of rare/endangered species
9. Consumer Satisfaction	Level of satisfaction by visitors (questionnaire based)
10. Local Satisfaction	Level of satisfaction by locals (questionnaire based)
11. Tourism Contribution to Local Economy	Proportion of total economic activity generated by tourism only

Source: UNWTO, 1996, p.12

In the second publication, the UNWTO (2004) sought to be more inclusive of other aspects of human life which tourism effects in response to the criticism of concentrating solely on "enviro-tourism indicators" in the first publication. Having acknowledged the difficulty in dictating the exact number of indicators required, the UNWTO put forward multiple sustainability "issues" common to many destinations and associated indicators are also suggested. The layout of the second set is intended to act more like a menu *'allowing planners and managers to select the issues most pertinent to their destinations and gain ideas for application from the suggested indicators and case studies'* (UNWTO, 2004, p.55). The sustainability issues are grouped in related topics and a total of 50 common issues or sets of issues are presented. For each issue a set of indicators is suggested, amounting to almost a thousand indicator ideas (Miller & Twining-Ward, 2005).

In addition to the 50 common issues, the UNWTO went a step further by identifying 12 baseline issues and related baseline indicators which are the suggested minimal set to be

considered by destinations and which can allow comparisons with other destinations. Table 5.3 outlines the baseline issues and indicators. Some are similar to the 1996 core indicators, however, by providing and naming them "baseline issues" and "baseline indicators", the UNWTO is providing destination managers with the information to measure indicators that respond to the specific conditions of the destination and the stakeholders' needs. While some indicators are the same as the original 1996 "core indicators", new issues which have emerged through pilot studies such as energy, waste and tourist seasonality are included. The new issues focus on the scarcity of certain resources and are described as *'cross-cutting issues that can become very important and tangible for both the local population and tourists alike'* (Miller & Twining-Ward, 2005, p.197).

The most recent guidebook goes far beyond the 1996 publication, in terms using and applying indicators of sustainable development for tourism. Part 3 of the 2004 publication, spanning almost 200 pages is dedicated to the presentation of 50 common issues and indicators for their measurement. The UNWTO (2004) describe the baseline issues and baseline indicators as a smaller list of selected issues considered as essential for most destinations, and a set of simple and understandable indicators is recommended to measure each issue. Implementing this essential list of indicators is considered a good starting point for choosing indicators and also will help destinations to make comparisons with equivalent indicators from other destinations. The presentation of the issues and their indicators is well laid out and user-friendly. Information is provided for those indicators which are considered central to an issue, such as reason for use of this indicator; source(s) of data; means to use the indicator; and benchmarking.

Positive feedback suggests that many of the issues highlighted can be measured by a handful of indicators giving destination managers' greater choice and also making the process more accessible. Yet a concern raised is that with the increased number of indicators, many of technical aspects have not been tried and tested and so remain "indicator ideas" (Miller & Twining-Ward, 2005).

Table 5.3: Baseline Issues and Baseline Indicators

Baseline Issue	Baseline Indicator (s)
Local Satisfaction with tourism	• Local satisfaction level with tourism (and specific components of tourism) based on questionnaire
Effects of Tourism on Communities	• Local satisfaction level with tourism • Number of social services available to the community (% of which are attributable to tourism) • Percentage who believes that tourism had helped bring new services or infrastructure (questionnaire- based) • Ratio of tourists to locals (average and peak period/day)
Sustaining Tourist Satisfaction	• Level of satisfaction by visitors on exit(questionnaire including specific question re. key activities and attractions) • Perception of value for money (questionnaire- based) • Percentage of return visits
Tourist Seasonality	• Tourist arrivals by month or quarter (distribution throughout the year) • Occupancy rates for licensed (official) accommodation by month (distribution throughout the year) • Percentage of all occupancy in peak quarter/ month
Community and Destination Economic Benefits	• Number of local people (and ratio of men to women) employed in tourism • Revenues generated by tourism as percentage of total revenues generated in the community
Energy Management	• Per capita consumption of energy from all sources(overall, and by tourist sector- per person day) • Percentage of businesses participating in energy conservation programmes, or applying energy saving policy and techniques • Percentage of energy consumption from renewable resources (at destinations, establishments)
Water availability and Conservation	• Water use (total volume consumed and litres per tourist per day) • Water saving (percentage reduced, recaptured or recycled)
Drinking water quality	• Percentage of tourism establishments with water treated to international potable standards • Frequency of eater-borne diseases: percentage of visitors reporting water-borne illnesses during their stay.
Sewage treatment	• Percentage of sewage from the destination/site receiving treatment (also break sewage from tourism sector if possible) • Percentage of tourism establishments (or accommodation) on (suitable) treatment systems
Solid waste management	• Waste volume produced by the destination (tonnes) per annum/ person years per annum (per month) • Volume of waste recycled (m3)/ total volume of waste (m3) specify by different types) • Quantity of waste strewn in public areas (garbage counts)
Controlling tourist activities: controlling use intensity	• Total tourist numbers (mean, monthly, peak) (categorised by their type of activity) • Number of tourists per square metre of the site (per square kilometre of the destination) -- mean number/ peak month average/ peak day
Development Control	• Existence of a land use planning process (involving tourism) • Percentage of area subject to control (density, design etc.)

Source: Derived from UNWTO, 2004

5.9 Indicators Application

Although providing and recommending multiple issues and indicators as a means of monitoring progress achieved towards sustainable development, the UNWTO have been conscious of developing indicators which are destination specific to respond to the destination's own mix of assets and issues. Tourism activities often take place in the world's most fragile environments, for example; coastal regions or on small island states. The destination applications are designed to enable destination managers to approach the development and use of indicators by examining the characteristics of their destination, with reference to the issues which have been found to be important to the site. For this reason, the UNWTO both in their 1996 and in the 2004 publications have outlined additional indicators which may be useful at specific destinations.

Table 5.4 outlines the progression and shift in thought from 1996 to 2004 as experts now include not only physical destinations, as was the sole consideration in 1996, but have extended the list to include selected types of attractions. In the 2004 publication, the destination's assets and tourism activities performed on site, and stresses or issues that arise from tourism are described and indicators to measure these issues are provided. Examples and case studies are also provided to fully illustrate how destinations can use these indicators.

Table 5.4: Destination Applications Guide

1996 Guide	2004 Guide
• Coastal zones • Mountains • Managed wildlife parks • Urban environments • Cultural sites- Built Heritage • Unique Ecological Sites (often ecotourism destinations) • Cultural sites (traditional communities) • Small islands	• Coastal zones • Beach Destinations and Sites • Small Islands • Destinations in Desert and Arid Areas • Mountain Destinations • Natural and Sensitive Ecological Sites • Ecotourism Destinations • Parks and Protected Areas • Communities within or adjacent to Protected Areas • Trails and Routes • Built Heritage sites • Small and Traditional Communities • Urban Tourism • Conventions and Convention Centres • Communities Seeking Tourism Development • Theme Parks • Water Parks • Cruise Ships and their Destinations

Source: Derived from UNWTO (1996, 2004)

5.10 Measurement and Expression of Indicators

Considerable research has been conducted on the benefits of indicator analysis which is subsequently underpinned by theory in the field; however, one constant criticism often aired is the difficulty of putting theory into practice.

> *'An indicator can only be applied in practice only if there is a feasible mechanism to measure it. To find the adequate measures is critical in the design and use of indicator, considering that the data gathering and processing must be technically and economically feasible'.* (UNWTO, 2004, p.12)

When evaluating the relevance of indicators, evaluators begin by identifying the goals and future outcomes of the procedure, assessing the attributes of their destination and devising appropriate measures to measure or indicators to monitor the objectives. Initially, the objectives emerge via a consultative process in which the key stakeholders participate; this also encourages greater support for the monitoring systems established. *'Clear definition of which indicators are needed can then result in more strategic positioning of data gathering and better targeted analysis, so that the information is most likely to make a difference'* (UNWTO, 2004, p.19).

When measuring indicators at destination level, both quantitative and qualitative tools are likely to be used. Quantitative measurements are important because comparable concrete, hard factual data can be obtained and compared over time. Examples of quantitative measurements employed in the pilot studies outlined the UNWTO guidebook are: raw data, for example the numbers visiting a site per year/ per month etc. or the amount of waste generated per tourist per day. Ratios are also used, which can compare the relationship between different data sets, for example, the ratio of locals to visitors. Quantitative measurements are also expressed in percentages where data is depicted as a percentage of the total used as a benchmark to track changes.

Qualitative measurements are immensely important in assessing an intangible product or experience, such as holiday or tourist destination. Different types of normative measurements exist in the tourism setting. Category indices describe the state of a parameter on a graded scale, for example, grades of environmental certification systems (e.g. ISO 9000). Normative indicators relate to the existence of certain planning and management procedures, for example, existence of development plans or zoning policies. Nominal indicators are certification labels, for example, Blue Flag

certification or eco-labels. Perhaps the most widely used qualitative measurements are opinion-based indicators, often assessed using surveys or questionnaires, which evaluate the level of tourist/ host satisfaction in a given destination.

Quantitative measurements cannot be used exclusively to measure sustainability at tourist destinations as subjective opinions are highly telling of the state of the tourism product, therefore, qualitative tools need to be used in conjugation with quantitative tools. Indicators for sustainable development of tourism are intended to measure;

- The general relationship between tourism and the environment;
- The effects of environmental factors on tourism;
- The impacts of the tourism industry on the environment (UNWTO, 1996)

5.11 Implementation of Indicators

The UNWTO (1996, 2004) have devised two frameworks for use in the indicator development process. The initial 6-stage framework espoused in 1996 has been expanded to a 12 stage framework in 2004, following extensive refinement in the development procedures conducted through the pilot studies as part of the UNWTO ongoing commitment to indicators of sustainable development for tourism. Table 5.5 outlines the indicator development process. Miller & Twining-Ward (2005) confess that although many authors recommend the development of indicators of sustainable development for tourism (Inskeep, 1991; Butler, 1993; Coccosis, 1996; Dymond, 1997, Goodall & Stabler, 1997; WTTC *et al*, 1997; Mowforth & Munt, 1998; Weaver, 1998; Swarbrooke, 1999; James, 2000), few discuss the technical aspects of developing and implementing indicators. These authors do state that the guide presented here within and developed by a large expert panel in conjugation with the UNWTO acts as a good of reference for the development of indicators. Sirakaya *et al* (2001) stress the need for indicators of sustainable development for tourism to be developed in such a way that they provide an understanding not just of the individual impacts but also of the cumulative effects of the various impacts. This essentially requires an integrated approach to developing indicators which examine, monitor and manage the impacts of tourism development.

The UNWTO do explicitly state that each destination may not need to use each step and that the framework is not a prescription for indicator development but should be considered a guideline. The process does not need to be onerous, and can be adapted to suit the specific assets of the destination and the objectives of the end users (UNWTO, 2004). Similarly, users may follow the process rigidly or may follow the steps in any order depending on the requirement for additional information or clarification of an issue.

Table 5.5: Procedures for Indicator Development

Research and Organisation	
Step 1	Definition / Delineation of the destination
Step 2	Use of participatory processes
Step 3	Identification of tourism assets and risks
Step 4	Long-term vision for a destination
Indicators Development	
Step 5	Selection of Priority issues
Step 6	Identification of desired indicators
Step 7	Inventory of data sources
Step 8	Selection procedures
Implementation	
Step 9	Evaluation of feasibility/implementation
Step 10	Data collection and analysis
Step 11	Accountability, communication and reporting
Step 12	Monitoring and evaluation of indicators application

Source: UNWTO (2004, p. 21)

The framework is divided into three phases: firstly; research and organisation; secondly, indicators development; and finally, implementation. The UNWTO (2004) recommend a phased approach to developing indicators which they believe will result in indicators being useable in a destination. A participatory approach should be used in developing the methodology in order to involve as many stakeholders as possible which will result in greater consensus when implementing and monitoring the indicators. Each phase comprises of four steps.

The initial phase: "research and organisation" deals with four practical steps in the development process; definition or delineation of the destination; use of a participatory process; identification of tourism assets and risks; and the long-term vision for a destination. The overriding aim of this phase involves the collection of key information

about the destination, tourism conditions, stakeholders, past concerns, and previous studies which can be used to support the development and implementation of the indicators selected. *'The objective is to obtain clarity in the identification of the current state of the destination and its tourism, determine trends and potential risks to the industry, and make clear the roles of key stakeholders before focusing on issues and indicators'* (UNWTO, 2004, p.24).

Participation in the indicator process is key to its future success especially if the impetus comes from outside the community. The level and depth of stakeholder participation is often overlooked leading to the detriment of the process in the initial stages (Butler, 2004). Integral to the development and use of indicators is a process for stakeholder participation in the development and application of indicators (Sirakaya *et al*, 2001). Involving local communities in the indicator development process is paramount as participation can foster a positive attitude towards tourism and increase commitment to the goals of sustainable development (Fasari & Prastacos, n.d.) and an create an understanding of community aspirations (Harris & Nelson, 1993).

The "indicator development" phase follows the initial phase and focuses on which indicators are important and how these indicators can best respond to the issues of greatest importance to the destination. Many of the characteristics of effective indicators come into play in this phase, selecting the relevant indicators is a primary concern as well as choosing indicators for which credible and obtainable data can be sourced. Defining indicators calls for precision from all the stakeholders involved which helps clarify issues and concentrate on 'real' rather than 'perceived' issues. It is useful at this stage to develop a list of candidate indicators from which the selected indicators may be chosen based on data availability.

The final step in this phase is selecting indicators. One of the stumbling blocks that emerged from earlier research conducted in selecting indicators is that there is no perfect set or ideal numbers of indicators. The UNWTO (2004) suggest generating a wish list of candidate indicators, which a group of stakeholders can screen and review to a manageable scale using collective knowledge. The organisation also suggests assessing potential indicators based on five criteria: relevance of the indicator to the selected issues; feasibility of obtaining and analysing the required information;

credibility of the information and reliability for its users; clarity and understandability for the end users and finally; comparability over time and across destinations.

The third phase of the development process is "implementation". The objective of this phase is to put the indicators defined in the first two phases into operation at destination level. Ideally, a continuous monitoring programme should be in place to support the continued sustainable development of the destination and track temporal changes and trends. The first step in this phase; evaluation of feasibility and implementation of indicators re-evaluates each of the selected indicators and critically judges the sources of information; specific characteristics of the data; frequency of data collected and the time lags between gathering and publication of the information. This step also examines issues such as assess to information and confidentiality, how the information is portrayed or reported, who has responsibility for the gathering and analysing the information and the cost and technical expertise required. The second step in the phase looks at how data will collected and analysed. The UNWTO (2004, p.46) warn the *'form in which the indicator will be used and how it will be calculated can greatly affect the collection procedure'*.

The last two steps in this phase relate to the dissemination of the indicators and evaluation and monitoring of these measures in the future. The key to implementing sustainable tourism development is a commitment from all the stakeholders in a specific destination. The purpose of indicators is to assist in decision-making by informing policy-makers. The UNWTO (2004) stress that in this respect indicators are vehicles of communication. Indicators need to be monitored, assessed and evaluated as to their relevance and usability. Developing indicators should not be a once-off exercise. *'Regular review is required both to see whether the information is indeed, making a difference to users and helping solve key problems and also to determine whether issues have changes'* (UNWTO, 2004, p.52).

Miller & Twining-Ward (2005) have one criticism of the guide as they feel the UNWTO, in part tend to focus on establishing indicators, taking a shorter-term view rather than maintaining monitoring programmes because of project budgets and avoid commitment to the indicator process. Periodic review of indicators is essential in order to determine which indicators are useful and which indicators are not serving their

purpose and consequently need to be redesigned. Indicators also become more useful over time as a bank of data is built up which can monitor trends over time and assess whether targets are being reached.

> *'Essential to the success of a monitoring process is the establishment of a monitoring body that is ongoing, and the development of a centralised database in which indicator data can be stored and updated so that the destination data bank contains historical and up-to-date information which stakeholders can draw upon to make development, planning and management decisions'.*
>
> (Sirakaya *et al*, 2001, p.425)

Although the 2004 guide is a great improvement on the earlier (1996) process, grievances still exist regarding the lack of resources which have been allocated to the implementation phase, and at a theoretical level, it still remains to be seen how indicator can assist in planning for sustainable tourism destinations (Miller & Twining-Ward, 2005). Clifford (2002) stresses the monitoring process is equally as important as defining indicators and if it is not continued, motivation for developing indicators may wane. Miller &Twining-Ward (2005) point out when developing indicators the choice remains between the need for scientific accuracy on the one hand and the need for public support at the other end of the scale. Bakkes (1997, p.379) expresses the dichotomy, *'indicators are always a compromise. Their design needs to optimise between relevance to the user, scientific validity, and measurability'*.

Indicators are considered to be the building blocks for the sustainable development for tourism and thus, the process outlined above is critical for developing relevant, credible and useful indicators. The procedures outlined require ongoing commitment of resources and it should be acknowledged at the outset that difficulties may be encountered especially whilst maintaining the process long-term (Butler *et al*, 1993). It should be remembered that ultimately indicators become performance measures of progress achieved towards the sustainable development of the destination.

5.12 Case Study: The development of Indicators of Sustainable Tourism Development in the United Kingdom

In this section, the researcher reviewed the development of indicators of sustainable development for tourism in the United Kingdom (UK) as many of the policies implemented at a regional level in the UK are later adapted at regional and local authority level in Ireland.

5.12.1 Introduction

Tourism is a big industry in the UK with an annual turnover of £85 billion in 2005, representing 3.5% of the UK economy (VisitBritain, 2007). In addition, the tourism industry employs 1.4 million directly (VisitBritain, 2007). The potential of the tourism industry and the adverse impacts of the industry that could cripple its future have been recognised. To this end, the "VICE" model has been adopted by the English Tourism Council to assess the development of a sustainable tourism product.

5.12.2 Background to Indicators of Sustainable development in the United Kingdom

Following the commitment made by the UK government to sustainable development in 1992, the British government subsequently published *Sustainable Development: The UK Strategy* in 1994.

> *'In the strategy, the UK government highlighted the importance of indicators to help inform people, including those in the government, industry, and non-governmental organisations, about the issues involved in considering whether development in the United Kingdom is becoming more sustainable and whether the government is meeting its objectives as set out in the UK strategy'.*
>
> (Morrey, 1997, p.318)

In order to fulfil its commitment to this strategy, an interdepartmental indicators working group was set up to develop a provisional set of indicators. The conclusions of this working group were published in 1996 in a report entitled, *Indicators of Sustainable Development for the United Kingdom* (Morrey, 1997). Initially over 300 indicators were suggested, this number was deemed unmanageable and was duly homed down to 120 indicators including two specifically related to the tourism industry (British Tourist Authority, 2001; Morrey, 1997; Moldan, 1997b). Key issues and objectives were

identified and categorised into 21 'families' which related to the: economy; transport use; leisure; tourism; overseas trade; energy use; land use; forestry; fish; water resources; climate change; ozone layer depletion; air; water; soil quality; landscape; wildlife; habitats; waste; minerals extraction and radioactivity. As can be seen from this list, tourism and leisure were identified. The working group furthered developed each 'family' by laying out objectives which would make the development process more sustainable and relevant indicators were selected which would monitor progress achieved towards the objective of sustainable development. To assist with the process, the PSR framework model, developed by the OECD, was adapted to evaluate measures made towards sustainable development.

At the outset, the working group started by defining what sustainable development meant in a UK context. Two basic aspirations were incorporated in this definition:

- *'To achieve economic development to secure rising standards of living both now and for future generations*
- *To protect and enhance the environment now and for the future'.*

(Morrey 1997, p.318)

To meet these aspirations, four aims were expanded;

- *'a healthy economy should be maintained to promote quality of life, while, at the same time, protect human health and the environment;*
- *non-renewable resources should be used optimally;*
- *renewable resources should be used sustainably;*
- *damage to the carrying capacity of the environment and risk to human health and biodiversity should be minimised'.* (Morrey 1997, p.319)

From the beginning, the working group decided to focus on trends over time rather than absolutes and the indicators selected span the period 1970–1994 (Moldan, 1997b). The relatively long temporal span of these indicators was to *'emphasise the long-term nature of sustainable development and to help iron out distortions caused by short-term fluctuations'* (Morrey, 1997, p. 320).

Moldan (1997b) praises the initiative stating that it is probably the most extensive and comprehensive set of indicators published in the United Kingdom. He notes that a good balance among the different dimensions of sustainable development was achieved owing to the sub-division of the 120 indicators into 21 'families'. A pragmatic approach to developing, selecting and measuring indicators was taken and local or

"grassroot" indicators were prepared with the intention of getting local people and local communities involved in sustainable development at this level. It was also insisted that the information data should be presented in a manner amenable to non-experts with a view that ordinary people would take ownership of sustainable development.

There has been considerable emphasis placed on developing indicators of sustainable development in the UK across multiple sectors of human life. Tourism and leisure were identified as 'families' or issues in the first report published in 1996. In the next section indicators of sustainable development for tourism are examined. In 2005, a new UK Sustainable Development Strategy *Securing the Future* was launched which defines sustainable development as the means to enable all people throughout the world to satisfy their basic needs and enjoy a better quality of life without comprising the quality of life for future generations (DCMS, 2005). Four priority areas were set out in this strategy:

- sustainable consumption and production;
- climate change and energy;
- protecting our natural resources and enhancing the environment;
- creating sustainable communities and a fairer world.

5.12.3 Indicators of Sustainable Tourism Development

The Department for Culture, Media and Sport (DCMS) is the government department responsible for tourism policy in England. In 1998, the DCMS published a consultation paper entitled, *Tourism: Towards Sustainability*. The results from this paper feed into a new tourism strategy, *Tomorrow's Tourism* (DCMS, 1999). In this strategy, there was a commitment to develop a series of national statistical indicators to help measure progress achieved towards sustainable tourism development. It emphasised the need for "wise growth", wise growth being tourism which *'integrates the economic, social, and environmental implications of tourism and spreads the benefits throughout society as widely as possible'* (The British Tourist Authority, 2001). The Department of the Environment, Transport and the Regions (DEFR, 1999), who have responsibility for sustainable development, were conscious that sustainable tourism indicators were under developed.

In an attempt to rectify the under representation of indicators of sustainable tourism, the DCMS commissioned CAG consultants to assist them in developing indicators. Workshops were held in May 1999 and the Delphi technique was used with various sectors of the tourism industry. At the end of these sessions, 56 indicators were selected, however, the participants ranked the indicators in terms of importance to sustainable tourism. It is worth pointing out that the impact of tourism on communities received the highest representation while environmental factors appear to be under represented (Allin *et al*, 2001). In the final report by CAG consultants, 21 indicators were proposed, many of these feature in a later DCMS document, *National Sustainable Tourism Indicators: Getting it Right: Monitoring Progress Towards Sustainable Tourism in England* which set out to monitor 13 indicators.

The English Tourism Council (ETC), England's tourism body had responsibility for developing sustainable tourism in the domestic market (Allin *et al*, 2001). The three principle objectives of the ETC were quality, competitiveness and wise growth. Wise growth in this respect refers to the development of sustainable forms of tourism. In 2003, the British Tourist Authority and the ETC merged and are now known as VisitBritain. The primary goal of this organisation is to encourage people to visit Britain. However, to ensure that the negative effects of inbound tourism do not overweigh the positive impacts a strategy for sustainable tourism was outlined. The sustainable tourism strategy comprises of three man components:

1. *'Assessing potential marketing campaigns to ensure that they meet both the principles of sustainable tourism and the National Tourist Boards' (NTBs) sustainable tourism objectives.*
2. *Monitoring the contribution of the British Tourism Authority's strategy to the NTBs' sustainable tourism objectives*
3. *Reporting annually to the NTBs and the Government on the strategy's outcome'.*

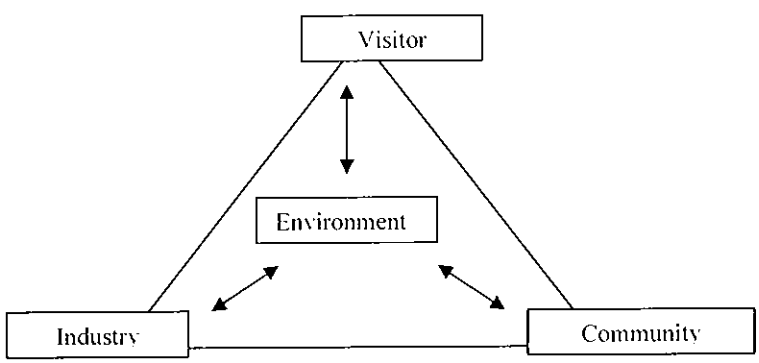
(The British Tourist Authority, 2001, p.3)

For tourism activity to be sustainable it must comply with four key principles:

- **Visitor Satisfaction**: visitors must be satisfied with all aspects of the tourism product
- **Industry Profitability:** the return to the industry must allow for reinvestment and growth
- **Community Acceptance**: account must be taken of the community's aspirations
- **Environmental Protection**: the resources on which the industry is based must be protected.

In order to deliver collective destination wide action, the VICE Model (figure 5.1) identifies tourism development as the management of the interaction between Visitors, the Industry that serves them, the Community that hosts them and their collective impact on, and response to, the Environment where it takes place (TMI, 2003). These key principles are commonly known as "VICE" and when they are met tourism is said to be sustainable. The VICE Model has been adopted by the English Tourism Council (TMI, 2003).

Figure 5.1: The VICE Model



Source: TMI (2003)

5.12. 4 Case Study Conclusion

As Allin *et al* (2001) concluded indicators are important to indicate and not to tell a whole story. *'A good set of indicators will pick out a few measures that crystallise key trends, but even this can only tell a partial story'* (Allin *et al*, 2001, p.172). The DCMS (2004) acknowledge that indicators should not be a once-off exercise but that regular reviews should be conducted to determine changes and emerging issues. Tourism is a

key industry in England and for it to be sustainable the long-term needs of the community, the tourism industry, visitors and the environment must be taken into consideration. *'Sustainability is a cross cutting theme that should be integrated into all tourism planning, and to achieve a truly sustainable tourism approach all of those elements need to be effectively balanced together'* (DCMS, 2004, p. 3).

5.13 Chapter Conclusion

Tourism as one of the world's largest industry has a significant role to play in achieving sustainable development (Dearden, 1993). Sustainable tourism is now recognised as the way forward (UNWTO, 2006). The development of indicators is a recent phenomenon which can greatly assist sustainable tourism practices. For indicators to be beneficial stringent procedures must be adhered to in order to generate timely, accurate and relevant indicators. *'Defining indicators requires a high level of exigency while implementing them requires a high level of pragmatism'* (Ceron and Dubois, 2003, p.64).

The role of the UNWTO has been examined in detail in this chapter as the organisation has become an important resource and first point of reference for any project involving sustainable tourism indicators (Miller & Twining-Ward, 2005). The UNWTO have made a significant contribution to the field as both a catalyst and frontrunner instigating and evaluating many pilot projects. The role of UNWTO in devising development procedures for indicators and selected lists of issues and indicator sets has evolved considerably and they provide invaluable tools for destination managers and decision-makers. However, one strongly voiced critique of the UNWTO is that there has been an over reliance on consultations through workshops and lack of attention given to indicator implementation and integrating monitoring systems with planning procedures, in addition to neglecting to investigate the role of indicators in maturing destinations (Miller & Twining-Ward, 2005, Farsari & Prastacos, n.d.).

In conclusion, indicators are one of the first and most critical steps to sound destination management and provide decision-makers with timely and precise warnings of change which can adversely affect the state of the destination and lead to unsustainable development (UNWTO, 1996). Used properly indicators of sustainable development

for tourism can become key management tools and help implement sustainable tourism development policies.

Chapter Six

Conclusions and Recommendations

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

Sustainable development has been the dominant development paradigm of the latter part of the twentieth century and the early twenty-first century. The concept has evolved in an attempt to address the negative impacts of economic growth and to maintain and sustain natural resources for future generations. *'There is now international recognition of the need for sustainable development throughout the industrial sectors of the world'* (Dymond, 1997, p.279). The tourism industry as one of the world's largest industries has had to subscribe to and apply various elements of sustainable development. In recent years sustainability has become a dominant paradigm in the tourism sector (Hunter, 1995).

The use of indicators of sustainable development for tourism provides an operational and cost-effective means of supplying tourism managers with the information they require for the wise growth of the industry (IWGIST, 1993; Manning & Dougherty, 1995).

> *'In order to take the decisions required for sustainable tourism development, tourism managers require a base of useable and meaningful measures corresponding to the ecological, social, economic and planning environments present in an area defined by spatial and temporal boundaries'*
>
> (Dymond, 1997, p. 280)

The role indicators play is well documented and they are powerful information tools for decision-makers (Moldan, 1997). Indicators are important because they permit destination and tourism managers to understand the effect of tourism on the social, cultural, economic and environmental aspects of human life (Manning, 1999). To this end, indicators of sustainable development for tourism provide destination managers with the information necessary to take a holistic approach to planning and development. The use of indicators is part of a more comprehensive approach to planning and managing destinations and is designed to foster integration among all the stakeholders, ultimately, leading to a more sustainably designed, planned and managed destination (Manning, 1999).

However, as Ceron and Dubois (2003, p.55) point out *'indicators are expected to capture and translate a complex reality'*, which often at tourism destination level can prove contentious, as planning and managing destinations is a far more complex process than meets the eye, owing to the heterogeneous nature of the stakeholders involved. MacLellan (1999, p. 16) in his study on "soft indicators" found that although the value of the indicators could be questioned in measuring how sustainable the tourism industry was, the use of basic indicators was *'viewed as a good start, and effective for awareness raising, good PR and better than before'*. Miller (2001) acknowledged that increased public interest is positive, but does point out that a careful line exists between the need to attract public support and the need to safeguard the credibility of the process for developing indicators.

Sustainable development is often criticised because it is a vague concept and thus, difficult to implement. It has been argued that *'the very process of developing indicators contributes to the creation of a better definition of sustainable development'* (Moldan and Bilharz, 1997, p.5). Similar opinions are voiced in respect of sustainable tourism development and indicators of sustainable development for tourism.

> *'Although it seems paradoxical to develop indicators for sustainable tourism when no satisfactory definition of the concept exists, the process of developing the indicators does help in determining the important tenets of the concept'.*
> (Miller, 2001, p.361)

This thesis sought to explore the role of indicators of sustainable development for tourism through a desk-based review of existing literature in the field. There are limitations to this type of research, principally, the lack of primary research conducted. Yet, the researcher feels that having examined the relevant literature, this thesis deals with the fundamental principles and concepts of indicators of sustainable development for tourism.

The novelty of this research lies in the fact that the researcher has brought much of the academic research and theories on indicators of sustainable development and indicators of sustainable development for tourism together in one comprehensive literature review, thus providing future researchers with a backdrop of valuable and reliable information on the relevant subject areas. Although conducting secondary research into the various theories and applications of indicator development may not seem like a challenging

task, it was nonetheless lengthy, arduous and time consuming to obtain the data as many of the sources work independently. Bringing together work carried out on indicators of sustainable development and indicators of sustainable development for tourism will prove meaningful for further research and justifies the necessity for further primary research to be carried out to test the practical application of indicators of sustainable development and indicators of sustainable development for tourism.

The author's involvement in the EPA project strengthened the reliability of the secondary research described in part one of this thesis. Examining the role of indicators *per se* was one of the primary tasks carried out at the initial stages of the EPA project. It was clear from the outset that the field of indicators merited more scrutiny, hence the concentration on this subject area for the thesis. The EPA project permitted the author to witness first hand the amount of information required to develop indicator sets at a tourism destination, thus giving the author in-depth exposure to both academic research and practical application. In this regard, the EPA project coincided with the research carried out as part of the postgraduate diploma thesis and together both bodies of work provide a comprehensive in-depth look at the indicators of sustainable development and indicators of sustainable development for tourism.

In the next section (appendix A), the author's specific involvement in the EPA project is outlined in detail and appendix B details the EPA interim report written by this researcher. In conclusion, the researcher's involvement in the EPA project has advanced her practical understanding of the research, and consultancy and completion of the interim report (see Appendix A) is evidence of this.

6.2 Recommendations

The author recognises that this area merits further study and if additional primary research was carried out it would contribute significantly as research in the field of indicators of sustainable development for tourism is still in its infancy. Much of the practical work conducted to date in the area has been done by the UNWTO, however, the author suggests that this literature review could serve as springboard from which to launch a practical examination of indicators of sustainable development for tourism in a destination.

Miller (2001, p.361) expects that future research in the field would reveal large gaps between theoretical and practical aspirations. For this reason, the researcher recommends applying and testing the *DIT-ACHIEV Model of Sustainable Tourism Indicators* in a destination or destinations to discover how well this model can assist in developing indicators of sustainable development for tourism.

BIBLIOGRAPHY

Addiaanse, A. (1993) *Environmental Policy Performance Indicators*. The Hague: SDV Publishers, in G. C. Gallopín, (1997) 'Indicators and Their Use: Information for Decision-making', in B. Moldan & S. Billharz, (eds.) *Sustainability Indicators: report of the Project on Indicators of Sustainable Development*, 13-27

Allin, P., Bennett, J. & Newton, L. (2001) Defining and Measuring Sustainable Tourism: Building the First Set of UK Indicators in J. Lennon (ed.) *Tourism Statistics: International Perspectives and Current Issues*, London: Continuum, pp.163- 174

Aronsson, L. (2000) 'What is Sustainable Tourism Development?' *in* L. Aronsson (ed.) *The Development of Sustainable Tourism*, London: Bath Press

Baker, S. (2006) Sustainable Development, London: Routledge

Bakkes, J. A., Van der Born, G.J., Helder, J.C., Swart, R. J., Hope, C. W. & Parker, J. D. E. (1994) An Overview of Environmental Indicators: State of the Art and Perspectives. UNEP/ EATR. 94-01; RIVM/402001001. Environmental Assessment Sub-Programme; UNEP, Nairobi

Bell, S. & Morse, S. (1999) Sustainability Indicators: Measuring the Immeasurable? *in* G. Miller & L. Twining-Ward (2005) *Monitoring for a Sustainable Tourism Transition: the Challenge of Developing and using Indicators*, Wallingford: CABI Publishing

Bellagio Principles (1997), Canada, International Institute of Sustainable Development available at: www.issd.org/pdf/bellagio.pdf [accessed: 12 March 2007]

Bloy, D (2000) 'An Assessment of tourist motivations within a multiple holiday taking context', *in* Robinson, M., Long, P., Evans, S., Sharpley, R., Swarbrooke, J. (eds.) *Reflections on International Tourism; Motivations, Behaviours and Tourist types*, Sunderland: Business Educations Publishers Ltd.

Bramwell, B. and Lane, B. (1993) 'Sustainable Tourism: contributing to the debates', *Journal of Sustainable Tourism*, Volume 7, Number 1, pp. 1-5

Brady Shipman Martin Firm (1992) *National Canals & Waterways Strategy*, Dublin: Office of Public Works

Briassoulis, H. & Van der Straaten, J. (ed.) *Tourism and the Environment; Regional, Economic and Policy Issues*, Dordrecht: Kluwer Academic Publishers, pp.11-22

British Tourist Authority (2001) Sustainable Tourists: A Strategy for the Sustainable Growth of Tourism to Britain available at: www.visitbritain.com/corporate/Images/Sustainable_Growth_Report_tcm197-89166.pdf [accessed 20 March 2007]

Butler, R. (1990) Alternative Tourism: Pious hope or trojan horse, *Journal of travel Research*, Winter, pp.40-45 *in* Hjalager, A. M. (1996), Tourism and the Environment: the Innovation Connection, *Journal of Sustainable Tourism*, Volume 4, Number 4, pp.201- 217

Butler, R. (1993) 'Tourism – An Evolutionary Perspective', *in* J.G. Nelson, R. Butler & G. Wall (Eds) *Tourism and Sustainable Development: Monitoring, Planning, Managing*, University of Waterloo: Heritage Resource Centre, pp. 135-48

Butler, R. (1998) Sustainable Tourism – looking backwards in order to progress? *in* Hardy, A., Beeton, R., Pearson, L. (2002) Sustainable Tourism: An Overview of the Concept and its Position in Relation to Conceptualisations of Tourism, *Journal of Sustainable Tourism*, Volume 10, Number 6, pp.475-496

Butler, R. (2006) one Day Indicator Refining Workshop with Professor Butler, Dublin

Butler, R. Nelson, J.G. & Wall, G. (1993) (Eds.) Introduction, *Tourism and Sustainable Development: Monitoring, Planning and Managing*, Department of Geography Publication 37, Waterloo: University of Waterloo, pp. 1-3

Carley, M. (1981) Social Measurement and Social Indicators: Issues of Policy and Theory. London: George Allen and Unwin *in* G. Miller & L. Twining-Ward (2005) *Monitoring for a Sustainable Tourism Transition: the Challenge of Developing and using Indicators*, Wallingford: CABI Publishing

Cater, E. (1994) 'Eco-tourism in the Third World: Problems and Prospects for Sustainability', *in* E. Cater and G. Lowman (Eds.) *Ecotourism. A Sustainable Option?*. Chicester: Wiley, pp.159-206

Ceron, J. P. & Dubois, G. (2003) Tourism and Sustainable Development Indicators; The Gap between Theoretical Demands and Practical Achievements, *Current Issues in Tourism* 6 (1), pp. 54- 75

CHL Consulting Company Limited (2004), *A Tourism Development Strategy for North Tipperary*, Dublin

Clifford, G. (2002) Indicators, risk and Ecotourism- measurement as a planning tool. *Proceedings of the World Ecotourism Summit*, Quebec, May 2002

Coccossis, H. (1996) Tourism and sustainability: perspectives and implications *in* Priestly, G.K., Edwards, J.A. and Coccossis, H. (Eds) *Sustainable Tourism: European Perspectives*, Wallingford: CABI International, pp. 1-21

Creswell, J.W. (2003) (2nd ed.) *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*, California: Sage Publications,

Dahl, A. L. (1995) Towards Indicators of Sustainability. Paper presented at the SCOPE Scientific Workshop on Indicators of Sustainable Development, Wuppertal, 15-17 November 1995

Dahl, A. L. (1996) Measuring the immeasurable, Our Planet, 8 (1), 29- 33 *in* B. Moldan & S. Billharz, (Eds.) *Sustainability Indicators: report of the Project on Indicators of Sustainable Development*, London: John Wiley & Sons, pp. 60-69

Dahl, A. L. (1997) The Big Picture: Comprehensive Approaches, *in* B. Moldan & S. Billharz, (Eds.) *Sustainability Indicators: report of the Project on Indicators of Sustainable Development*, London: John Wiley & Sons, pp 69-83

DCMS (1999) *National Sustainable Tourism Indicators: Getting it Right: Monitoring progress towards sustainable tourism in England* available at: www.culture.gov.uk/NR/ronlyres/E5B7748B-3D9A-4294-87AE92FFB2E466EF/0/nationaltourismindicators.pdf [accessed: 20 March 2006]

Dearden, P. (1993) Cultural Aspects of Tourism and Sustainable Development: Tourism and the Hilltribes of Northern Thailand *in* R. Butler,. J.G Nelson,. & G. Wall, (1993) (Eds.) *Tourism and Sustainable Development: Monitoring, Planning and Managing*, Department of Geography Publication 37, Waterloo: University of Waterloo, pp. 165-178

DEFR (1999) *A Better Quality of Life: A Strategy for Sustainable Development in the United Kingdom*, London: the Stationary Office

Dewey, J. (1933) *How we Think in* Lang, G. & Heiss, G.D. (1975) (5th ed.). *A Practical Guide to Research Methods*, Lanham: University of America Press

Domegan, C. & Fleming, D. (1999), *Marketing Research in Ireland: Theory and Practice* (2nd Edition) Dublin: Gill & MacMillan Ltd.

Dowling, R. (1992) Tourism and environmental integration, the journey from idealism to realism *in* C. P. Cooper & A. Lockwood *Progress in Tourism, Recreation and Hospitality Management*, Volume 4, Bellhaven, London pp.33-46

Dublin Institute of Technology (2003) (4th ed.), Postgraduate Research Regulations, Dublin: DIT

Dymond, S. J. (1997) Indicators of Sustainable Tourism in New Zealand: A Local Government Perspective, *Journal of Sustainable Tourism*, 5 (4), pp. 279- 293

Environmental Protection Agency (2000), *Ireland's Environment: A Millennium Report*, Wexford, EPA

Environmental Protection Agency (2004), *Ireland's Environment 2004*, Wexford, EPA

European Commission (1999) *Evaluating Socio-Economic Programmes-Volume 2. Selection and Use of Indicators for Monitoring and Evaluation*, (Part 2 of 6 Volume Collection) Luxembourg: Office for Official Publications of the European Communities

European Environmental Protection (1999) *Why we use DPSIR Framework?* Available at: http://www.eea.europa.eu/documents/brochure/brochure_reason.html [accessed 6 February 2006]

Failte Ireland (2006) *Tourism Fact Card* available at: www.failteireland.ie/upload/documents/Preliminary tourism facts 2006.pdf [accessed 16 March 2007]

Farsari & Prastacos (n.d.), *Sustainable Tourism Indicators for Mediterranean Established Destinations*, Regional Analysis Division: Heraklion, Greece

Fennell, D. (2003) *Ecotourism: an Introduction* (2nd Edition) New York: Routledge

Flanagan, S. & Convery, F. (1992) *Tourism in County Laois: A Development Strategy*, Dublin: Tourism Research Unit & Environmental Institute, UCD

France, L. (1997) (ed.) *Sustainable Tourism*, London: Earthscan Publications Ltd.

Gallopín, G. C., (1997) Indicators and Their Use: Information for Decision-making, *in* B. Moldan & S. Billharz, (Eds.) *Sustainability Indicators: report of the Project on Indicators of Sustainable Development*, London: John Wiley & Sons, pp. 13-27

GHENT Report: Federal Planning Office of Belgium (1995) *Report of the Workshop on Indicators of Sustainable Development for Decision-Making*, submitted to the UN Commission on Sustainable Development, Ghent, Belgium, 9-11 January 1995 in B. Moldan & S. Billharz, (Eds.) *Sustainability Indicators: report of the Project on Indicators of Sustainable Development*, London: John Wiley & Sons, pp. 1-11

Glasson, J., Godfrey, K. & Goodey, B. (1995) *Towards Visitor Impact Management: Visitor Impacts, Carrying Capacity and Management Responses in Europe's Historic Towns and Cities*, Aldershot: Ashgate Publishing Limited

Godfrey, K. (1996) Sustainability? Tourism in the Republic of Cyprus, *in* L. Harrison & W. Husbands (Eds), *Practising Responsible Tourism: International Case Studies in Tourism Planning, Policy and Development*, Chichester: John Wiley & Sons, pp. 58-79

Goeldner, C.R., Ritchie, J.R., McIntosh, R.W., (2000) *'Tourism; Principles, Practices, Philosophies'* (8th edition), New York: John Wiley& Sons

Goodwin, H. (2003) Local Community Involvement in Tourism around National Parks; Opportunities and Constraints *in* Luck, M. and Kirsteges, T. *Global Ecotourism Policies and Case Studies; Perspectives and Constraints*, Clevedon: Channel View Publications

Gross, B. M (1996) The state of the Nation: Social Systems Accounting *in* G. Miller & L. Twining-Ward (2005) *Monitoring for a Sustainable Tourism Transition: the Challenge of Developing and using Indicators*, Wallingford: CABI Publishing

Hall, C.M (1998) Historical Antecedents of sustainable development and Ecotourism: New labels in old bottles? *in* A. Hardy R. Beeton & L. Pearson (2002) Sustainable Tourism: An Overview of the Concept and its Position in Relation to Conceptualisations of Tourism, *Journal of Sustainable Tourism* 10 (6), pp.475-496

Hammond, A., Adriaanse, A., Rodenburg, E. Bryant, D., and Woodward, R. (1995) *Environmental Indicators: A systematic approach to measuring and reporting on environmental policy performance in the context of sustainable development*, Washington D.C: World Resources Institute

Hardi, P. (1997 Measurement and indicator program of the international institute for sustainable development *in* B. Moldan & S. Billharz, (Eds.) *Sustainability Indicators: report of the Project on Indicators of Sustainable Development*, London: John Wiley & Sons, pp. 28-32

Hardy, A., Beeton, R., Pearson, L. (2002) Sustainable Tourism: An Overview of the Concept and its Position in Relation to Conceptualisations of Tourism, *Journal of Sustainable Tourism*, 10 (6), pp.475-496

Harris, J. E. & Nelson, J. G. (1993) Monitoring Tourism from a Whole Economy Perspective: A Case of Indonesia *in* R. Butler, J.G. Nelson & G. Wall, (1993) (Eds.) *Tourism and Sustainable Development: Monitoring, Planning and Managing*, Department of Geography Publication 37, Waterloo: University of Waterloo, pp. 179-200

Hart, M. (1999) Guide to Sustainable Community Indicators, 2nd. Edn. Hart Environmental Data, North Andover. Available at: www.sustainablemeasures.com (accessed 16 March 2002) *in* G. Miller & L. Twining-Ward (2005) *Monitoring for a Sustainable Tourism Transition: the Challenge of Developing and using Indicators*, Wallingford: CABI Publishing

Hart, S. (1997) Strategies for a Sustainable World. *Harvard Business Review*, January-February, pp. 67-76 *in* G. Miller & L. Twining-Ward (2005) *Monitoring for a Sustainable Tourism Transition: the Challenge of Developing and using Indicators*, Wallingford: CABI Publishing

Hjalager, A. M. (1996) Tourism and the Environment: the Innovation Connection, *Journal of Sustainable Tourism*, 4 (4), pp.201- 217

Holling, C. S (ed.) (1978) Adaptive Environmental Assessment and Management *in* G. C. Gallopín, (1997) 'Indicators and Their Use: Information for Decision-making', *in* B. Moldan & S. Billharz, (Eds.) *Sustainability Indicators: report of the Project on Indicators of Sustainable Development*, London: John Wiley & Sons, pp. 13-27

Hopkins, K.W. and Price, G.G. (2002) Ecotourism's Competitive Advantage?: Environmental Education *in* Andrews, N., Convery, F., Flanagan, S., Ruddy, J. *Tourism and the Environment; Sustainability in Tourism Development* Dublin: DIT Tourism Research Centre

Hunter, C. J. (1995) On the need to re-conceptualise sustainable tourism development. *Journal of Sustainable Development* 3 (3), pp. 155-165 *in* S. J. Dymond (1997) Indicators of Sustainable Tourism in New Zealand: A Local Government Perspective, *Journal of Sustainable Tourism*, 5 (4), pp. 279- 293

Hussey, J. & Hussey, R. (1997) 'Dealing with conceptual issues' in Hussey, J. & Hussey, R., *Business Research: A Practical Guide for Undergraduate and Postgraduate Students*, London: MacMillan Press Ltd

Inskeep, E. L. (1991) Tourism Planning: an Integrated and Sustainable Development Approach *in* G. Miller & L. Twining-Ward (2005) *Monitoring for a Sustainable*

Tourism Transition: the Challenge of Developing and using Indicators, Wallingford: CABI Publishing

International Institute for Sustainable Development (IISD) (2005) available at: www.issd.org [accessed: 29 March 2007]

International Union for the Conservation of Nature and Natural Resources (1980) *World Conservation Strategy: Living Resources Conservation for Sustainable Development*, Gland: IUCN

International Working Group on Indicators of Sustainable Tourism (IGWIST) (1993) Indicators for the Sustainable Management of Tourism, Winnipeg: World Tourism Organisation *in* S. J. Dymond (1997) Indicators of Sustainable Tourism in New Zealand: A Local Government Perspective, *Journal of Sustainable Tourism*, 5 (4), pp. 279- 293

Jacobs, M. (1991) *The Green Economy: Environment, Sustainable Development and the Politics of the Future*, London: Pluto Press

James, D. (2000) *Local Sustainable Tourism Indicators*. Proceedings of the 5th International Forum on Tourism Statistics, Glasgow Caledonian University, 19-23 June *in* G. Miller & L. Twining-Ward (2005) *Monitoring for a Sustainable Tourism Transition: the Challenge of Developing and using Indicators*, Wallingford: CABI Publishing

Kirsteges, T. (2003) Basic Questions of 'Sustainable Tourism'; Does Ecological and Socially acceptable tourism have a chance? *in* M. Luck & T. Kirsteges *Global Ecotourism Policies and Case Studies; Perspectives and Constraints*, Clevedon: Channel View Publications

Lafferty, W. M. & Meadowcroft, J. (2000) 'Introduction' *in* W. M. Lafferty & J. Meadowcroft (Eds) *Implementing Sustainable Development: Strategies and Initiatives in High Consumption Societies*, Oxford: Oxford University Press, pp. 1-22 *in* S. Baker *Sustainable Development*, London: Routledge

Lang, G. & Heiss, G.D. (1975) *A Practical Guide to Research Methods*, 5th ed., Lanham: University of America Press

Lea, J. (1988) *Tourism and Development in the Third World*, London: Routledge *in* R. Butler, J.G. Nelson & G. Wall, (1993) (Eds.) *Tourism and Sustainable Development: Monitoring, Planning and Managing*, Department of Geography Publication 37, Waterloo: University of Waterloo, pp. 165-178

Leiper, N. (1981) Towards a cohesive curriculum in tourism: the case for a distinct discipline, *Annals of Tourism Research*, 8 (1), pp.69-84 *in* Fennell, D. (2003) *Ecotourism: an Introduction* (2nd Edition), New York: Routledge

Liu, Z. (2003) Sustainable Tourism Development: a Critique, *Journal of Sustainable Tourism*, 11 (6), pp.459-475

Luxem, M. & Bryld, B. (1997) Introductory Box: the CSD Work Programme on Indicators of Sustainable Development *in* B. Moldan & S. Billharz, (Eds.) *Sustainability Indicators: report of the Project on Indicators of Sustainable Development*, London: John Wiley & Sons, pp. 6-11

MacLellan, R. (1999) Establishing Sustainable Tourism Indicators: From Theory to Practice, Paper given at I Conferencia Portuguesa, o Ecotourismo e a Sustentabilidade, Universidade De Aveiro, Portugal, 28 May *in* G. Miller & L. Twining-Ward (2005) *Monitoring for a Sustainable Tourism Transition: the Challenge of Developing and using Indicators*, Wallingford: CABI Publishing

Malhotra, N. K. & Birks, D. F. (1999) *Marketing Research: An Applied Approach*, European Edition, Essex: Pearson Education Limited

Malhotra, N.K. (1999) *Marketing Research: An Applied Orientation* (3rd Edition) London: Prentice Hall

Mann, M. (2000) *The Community Tourism Guide*, London: Earthscan Publications

Manning, E. W. & Dougherty, T. D. (1995) Sustainable Tourism: Preserving the Golden Goose. *Cornell Hotel and Restaurant Administration Quarterly* (April), pp. 29-42

Manning, T. (1999) Opinion Piece : Indicators of Tourism Sustainability, *Tourism Management* 20, pp. 179-181

McCool, S.F. (1995) 'Linking tourism, the environment, and concepts of sustainability: setting the stage', *in* S.F. McCool & A.E. Watson (Eds.) *Linking Tourism, the Environment, and Sustainability*, USDA Technical Report INT-GTR-323, Ogden, UT: US Department of Agriculture, Forest Service, Intermountain Research Station

McCracken, G. (1993) 'The Value of the Brand: An Anthropological Perspective' *in* D. A. Aaker & A. L. Biel (1993) *Brand Equity & Advertising: Advertising's role in Building Strong Brands*, New Jersey: Lawrence Erlbaum Associates, pp. 125-147

McKercher, B. (1991) 'The unrecognised threat to Tourism: can tourism survive sustainability?' *Tourism Management*, 14 (2), pp.131-136

McQueen, D., & Noak, H. (1988) Health Promotion Indicators: Current Status, issues and problems. *Health Promotion*, 3, pp. 117-125*in* B. Moldan & S. Billharz, (Eds.) *Sustainability Indicators: report of the Project on Indicators of Sustainable Development*, pp. 13-27

Meadowcroft, J. (1999) Planning for sustainable development: what can be learnt from the critics?, *in* M. Kenny & J. Meadowcroft (Eds) *Planning Sustainability*, London: Routledge, pp. 12-38

Meyer, B (1994) An object-oriented Environment: Principles and Applications, New York: Prentice Hall

Middleton, V.T.C. and Hawkins, R. (1998) 'Travel and Tourism: the World's largest industry' *in* V.T.C Middleton & R. Hawkins (Eds.) *Sustainable Tourism; a Marketing Perspective*, Oxford: Butterworth- Heinemann, pp.50-63

Miller, G. & Twining-Ward, L. (2005) *Monitoring for a Sustainable Tourism Transition: the Challenge of Developing and using Indicators,* Wallingford: CABI Publishing

Miller, G. (2001) The development of indicators for sustainable tourism: results of a Delphi survey of tourism researchers, *Tourism Management* 2 (20), pp. 351-362

Moldan, B. & Billharz, S. (1997) Introduction *in* B. Moldan & S. Billharz, (Eds.) *Sustainability Indicators: report of the Project on Indicators of Sustainable Development*, London: John Wiley & Sons, pp. 1-5

Moldan, B. (1997) World Bank Perspectives on sustainable development *in* B. Moldan & S. Billharz, (Eds.) *Sustainability Indicators: report of the Project on Indicators of Sustainable Development*, London: John Wiley & Sons, pp 138-141

Moldan, B. (1997b) National Level Indicators, *in* B. Moldan & S. Billharz, (Eds.) *Sustainability Indicators: report of the Project on Indicators of Sustainable Development*, London: John Wiley & Sons, pp 299-317

Morrey, C. (1997) Indicators of Sustainable Development in the United Kingdom *in* B. Moldan & S. Billharz, (Eds.) *Sustainability Indicators: report of the Project on Indicators of Sustainable Development*, London: John Wiley & Sons, pp 318- 327

Morrissey, J., O'Regan, B., Moles, R., (2006) Development of indicators and indices for the evaluation of the sustainability of Irish settlements and regional settlement patterns, *in*: *Proceedings of ENVIRON Conference 2006*, University College Dublin, January

Mortensen, L. F. (1997) The Driving-Force-State-Response-Framework used by CSD *in* B. Moldan & S. Billharz, (Eds.) *Sustainability Indicators: report of the Project on Indicators of Sustainable Development*, London: John Wiley & Sons, pp 47-53

Mowforth, A. & Munt, I. (1998) Tourism and Sustainability: New Tourism in the Third World *in* G. Miller & L. Twining-Ward (2005) *Monitoring for a Sustainable Tourism Transition: the Challenge of Developing and using Indicators,* Wallingford: CABI Publishing

Mukherjee, R. (1975) Social Indicators, Meerut: Prabhat *in* D. B. Weaver (ed), *The Encyclopedia of Ecotourism*, Wallingford: CABI International, pp. 411-430

Müller, H. (1994) 'The Thorny Path to Sustainable Tourism Development', *Journal of Sustainable Tourism*, 2 (3), pp. 131-6

Nelson, J. G. (1993) An Introduction to Tourism and Sustainable Development with Special Reference to Monitoring *in* R. Butler, J.G Nelson & G. Wall, (1993) (Eds.) *Tourism and Sustainable Development: Monitoring, Planning and Managing*, Department of Geography Publication 37, Waterloo: University of Waterloo, pp. 3-27

Newman, I., & Benz, C.R. (1998) Qualitative-quantitative research methodology: exploring the interactive continuum *in* J.W. Creswell (2003) (2nd ed.) *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*, California: Sage Publications

OECD (1993) *Core Set of Indicators for Environmental Performance Reviews*, Paris: OECD

OECD (2003) OECD Environmental Indicators: Development, Measurement and Use. Available at: www.oecd.org/env/ [accessed 10 March 2006]

Ott, W. R. (1978) Environmental Indices: Theory and Practice *in* G. C. Gallopín, (1997) 'Indicators and Their Use: Information for Decision-making', in B. Moldan & S. Billharz, (Eds.) *Sustainability Indicators: report of the Project on Indicators of Sustainable Development*, London: John Wiley & Sons, pp 13-27

Pintér, L., Hardi, P. & Bartelmus, P. (2005) *Sustainable Development Indicators: Proposals for the Way Forward*. Canada: International Institute for Sustainable Development

Poon, A. (1993) *Tourism, Technology and Competitive Strategies*, Wallingford: CAB International

Putnam, D. (2002) ISO 14031: Environmental Performance Evaluation Draft Paper submitted to Confederation of Indian Industry

Reboratti, C. E. (1999) Territory, scale and sustainable development *in* E. Becker and T. Jahn (Eds.) 'Sustainability and the Social Sciences: A Cross-disciplinary Approach to Integrating Environmental Considerations into Theoretical Reorientation' *in* S. Baker *Sustainable Development*, London: Routledge

Redclift, M. (1987) *Sustainable Development: Exploring the Contradictions*, London: Methuen

Romeril, M (1998) Tourism and the environment-accord or discord?, *Tourism Management*, 10 (3) , pp.204-208 *in* A. Hardy, R. Beeton & L. Pearson (2002) Sustainable Tourism: An Overview of the Concept and its Position in Relation to Conceptualisations of Tourism, *Journal of Sustainable Tourism*, 10 (6) , pp.475-496

Rossi, R. J & Gilmartin, K. J. (1980) The Handbook of Social Indicators: Source, Characteristics, and Analysis *in* G. Miller & L. Twining-Ward (2005) *Monitoring for a Sustainable Tourism Transition: the Challenge of Developing and using Indicators*, Wallingford: CABI Publishing

Sharpley, R. (2003) 'Rural Tourism and Sustainability–a Critique', *in* D. Hall, L. Roberts and M. Mitchell (Eds), *New Directions in Rural Tourism*, Aldershot: Ashgate Publishing Limited, pp. 38-53

Shaw, G. & Williams, A. M. (2002) *Critical Issues in Tourism: A Geographical Perspective*, Oxford: Blackwell Publishers

Silverman, D. (2000) *Doing Qualitative Research: a Practical Handbook*, London: Sage Publications

Sisman, R. (1994) Tourism: Environmental Relevance *in* N. Andrews, F. Convery, S. Flanagan & J. Ruddy *Tourism and the Environment; Sustainability in Tourism Development*, Dublin: DIT

Stabler, M. J. & Goodall, B. (1996) 'Environmental auditing in planning for sustainable island tourism', *in* L. Briguglio, B. Archer, J. Jafari & G. Wall (Eds), *Sustainable Tourism in Islands and Small States: Issues and Policies*, New York: Pinter, pp. 170-196

Sustainable Measures (2005) Characteristics of Effective Indicators available at: www.sustainablemeasures/com/Indicators/Characteristics.html [accessed: 22 June 2005]

Swarbrooke, J. (1999) *Sustainable Tourism Management*, Wallingford: CAB International Publishing

Sweeney, J. Donnelly, A., McElwain, L. & Jones, M. (2000), Climate Change: Indicators for Ireland, available at: www.epa.ie/NewsCentre/ReportsPublications/ClimateChange/FileUpload.1956.en.pdf [accessed: 8 February]

Theobald, W. F. (1998) *Global Tourism*, Oxford: Butterworth-Heinemann

TMI (Tourism Management Institute) (2003) *Destination Management Handbook*, TMI & European Travel Commission

Tourism Policy Review Group (2003) *New Horizons for Irish Tourism: an agenda for action*, Report to the Minister for Arts, Sports and Tourism, Dublin: Fáilte Ireland

Tunstall, D. (1994) Developing and Using Indicators of Sustainable Development in Africa: an Overview. (Draft Paper). Prepared for the Network of Environment and Sustainable Development in Africa (NESDA). Thematic Workshop on Indicators of Sustainable Development, Banjul, The Gambia, May 16-18, 1994

UN (2006) *Global Trends and Status of Indicators of Sustainable Development*, New York: Commission on Sustainable Development

UN (2004) International meeting for the 10-year review of the Barbados programme of action on small island developing states. Mauritius, August/ September
UNDESA (2007) *Commission on Sustainable Development* available at: www.un.org/esa/sustdev/csd/aboutCsd.htm [accessed: 26 March 2007]

UNDESA (2006) *Indicators of Sustainable Development* available at: www.un.org/esa/sustdev/natlinfo/indicators/isdms2001/table_4.htm [accessed: 10 March 2007

UNDESA (2004) *Documents: Agenda 21* available at: www.un.org/esa/sustdev/documents/agenda21/english/agenda21chapter40.htm [accessed: 14 March 2007]

UNDESA (2001) Indicators of Sustainable Development: Guidelines and Methodologies available at: www.un.org.esa/sustdeve/natlinfo/isdms2001/isd-ms2001isd.htm [accessed: 29 September 2005]

UNEP (United Nations Environment Programme) (2005) *Making Tourism More Sustainable: a guide for policy makers.* Madrid: UNEP Division of Technology, Industry and Economics

UNWTO (2007) *Introduction on the use of sustainable tourism Indicators* Available at: www.unwto.org/sustainable/conf/jeddah/indic/intro-sti/pdf [accessed 13 April 2007]

UNWTO (2006) Seminar on Policies, Strategies and Tools for Sustainable Tourism Development, *European Regional Conference* in Almaty, Kazakhstan, 26 April 2006 available at: www.unwto.org/regional/europe/PDF/2006/almaty/conclusions/pdf [accessed 13 April 2007]

UNWTO (2004) *Concepts & Definitions* available at: www/world-tourism.org/sustainable/concepts.htm [accessed: 13 April 2007]

UNWTO (2004) *Indicators of Sustainable Development for Tourism Destinations: A Guidebook*, Madrid: World Tourism Organisation

UNWTO (1996) *What Tourism Managers Need to Know: A Practical Guide to the Development and Use of Indicators of Sustainable Development*, Madrid: World Tourism Organisation

UNWTO, WTTC & Earth Council (1997) *Agenda 21 for the Travel & Tourism Industry: Towards Environmentally Sustainable Development*. Madrid: WTO

Visit Britain (2007) *key Tourism Facts* available at www.visitbritain.com/corpoate/factsfigures/index.aspx [accessed: 20 March 2007]

WCED (World Commission on Environment and Development) (1987) *Our Common Future*, Oxford: Oxford University Press

Weaver, D. (1998) Introduction to Ecotourism *in* D. Weaver (ed) *Ecotourism in the Less Developed World*, Wallingford, CABI International, pp. 1-33

World Bank, (1995) The Monitoring Environmental Progress. Washington D.C.: The World Bank *in* G. C. Gallopín, (1997) 'Indicators and Their Use: Information for Decision-making' *in* B. Moldan & S. Billharz, (Eds.) *Sustainability Indicators: report of the Project on Indicators of Sustainable Development*, London: John Wiley & Sons, pp. 13-27

World Tourism Organisation (1998), *Guide for Locals Authorities on Developing Sustainable Tourism*, Madrid: WTO

Yin, R.K. (2003) *Case Study Research: Design and Methods*, (3rd ed.), Sage Publications, London

PART 2: APPLIED RESEARCH & OUTPUTS

Appendix A

ENVIRONMENTAL PROTECTION AGENCY REPORT

7.1 Introduction

In addition to the postgraduate diploma undertaken, the researcher was funded by the Irish Environmental Protection Agency (EPA) to work on a two-year research project which was managed by the Tourism Research Centre at the DIT. The objective of this project was to investigate sustainable tourism development and practical measures for its implementation in Ireland. The official title of the EPA funded project was '*Sustainable Tourism Development: Towards the Mitigation of Tourism Destination Impacts*'.

This project, commonly referred to as the EPA project in this document, was completed in February 2007. The researcher's level of commitment in this project was substantial being involved in two of the three core "strands" of the project. This chapter serves to detail the role of the researcher set against the backdrop of the project. It will illustrate the pioneering role of this project as this was the first of its kind funded by the EPA which examined tourism development within an environmental context in Ireland.

While it is generally agreed that sustainability is the only long-term path for tourism, the question of how it should be measured (or attained) remains an issue, and that was the challenge that this project attempted to address. The development of indicators for sustainable tourism development will be of considerable benefit to both government agencies and tourist interests, in the determining the management objectives for specified area. With better information, visitor and area management can be more proactive and capacity issues can be better anticipated and responded to. The purpose of this project, therefore, was to develop a set of tools through which destination managers could ensure that tourism is developed in a sustainable manner. There were three stages or "strands" to the project (outlined later) and the principle outcome of the project was an environmentally integrated tourism destination management model; *"The DIT-ACHIEV Model of Sustainable Tourism Indicators"*, which can be used at tourism destinations to plan and manage sustainable tourism destinations.

7.2 Background to Project

This project was funded by the EPA, through the Environmental ERTDI Programme 2000-2006. Methodologies such as the development of carrying capacity or sustainable tourism indicators[3] are of considerable benefit to both government agencies and tourist interests, in determining an area's potential and sustainability.

7.3 Project Outline

The project consisted of three stages or "Strands" referred to hereafter as strands 1, 2 or 3. In strand one, the initial stages of the project involved broad ranging exploratory investigations, resulting in the development of inventories and analysis of the principal tourism attributes and characteristics of the study area; the Tipperary Lakeside region. Strand 1 dealt with the quantifiable dimensions of tourism in the case study area with a focus on three key dimensions: ecological systems; economic structure and physical structure. Strand 2 of the research dealt with the characterisation of qualitative dimensions of tourism, focusing on: analysis of community/social tolerance, analysis of visitor satisfaction and political administration.

Strand 3 of the research integrated data from both strands 1 and 2 and resulted in the development of a carrying capacity framework, which lead to the evolution of an environmentally integrated tourism destination management model. This phase of the work also allowed for the dissemination of results through a number of channels: papers and posters presented at conferences; peer-reviewed journal papers; website; a national workshop and; an international conference (to be held in September 2007). A further outcome was the formulation of an integrated Executive Training Programme. In all cases the project incorporated EU best practice policies and procedures.

The project also resulted in the facilitation of academic research; raising the profile of sustainable tourism development through the development of a multi-disciplinary synergistic research team within DIT; the creation of long term contacts with national and international partners; the networking of practitioners in various fields and also raising the significance of sustainable tourism policy and practice at national level.

[3] As will be discussed later, the concept of Carrying Capacity was not wholly adopted during this research, as it implies that intervention is only required where 'capacity' has been exceeded, thereby relegating the whole idea of sustainable tourism management.

The final output of the research was a model of sustainable tourism indicators (The DIT ACHIEV-Model of Sustainable Tourism Indicators). This model focuses on six 'Fields of Interests': Heritage; Infrastructure; Enterprise; Community; Visitor and; Administration, which all encompass the three pillars of sustainability: environment; economy and society. It was proposed that this model be used for examining the state of tourism and to plan for the future of the industry which may result in a more viable tourism product in both the immediate and long-term future thus, ensuring that a broad range of sustainable principles are adhered to.

7.4 Rationale for the Project

As already exemplified in chapter 3, sustainable development has emerged as the dominant paradigm of the twentieth century in response to increasing concerns of irreversible environmental damage caused in the name of economic growth. In the past two centuries the global economy has grown substantial, transforming the character of the planet and especially the fate of human life (Mebratu, 1998). The paradigm of sustainable development (first enunciated in the World Commission on Environment and Development (WCED) report; *Our Common Future*) emphasised that environmental problems could no longer be considered in isolation from others, such as economic development and social disintegration. The concept of sustainable development is much contested and today there are over three hundred published definitions. These definitions are the products of diverse worldviews, ideologies and vested interests yet, at its core, sustainable development represents a transformation in both the way society approaches growth and the attendant stress that growth places on the environment. The three major strands of sustainable development are:

- The need to arrest environmental degradation and ecological imbalance;
- The need to avoid impoverishment of future generations; and
- The need for equity in the quality of life among present-day populations.

(Redclift, 1987)

Sustainable development encompasses not only environmental protection, but also economic development and social cohesion (Dooris, 1999). As already stated in chapter 3, Agenda 21 (arising from the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, 1992) represented the blueprint intended to

set out an international programme of action for achieving sustainable development in the twenty first century. The widespread adoption of the concept of sustainable development, which culminated in the Rio Earth Summit is illustrated in the subsequent policy documents (international, national and European), discussed in chapter 3 all clamouring for pragmatic implementation of the concept.

The tenets of sustainable development have an impact on all economic activities including the tourism industry. Sustainable tourism development is now recognised as the only means of achieving 'wise' tourism growth. In Ireland, this holds true as major growth in the numbers of overseas tourists is putting pressure on physical infrastructure and is also at risk of placing severe stress on the quality of the environment in more popular tourist sites. A major challenge to achieving sustainable tourism development in Ireland has been the unprecedented growth in the tourism industry since 1985. In the 1990s, Irish tourism growth was well ahead of global trends increasing by an average of over 7% per annum, compared with a global figure of 4.3% (Tourism Policy Review Group, 2003). According to the Tourism Policy Review Group (2003), the number of visitors to Ireland will increase to 10 million by 2012. The main challenge for the tourism industry in Ireland is to develop and promote a product that is environmentally, socially and economically sustainable within the context of an expanding sector. According to the EPA (2000), this will require that existing and new developments for tourist-use incorporate adequate protection measures to enhance the quality of the existing environment and to mitigate tourism destination impacts.

More recently, a chapter of '*Ireland's Environment*' (EPA, 2004) was dedicated to the "Household and Tourism sector" combined. This publication, the third "state of the environment" report by the EPA, called for the impact of tourism to be closely monitored, due to the industry's direct and indirect impact on the environment. This publication recognised tourism as an important source of investment and employment in Ireland, particularly in rural and peripheral regions and it also acknowledged how tourism interacts closely with other policy areas: transport; energy; environment; regional planning; business and trade, the report also acknowledged the need to coordinate and integrate tourism in these policy areas. As previously highlighted in chapter 3, tourism and the travel industry, despite accounting for mass movement of people and high revenue earnings, is often forgotten in terms of policy direction. The

EPA (2004) claim that all stakeholders in the tourism sector, at national, regional and local levels, have a part to play in preserving environmental quality.

The regulation and management of an area is important to mitigate negative tourism impacts. Theobald (1998) comments that there is a need to limit and control tourism, which may threaten sustained use of limited resources. Carrying capacity and sustainable tourism development are management concepts rather than scientific theory, which destination managers and policy-makers could use to determine when a destination is full, or if a destination has a potential capacity problem. However, given the diversity of factors which affect the nature of tourism, this calculation seems to be exceedingly difficult considering the inherently intangible qualities (i.e. environmental quality, community perceptions, visitor satisfaction and attitude, and political structures). There is not a single unqualified number which determines the optimal solution as each situation/destination is unique in its response to visitor impacts. There is no inherent carrying capacity of a destination but rather a range of factors which depend on management objectives. When determining the sustainability of destinations many factors need to be considered, thus the means to an end is not, as it has been thought, as an end in itself. This is where the role of indicators and indicators of sustainable development for tourism has come to aid destination managers in assisting in policy development by providing them with critical and relevant information.

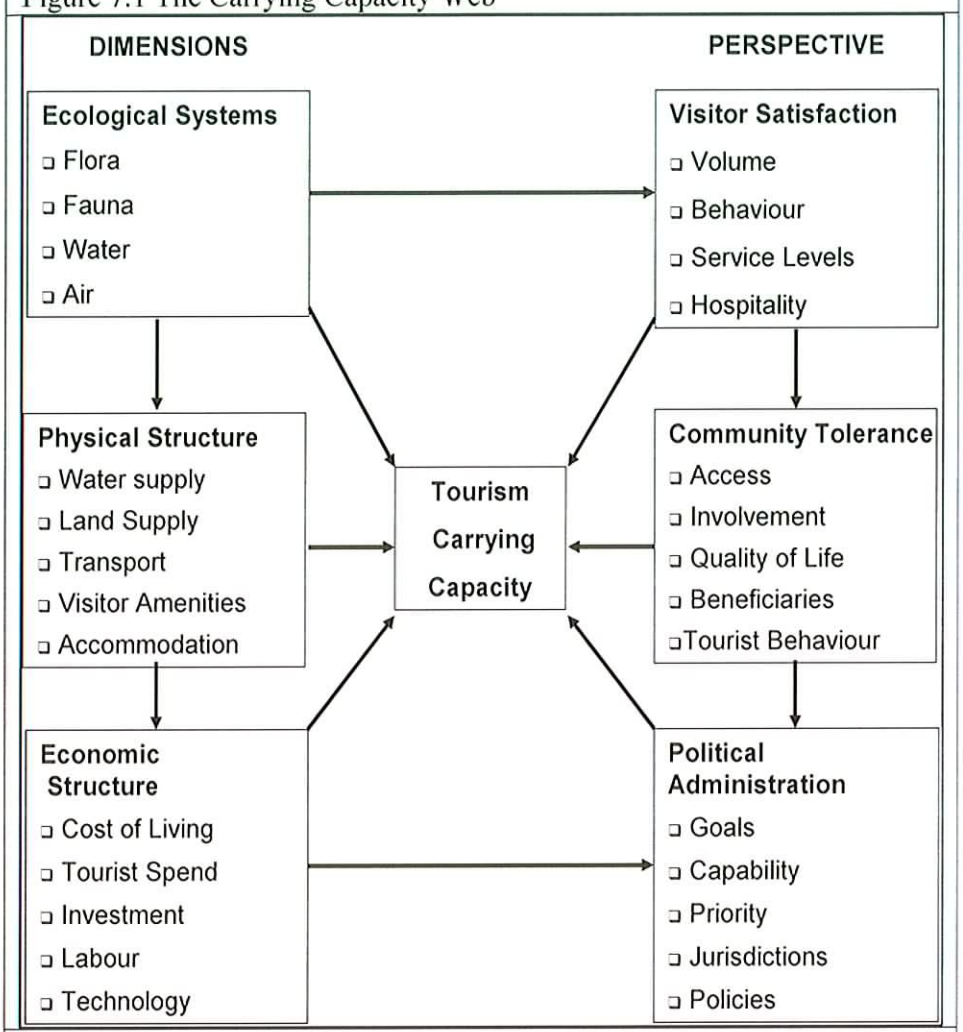
A team of experts made up of town planners, architects and tourism academics considered that the impacts of tourism could be depicted as a 'web' or network of elements split between quantifiable dimensions and qualitative perspectives (see Figure 7.1). The quantifiable dimensions concern ecology, economics, physical space and infrastructure. The qualitative perspectives concern the real and perceived influence of tourism activity on the interrelationship between hosts and guests (visitor satisfaction and community tolerance) and managers' willingness to control this relationship (political administration). The research carried out as part of this project was based on the carrying capacity indicator model devised by Glasson *et al* (1995). This model attempts to manage visitor impacts within an urban settlement and determine the carrying capacity for historic cities in Europe. The model was adopted for use in this project as it includes the principal elements which should be investigated to determine the carrying capacity of a destination. Using the model, the first two strands identify

indicators, which demonstrate the impacts of tourism in the case study area, and in the third strand measures are developed to mitigate against these impacts.

Carrying capacity and sustainability are complex concepts which tourism managers need to approach in a more holistic manner if they are to achieve positive results. Research suggests, however, that putting policy into action has been elusive in the tourism industry because the sector is uncoordinated and often not poorly understood or appreciated at national policy level. Because of these difficulties, it was proposed that the nature of tourism in an area be investigated using the structure of the "Carrying Capacity Web", with a view to identifying the multiplicity of relationships outlined therein.

The key difficulty remains one of incorporating value judgements of capacity attributes into the decision process. This research has addressed this issue and the linking of qualitative and quantitative elements in the process of mitigating negative impacts of tourism was an ultimate output of this research.

Figure 7.1 The Carrying Capacity Web



Source: Glasson *et al*, 1995

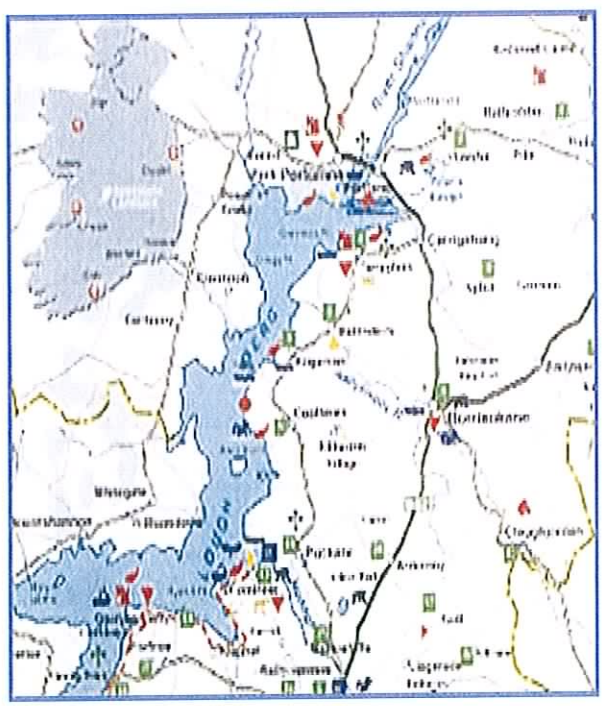
7.5 Original focus of study for Environmental Protection Agency Project: Tipperary Lakeside Region

The Tipperary Lakeside region located around Lough Derg in County Tipperary, also known as 'Ireland's Pleasure Lake' was identified as the principal case study area for the EPA project (see Map 7.1). Lough Derg is located in the mid-western region of Ireland. The particular focus of the study is the eastern coastline of Lough Derg, which is in the administrative region of Tipperary North riding. The River Shannon was designated a major resort area in 1963 (Brady Shipman Martin (1992) and since then has played an important part in Irish tourism. At a more localised level Lough Derg (which is the largest lake on the river) has been identified by a number of studies as having major potential for tourism.

For practical reasons, this location, known as the 'Tipperary Lakeside region' was chosen for the EPA project as it is a relatively compact area which is an identifiable tourism destination and one which capitalises upon its tourism assets by creating its own identity based on its particular tourism products (Flanagan & Convery, 1992). Tipperary Lakeside is:

> *'an established, but not highly developed, tourism zone which has its own tourism promotion organisation, Tipperary Lakeside Tourism Cooperative Society. Lough Derg is the principal attraction and platform for tourism development in this zone. Numerous water-based activities are available for tourists, and there are several very picturesque villages located along, and close to, the lake shore'.* (CHL Consulting, 2004)

Map 7.1: Location of Lough Derg



7.7 Research Approach

The overall research approach provided for three broad stages of research and were as follows:

- Establishment of a conceptual framework
- To undertake work plans
- To develop conclusions and policy recommendations, including a training programme

- Finally, the formation of a model for sustainable tourism management

These objectives have been met. Each strand of the project addressed one or part of these objectives.

7.7.1 Establishing a Conceptual Framework

The project contains three Strands, each of which generated a range of outputs:

- **Strand 1:** This strand was entitled "characterisation of quantifiable dimensions". Strand 1 consisted of generating a set of inventories, which entailed an analysis of ecological, economic, and physical dimensions at the case study area. The author was heavily involved in this strand.
- **Strand 2:** This strand was known as "qualitative perspectives" and included an analysis of influences on host/guest inter-relationships with special reference to visitor satisfaction, community tolerance and political administration.
- **Strand 3:** This strand synthesised the work achieved in the two previous strands which resulted in the development of an integrated management model for the mitigation of tourism impacts.

Strands 1 and 2 related to the quantitative and qualitative dimensions of the carrying capacity web respectively while strand 3 linked the research findings to European best practice and developed a sustainable tourism management model as well as assisting in the development a training programme for stakeholders which could be used as a tool to aid the mitigation of negative impacts of tourism.

7.8 Undertaking Work Plans

An expert Steering Committee worked with the team to ensure the stated objectives were met and the outputs delivered within the deadlines, within budget and to the highest standards. The steering committee met bi-annually during the two-year research project. Each strand had an "Advisory Committee" who also provided their expertise to the project. The individual members of the committees provided their expertise to the Strand Leaders and Project Managers on a more regular and informal basis between Steering Committee and Strand Advisory Meetings.

Work undertaken in all strands of the research was informed through the collection of desk research drawn from two components, namely academic and industry specific information. This dual focus gives the research study academic integrity, while in addition providing relevance for the tourism industry. The academic material focused on economic, socio-cultural and environmental impacts of tourism, while the industry material concentrated on destination planning and management.

In practical terms in order to carry out the work, there were two full-time MPhil students working on strand 1. The author was one of these researchers concentrating on the tourism infrastructural and physical dimensions, while her colleague examined the ecological and environmental aspects of this strand. It was envisaged at the outset that MPhil students would, during the course of the project, discover an area which required further in-depth academic research, thereby facilitating the progression to PhD. In order to complete the work package for Strand 2 a full-time researcher from the DIT, Tourism Research Centre was allocated.

7.8.1 Research Methodology

As stated, the project was composed of three strands. The first two strands comprised of the primary research where inventories of data were developed, based on the Carrying Capacity Web outlined in Figure 7.1 (see page 96). Each of the elements of the 'carrying capacity web' may not have the same magnitude in every destination but each must be considered in establishing the overall carrying capacity or developing a model for sustainable tourism in a potential destination. These inventory sets subsequently led to the identification of indicators of sustainable development for tourism in strand 3. The vast number of candidate indicators identified at this initial stage were refined in strand 3 and 'selected' indicators were chosen according the criteria recommended by the UNWTO as set in Chapter 5.

The following sections outline the methodologies used in each strand of the research and highlight the role of the author in each strand.

Strand 1: Analysis of quantitative dimensions

The purpose of Strand 1 of the research was the characterisation of quantifiable dimensions of tourism focusing on inventory and analysis.

The key tourism elements in the area were analysed to identify the quantifiable dimensions of the capacity web under the following headings:

- Ecological Systems
- Economic Structure
- Physical Structure
- Comparative Analysis

The deliverables of strand 1 were detailed inventories of the principal attributes and activities outlined in the Capacity Web as they apply to the Tipperary Lakeside Study area. The inventories give an assessment of the present state of the landscape and current strategies for its protection and management.

From the beginning of strand 1, the researchers sought to develop inventories that would serve as the background information for developing indicators in strand 3. Being conscious of this, the following steps were taken to develop and analyse inventories which characterised the quantifiable dimensions of sustainable tourism for strand 1:

- An initial examination included desk-based exploration. The author was responsible for examining the following physical and economic dimensions: transport; visitor amenities; accommodation; cost of living; investment; labour and technology. This desk-based analysis consisted of thralling through policy documents issued at national, regional and local level and reports issued by non-governmental agencies. This initial examination of non-academic literature was fruitful and negated the necessity to carry out extensive primary field research.
- The researcher consulted with external agencies, organisations and experts in the various dimensions. The author met and spoke with local authority members responsible for the various dimensions. The author also met with concerned groups and stakeholders such as the Tipperary Lakeside Tourism Co-operative Society, the voluntary tourism organisation in the area. The author also met on numerous occasions with various individuals in the regional development agency. Shannon Development, the regional development authority has been instrumental in developing and advancing tourism as an economic earner along the western periphery of Ireland. Thus, much relevant information emerged from these consultations.

- Fieldwork was undertaken in tandem with the desk-based investigation. At the outset, it was envisaged that extensive fieldwork would be required to fill data gaps, however, after completing the exhaustive desk-based review and the numerous consultations, it was concluded that minimal primary research was needed. The primary research conducted related to the ecological dimensions of strand 1, which was not this author's responsibility.
- The data from the investigations was inputted into a set of inventories which assisted in identifying the principal attributes of tourism in the area under investigation. Where possible this was presented in graphic and map form, for ease of manipulation and comparative analysis.

A fieldtrip to the Isle of Gigha in Scotland facilitated comparative analysis with a similar destination. The islanders who established a trust for administrative purposes bought the Isle of Gigha in 2000. The islanders are committed to sustainable development and so far the electricity supply on the island is wind powered and essential housing upgrading, and modernisation has meant that solar panels have added to meet the aims of sustainable development. The population of the Isle of Gigha is relatively small, totaling 150 people, yet the islanders recognise the importance of tourism in terms of their future economic viability. The islanders under the direction of the Trust manager are endeavoring to expand their tourism infrastructure all be it in a sustainable manner. The benefits of the fieldtrip for the Strand 1 researchers were reciprocated as the researchers developed an understanding of the level of commitment required to implement strategies for sustainable tourism development.

The objectives of strand 1 were achieved, and an interim report (see appendix A) was produced which included an inventory of tourism attributes present in the Tipperary Lakeside region and an analysis of the data gathered, several problems were nonetheless encountered whilst conducting the research. These difficulties were not envisaged at the outset. The following list details the difficulties encountered. It should be stressed by recognising the difficulties, alternative solutions were found.

- A large quantity of data was available but was not focused on particular aspects of the research project.

- Data was recorded at specific spatial and temporal scales lending to a degree of incompatibility when analysing the data collectively/comparatively.
- Considerable difficulty was experienced when contacting the holders of data, obtaining the data and receiving permission to use the data.

The sections of the interim report produced by the author are detailed in full in appendix A.

Strand 2: Analysis of qualitative perspectives

The purpose of strand 2 of the research was the characterisation of qualitative dimensions of tourism. The author was not involved in strand 2 *per se*, but did play a marginal role: assisting in some administrative duties and carrying out some visitor questionnaires.

The key tourism elements in the area are analysed to identify the quantifiable dimensions of the capacity web under the following headings:

- Analysis of Community / Social Tolerance
- Analysis of Visitor Satisfaction
- Analysis of Political Structures
- Comparative Analysis

The following research approaches were undertaken to identify the qualitative perspectives of sustainable tourism for strand 2:

- A postal residential survey was utilised to investigate community tolerance of tourism in the research area;
- Face-to-face visitor satisfaction surveys were conducted on a monthly basis with visitors to the research area;
- Focus groups were undertaken with residential groups and local authority members to ascertain opinion on sustainable tourism and extrapolate issues;
- Strategic conversations were held with key stakeholders at local, national and regional level to examine the practices of each.

The results of strand 1 and strand 2 provided a framework for considering the various elements in a co-ordinated manner not hitherto achieved. The information gathered from strand 1 and strand 2 led to the identification of a vast number of potential or "candidate" indicators. The outputs from strand 1 and strand 2 feed into strand 3.

Strand 3: Integrated Management for the Mitigation of Tourism Impacts

The objectives of strand 3 were the development of an integrated management approach toward the mitigation of tourism impacts and also the dissemination of the project results.

The deliverables of strand 3 focused on the development of a carrying capacity framework, leading to the evolution of an environmentally integrated tourism destination management model. This strand combined the findings of the preceding two strands and incorporated EU best practice policies and procedures in the development of the model.

The author had an input in this strand at various intervals. The author suggested multiple numbers of candidate indicators which she identified as admissible and important from information derived as part of strand 1 research. She also collaborated in examining European Best Practice. The author attended the numerous brain-storming sessions and consultation meetings including the one day intensive indicator session with Professor Butler designed to select the indicators of sustainable development for tourism that would be incorporated into the tourism destination management model.

7.9 Development of DIT-ACHIEV Model of Sustainable Tourism Indicators

While the objective of this project was to identify indicators which would apply to the Tipperary Lakeside area, it was ensured where possible that indicators would have the broadest possible applicability.

The tourism stock of Tipperary Lakeside region can be exploited through several forms of tourism activity, for example, boating, fishing and general recreational activity. General recreational activities including swimming and water sports, walking and

trekking, sightseeing, picnicking, etc. The development of sustainability indicators required consideration for this spread of activities. Table 7.1 lists the key areas of candidate indicators that developed from the in-depth desk and fieldwork of strand 1 and strand 2.

Table 7.1. Key Categories of Indicators Identified in Strands 1 & 2 of Research	
Key Area of Investigation	**Sub Category**
Ecological Systems	▪ Flora & Fauna ▪ Water ▪ Air ▪ Archaeology and History ▪ Culture ▪ Landscape ▪ Noise Environment
Physical Structure	▪ Water Supply and Treatment ▪ Land Supply / Use ▪ Transport ▪ Visitor Amenities ▪ Accommodation (Location / Quality / performance / seasonality)
Economic Structure	▪ Cost of Living ▪ Tourist Spend ▪ Investment ▪ Labour ▪ Technology
Visitor Satisfaction	▪ Volume ▪ Behaviour ▪ Service Levels ▪ Hospitality
Community Tolerance	▪ Access ▪ Involvement ▪ Quality of life ▪ Beneficiaries
Political Administration	▪ Goals ▪ Capability ▪ Priorities ▪ Jurisdiction ▪ Policy

The identification of indicators began, initially, with a list of 214 candidate indicators (having eliminated parameters which were deemed to be entirely unfeasible or impractical). This extensive list was developed into a manageable set of indicators, designed to capture the pressures on the sustainability of the tourism sector in the study area. The candidate indicators ranged from indicators that were specific to the particular tourism product in the study area to indicators of a more generic nature and that purported to capture non-specific usage of the composite tourism asset.

A number of procedures were followed in prioritising and narrowing the candidate list down to a manageable and robust group of indicators. This iterative process eventually reduced the 214 candidate indicators to the 33 indicators demonstrated in the *DIT-*

ACHIEV Model of Sustainable tourism Indicators (Figure 7.2, page 109). This refining process involved consultations with a broad range of experts including: tourism and environmental managers at all levels; planners; enterprise development professionals; heritage and arts professionals; community based practitioners; tourism industry personnel; scientific experts and expert academics; in addition to consideration of academic and professional literature. The following guidelines for indicator development and best practice were consulted:

- UNWTO (2004), *Indicators of Sustainable Development for Tourism Destinations; a Guidebook*;
- UNEP Guide (2005), *Making Tourism More Sustainable: a Guide for Policy Makers*;
- The *VICE Model* (TMI, 2003) was examined as it has been adopted as a tool for sustainable tourism development in the UK;
- The Department of Communication, Media and Sport (2001), *Getting it Right: Monitoring Progress towards sustainable tourism in England*;
- European Commission (1999), EU MEANS criteria were used in assessing the overall usefulness of the proposed indicators;
- OECD (1993), *"Pressure-State-Response" (PSR) framework* and the *"Driving force-Pressure-State-Impact-Response" (DPSIR)* framework

Indicators were chosen which would assess conditions, trends and performance. In order to make the model as accessible as possible, consideration was given to the assertion by Morrissey *et al* (2006, p.49) that *'a degree of simplification is a prerequisite . . . to provide information in a form of practical use to decision-makers and understandable to the community'*. Where possible, the selected indicators also consider: accuracy, bias, age, verifiability and completeness (Putnam, 2002).

Finally, the following characteristics of indicators were taken into account, according to Butler (2006):

- Valuable indicators must consider long-term collecting of data;
- Indicators do not have to be specifically tourism related once they can be used to indicate a healthy state of tourism;
- Indicators must assist in indicating data which is useful and consistent;
- Indicators must indicate change over time;

- Indicators must assist in demonstrating movement ('to' or 'from') relative to specified targets.

Initially it was expected that the indicators would be derived directly from the Carrying Capacity Web (figure 7.1, page 96) to build a related model of sustainable tourism indicators. However, as discussed throughout strands 1 and 2, the elements of the Carrying Capacity Web were found to be restrictive in the identification of robust indicators. Because of this, a new model of Sustainable Tourism Indicators was developed. This model (the DIT-ACHIEV Model of Sustainable Tourism Indicators) was initially designed around seven and subsequently six key '*Fields of Interest*': Heritage, Infrastructure, Enterprise, Community, Visitor and, Administration (Economics was initially considered but as discussed in the following section was later omitted).

Following the extensive iterative process of indicator evaluation the 214 candidate indicators from strands 1 and 2 were distilled down to 33 key indicators which were seen to be:

- Relevant
- Available
- Meaningful
- Fresh
- Sensitive
- Reliable
- Comparable
- Normative

(European Commission, 1999)

Thus the DIT-ACHIEV[4] Model of Sustainable Tourism Indicators was developed (see Figure 7.2, page 109). This model is divided into 6 Fields of Interests which are numbered 1 to 6. Each of these Fields of Interest is composed of from 3 to 5 *Sub Fields* which are identified by letters a) to f). Where required, some of these Sub Fields are sub-divided into 1 or 2 indicators. There are 33 indicators which are numbered using square brackets. In order to evaluate each indicator there are from one to four Assessable Parameters. The assessable parameters present more detail on the indicators by providing information on their availability, the agency responsible for the assessable parameter and also comments in general.

7.10 Project Outcome

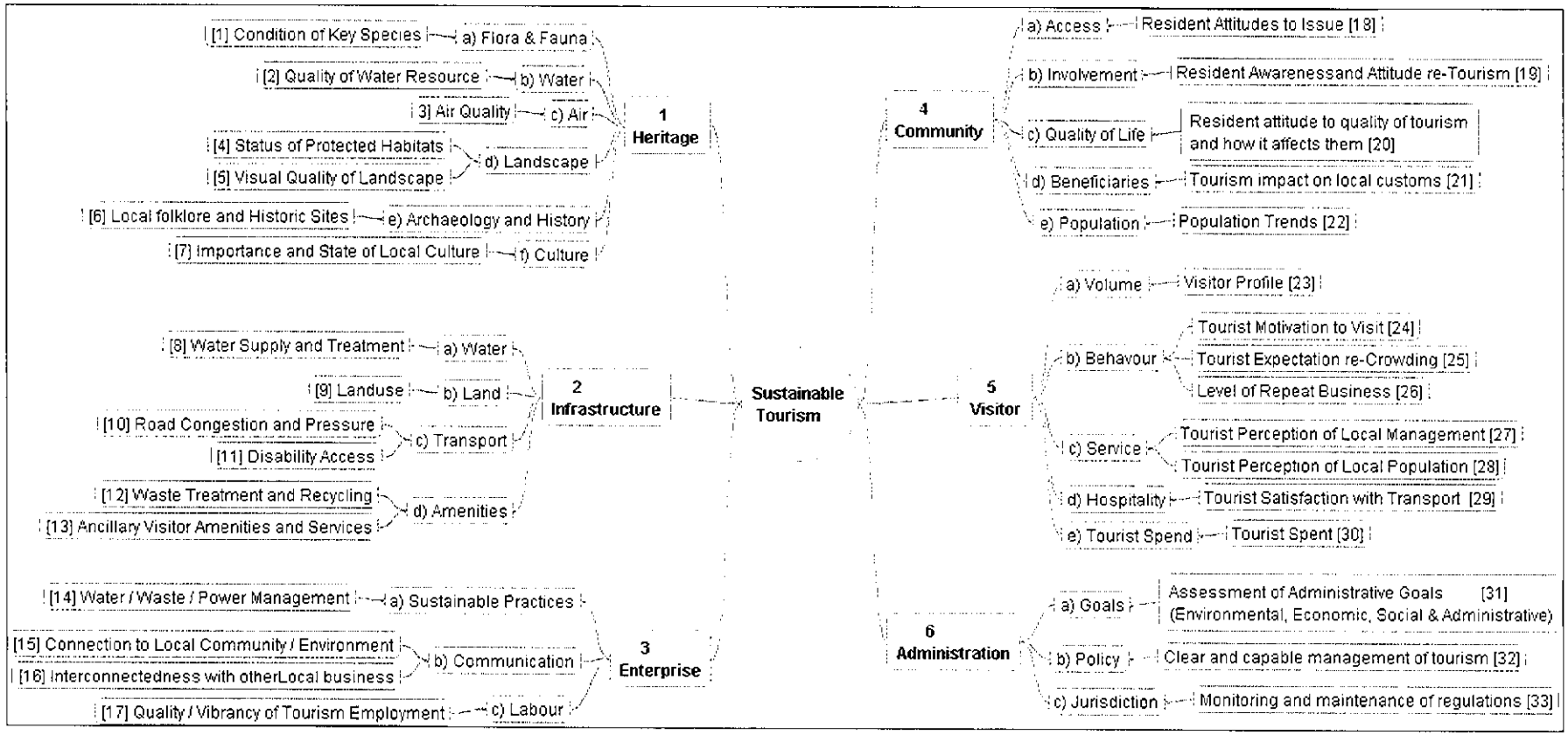
The final outcome of the overall project has been the development of a carrying capacity framework, leading to the evolution of an environmentally integrated tourism destination management model and development of an integrated management training module.

7.11 Conclusion

This chapter traced the evolution of the EPA Project and the role of the researcher in this commercial project. The work undertaken as part of the EPA project has added to the postgraduate diploma in research and helped to develop the overall thought process in the mind of the researcher. Although, it can be argued that the EPA project is a commercial study, it has nonetheless facilitated this researcher in terms of providing a platform from which to carry out in-depth research at a higher level and provided the funding for the research. The EPA project has developed the researcher's analytical and research skills.

[4] ACHIEV stands for Administration, Community, Heritage, Infrastructure, enterprise and Visitor – the six 'Fields of Interest' presented in the model.

Figure 7.2. DIT-ACHIEV Model of Sustainable Tourism Indicators



Appendix B

ERDTI Programme 2000 - 2006

SUSTAINABLE TOURISM DEVELOPMENT

Towards the Mitigation of Tourism Destination Impacts

Strand 1 - Interim Report

Dublin Institute of Technology
Cathal Brugha Street
Dublin 1

March 2006

June Phelan

TABLE OF CONTENTS

1. INTRODUCTION

The purpose of this introduction is to present the objectives and structure of this report and to outline the study area.

In January 2005 a research team at the Dublin Institute of Technology (DIT) began working on a major research project into sustainability in Irish tourism, one of the country's most significant industries. This two-year research programme seeks to develop effective techniques to protect and enhance a destination's tourism 'capital' and thus minimise the danger of damage that tourism itself may cause. The official title of the project is "Sustainable Tourism Development: Towards the Mitigation of Tourism Destinations Impacts". The study area chosen was the Tipperary Lakeside region located on Lough Derg. This lake is located within an identifiable tourism area, which capitalises upon its tourism assets by creating its own identity based on its particular tourism product.

The project is funded by the Environmental Protection Agency (EPA) through the Productive Sector Operational Programme of the National Development Plan 2000 - 2006. The project is led by the School of Hospitality Management and Tourism at DIT in collaboration with the Faculty of the Built Environment and the Tourism Research Centre. A research steering committee was formed which includes expert representatives from the University of Strathclyde; the Department of Arts, Sport and Tourism; The Environmental Institute, University College Dublin; Fáilte Ireland and the EPA.

With increased interest in environmental concerns, attention has focused on some of the negative impacts of tourism. The capacity of an area to absorb visitors is becoming more prominent. Beyond a certain point the tourism numbers arriving into a particular area may have negative consequences for the evolution of the area. Thus, the development of techniques to implement carrying capacity measures and the development of indicators will be of considerable benefit to both government agencies and tourist interests, in the determination of area's potential and its sustainability. With better information, visitor and area management can be more proactive and capacity issues can be better anticipated and responded to.

The objective of this two-year research programme is to devise and improve methods for the implementation of carrying capacity measures at destination level and to facilitate government and tourism business managers in making more informed decisions. This research seeks to alleviate the potential danger of environmental damage from tourism, by the developing techniques to determine the carrying capacity of an area. This carrying capacity framework will lead to the evolution of an environmentally integrated tourism destination management model and the development of an integrated management training module.

Project Summary

- Funded by the EPA, as part of the Environmental RTDI Programme 2000-2006. Total funding amounted to €317,000
- DIT research team led by the School of Hospitality Management and Tourism, in collaboration with the School of Environmental Planning and Management, and the Tourism Research Centre.
- Two-year research programme which aims to devise and improve methods for developing indicators and the implementation of carrying capacity model at a destination level and to facilitate government and tourism business managers in making more informed decisions. This carrying capacity framework will lead to the evolution of an environmentally integrated tourism destination management model and the development of an integrated management-training module.
- The study area chosen; Tipperary Lakeside is an identifiable tourism area, which capitalises upon its tourism assets by creating its own identity based on its particular tourism product.
- The research steering committee includes expert representatives from DIT, the EPA, the Department of Arts Sports and Tourism, The Environmental Institute, University College Dublin, Fáilte Ireland and the University of Strathclyde.

Structure of Project

The project is composed of three strands, which are briefly outlined in the following sections. The first two strands comprise of the primary research in which inventories of data well developed, based on the Carrying Capacity Web outlined in the following diagram as devised by Glasson *et al* (1995).

Strand 1 - Analysis of Quantitative Dimensions

The purpose of this strand of the research was the characterisation of quantifiable dimensions of tourism focusing on inventory collection and analysis.

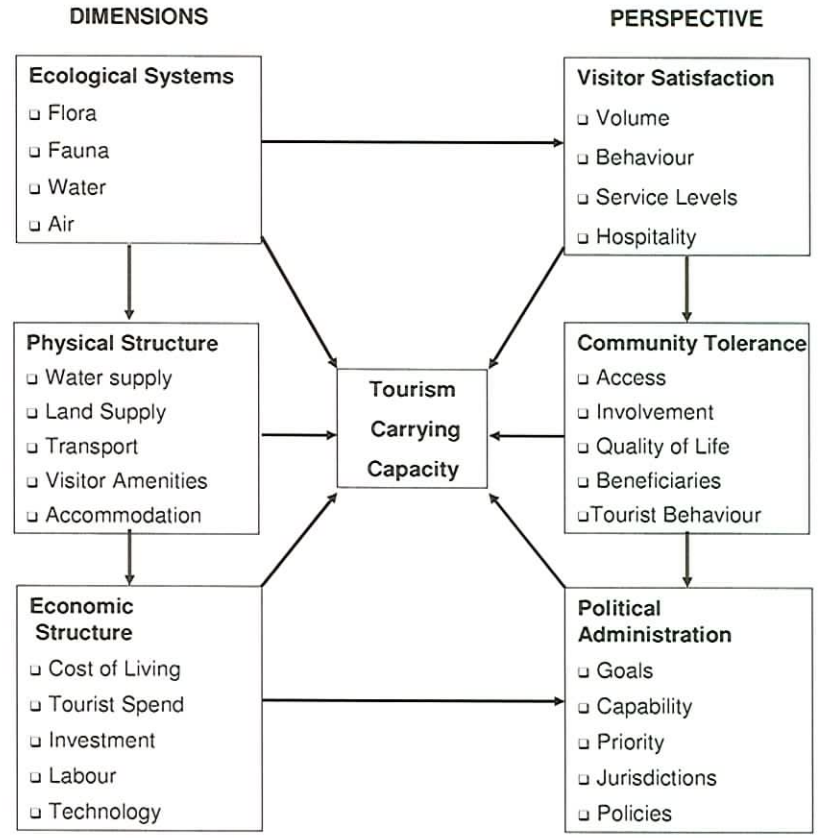
The key tourism elements in the area were analysed to identify the quantifiable dimensions of the capacity web under the following headings:

- Ecological systems
- Economic structure
- Physical structure

It is envisaged that comparative analysis will be conducted with an appropriate case study area, with a view to examining management policies which have proved successful.

The deliverables of Strand 1 are detailed inventories of the principal attributes and activities outlined in the Capacity Web as they apply to the study area. The inventories give an assessment of the present state of the landscape and current strategies for its protection and management. The researcher's role in this strand was to quantify dimensions of the physical and economic structures: transport; visitor amenities; accommodation; cost of living; tourist spend; investment; labour and technology. The findings detailed in this interim report are the output of consultancy research carried out by the researcher.

The Tourism Carrying Capacity Web



Strand 2 - Analysis of Qualitative Dimensions

The purpose of this strand was the characterisation of qualitative dimensions of tourism focusing on inventory collection and analysis.

The key tourism elements in the area have been analysed to identify the quantifiable dimensions of the capacity web under the following headings:

- Analysis of community/social tolerance
- Analysis of visitor satisfaction
- Political administration

The deliverables of strand 2 have identified change that has already occurred in the destination (study area). The *qualitative perspectives* concern the real and perceived influence of tourism activity on the interrelationship between hosts and guests and manager's willingness to control the same (political administration) has been examined.

The results of strand 1 and strand 2 provided a framework for consideration of the various elements in a co-ordinated manner not hitherto achieved. The practical outputs from strand 1 and strand 2 have fed into strand 3.

Strand 3 - Integrated Management for the Mitigation of Tourism Impacts & Dissemination of Results

The objectives of Strand 3 was the development of an integrated management approach towards the mitigation of tourism impacts and also the dissemination of the project results.

The key elements of this Strand were:

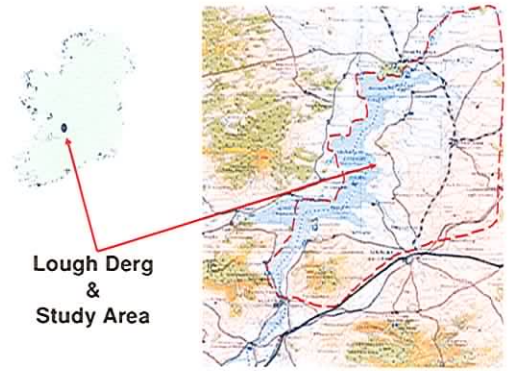
- Integration of strands 1 & 2
- Analysis of EU and Irish policies concerning the mitigation of tourism destination impacts and determining the relevance of these findings to the research
- Provision of a workshop to bring together participants dealing with sustainable tourism to explore diversity of approach and emergent commonality in relation to tourism carrying capacity
- Integration of frameworks such as: *Limits of Acceptable Change (LAC)* and *Visitor Impact Management (VIM)* into the findings of the research

The deliverables of strand 3 focused on the development of a carrying capacity framework, leading to the evolution of an environmentally integrated tourism destination management model. The dissemination of results through papers presented at conferences, peer-reviewed journal papers, web-site development, the formulation of an Executive Training Programme, a national workshop and an international conference (to be held in September 2007).

Study Area

The study area for this project was the Tipperary Lakeside area, the area of North Tipperary which borders Lough Derg (see maps 1.1 and 1.2). Lough Derg, which is the largest lake on the River Shannon, forms the north western border of North Tipperary.

Map 1.1 Location of Study Area



Traditionally Tipperary is divided into two administrative districts owing to its large size; Tipperary North Riding and Tipperary South Riding. North Tipperary is an inland county located in the mid-West region of Ireland and is within two hours driving distance of Ireland's principal cities; Dublin, Limerick, Cork and Galway (*North Tipperary Enterprise Board, 2002*, p.7). It is a predominantly rural county covering 202,430 hectares dominated by low-lying agricultural grasslands in the central plains, the Silvermines and Devil's Bit Mountains to the north and the Arra Mountains to the west. The principal industries in the county are agriculture, industry, forestry and tourism.

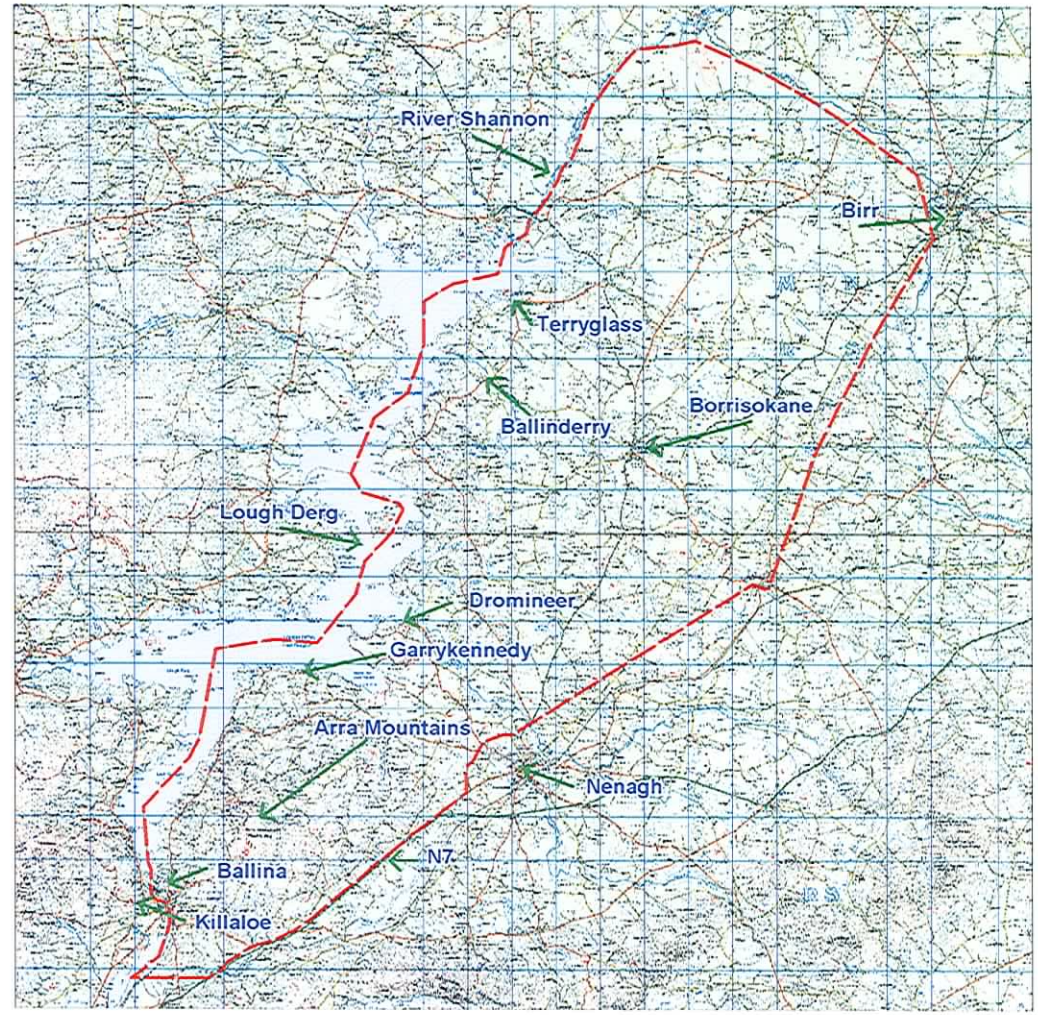
North Tipperary had a population of 58,021 in 1996. There was a slight increase in population from 1991-1996 of 0.3% (North Tipperary Enterprise Board, 2002, p.7). 67% of the population live in rural areas. Population density is low in the county, at 28 persons per km^2, (North Tipperary Enterprise Board, 2002, p. 7). The areas of lowest density are in the north, south and east central upland areas. However, the area around Lough Derg is well populated. The administrative capital of the county is Nenagh with a population of over 5,500. Other principal towns include Thurles, which has the largest population (6,500), and Roscrea.

Identification of Study Area

For practical reasons, when considering a study area, a relatively compact area has to be chosen which is an identifiable tourism area; one which capitalises upon its tourism assets by creating its own identity based on its particular tourism product (Flanagan & Convery, 1992). In this investigation, the Tipperary Lakeside portion of Lough Derg on the river Shannon was chosen as it fulfilled the above requirements. According to *The Tourism Development Strategy for North Tipperary*, (CHL, 2004) Tipperary Lakeside is:

> *. . . an established, but not highly developed, tourism zone which has its own tourism promotion organisation, Tipperary Lakeside Tourism Cooperative Society. Lough Derg is the principal attraction and platform for tourism development in this zone. Numerous water-based activities are available for tourists, and there are several very picturesque villages located along, and close to, the lake shore. There is a good selection of restaurants, country pubs and tourist accommodation available. The main gateways are Nenagh, Birr and Portuma, and these are significant locations for visitor services and attractions.*

The Tipperary Lakeside area was previously selected as one of the 'Pilot Tourism and the Environment Project' areas. This pilot scheme was administered by the Department of Arts, Sport and Tourism.



Map 1.2 Outline of Study Area in North Tipperary

Tourism Development in Study Area

The River Shannon was designated a Major Resort area in 1963 (Brady Shipman Martin (1992) and since then has played an important part in Irish tourism. At a more localised level Lough Derg (which is the largest lake on the river) has been identified by a number of studies as having major potential for tourism. At a regional level these studies have included the identification of the lake as an integral part of the Mid-West tourism development plan (Bord Failte, 1976); a tourism strategy area (Shannon Development, 1987); a regional action area (Shannon Development, 1988); and a regional tourism core (Reddan, 1993). At a national level Lough Derg has been identified in numerous reports, among them the study of the river Shannon as a location for tourism and recreation by Brady Shipman and Martin (1992); the 1989-1993 Irish tourism development plan (Government of Ireland, 1989); and the 1992 Bord Failte plan for sustainable tourism (Bord Failte, 1992).

> *The location of Lough Derg in the heart of the Shannon Region is one of the most important tourism assets which the [Mid-West] region possesses* (Reddan, 1993).

STRAND 1: Structure and Details

For the purpose of this research the landscape was considered the sum of the physical and cultural resources of a region. As a first step to understanding and using the landscape as a base for tourism activity, detailed inventories have been carried out of the principal attributes and activities in the area.

The majority of this work was undertaken by two postgraduate research students June Phelan and Peter Roe alongside Dr Kevin Griffin who has assisted in researching and managing the project, providing expertise in this area and supervising one of the MPhil students: June Phelan. .

The inventory gives a clear picture of the present state of the landscape and current strategies for its use and protection. Over the past decade there has been a growing recognition in Ireland that each tourism destination has a number of tangible assets, which are unique. These assets which may be historic, cultural, linguistic or scenic represent the essential appeal of that destination for the tourist. As such these resources are part of an area's tourism "capital". Managing tourism to sustain local economies in ways that do not result in damage to the very environment, on which successful tourism depends, has become the accepted definition of "sustainable tourism".

The inventory and analysis has been undertaken by the researchers outlined above. The following steps were taken to develop and analyse inventories which characterise the quantifiable dimensions of sustainable tourism:

- Investigation of the quantifiable dimensions required an initial examination through desk based exploration, and consultation with external agencies / organisations and experts in the various dimensions.
- In tandem with the desk based investigation, fieldwork was undertaken. It was initially intended that this would be carried out at various intervals throughout the year to evaluate seasonal variations in physical landscape/ environment, economic activity and touristic landscape. However, a broad range of secondary data was identified, which negated the need to undertake much of this primary work.
- The data from the secondary and primary investigations was inputted into a set of inventories which assisted in identifying the principal attributes of tourism in the area under investigation. Where possible this was presented in graphic and map form, for ease of manipulation and comparative analysis.
- It was initially thought that analysis would proceed from the data gathering stage. However, data analysis was conducted throughout the gathering and inputting stage. The results of this strand give a clear picture of the present state of the landscape and an of overview current strategies for its protection in the study area.

Work Packages

Once research commenced it became apparent that the elements of the Carrying Capacity Web were quite limited and covered only a small portion of the possible range of indicators. In order to explore a broad range of indicators, the emphasis of the work remained focused on the key dimensions of the Carrying Capacity Web, but, the research was broadened to investigate many other possible indicators.

The key elements in the area were researched in order to identify the quantifiable dimensions of the capacity web under the following headings:

1. Ecology: The natural/physical and cultural landscape, flora, geology, archaeology, history, folklore/folklife, language and place names.

3. Physical Structure: The physical dimension of tourism carrying capacity is primarily concerned with the basic infrastructure and facilities available to a destination. Water supply, land supply, energy supply, transport and parking facilities, visitor amenities and accommodation were examined. The impact of increased demand and greater visitor numbers on the ability of these services to operate efficiently was examined.

2. Economic Structure: The destination's ability to absorb tourist functions without squeezing out desirable activities was examined. Seasonality of tourism, the impact of it on employment pattern. Rates of employment/unemployment, participation rates by gender, land use patterns, tourist spending and swings in local economic prosperity corresponding to trends in tourist demand were investigated.

The local authorities have many statutory obligations in respect of the protection of the environment, the provision of services and the control of development. Consequently much of the information required in the identification of quantifiable dimensions of carrying capacity in Strand 2 was available from the local authority: North Tipperary County Council.

Outcomes

Detailed inventories of the principal attributes and activities in the study area have been developed. These give an assessment of the present state of the landscape and current strategies for its protection and management. The inventories have been formulated using standard databases which, where possible, have been integrated with MapInfo mapping software. This was intended to facilitate both the visual representation and analytical manipulation of research findings. This should also allow direct transferability of the data as this data format is widely used by local authorities and agencies.

The indicators identified through the ecological, economic and physical analysis are key elements in the establishment of the quantifiable dimensions of the capacity web.

Tracking

The various levels of management structure and in particular the Advisory Committee are used to track and review all work assignments, to maintain high standards of performance.

2. ECOLOGICAL SYSTEMS

2.1 INTRODUCTION

This section is primarily concerned with the status of the natural environment in the study area. In particular, the tourism carrying capacity web identifies Flora and Fauna, Water and Air as key dimensions to be addressed when considering the possible impacts of tourism on the natural environment or Ecological systems (see box 1). In addition to the above, this section also addresses a number of secondary topics which, although not specified in the carrying capacity web, have been identified as relevant and most appropriately addressed in this section of the report. These topics include Landscape, Geology, Archaeology and History and Culture.

Box 1: Ecological Dimensions of the Tourism Carrying Capacity Web
• Flora* • Fauna* • Water* • Air* • Landscape • Geology • Archaeology and History • Culture
* = Key dimensions of the Carrying Capacity Web

The researcher has included the findings of the dimensions for which she was responsible, namely; Archaeology and History and Culture.

2. 2 ARCHAEOLOGY AND HISTORY

2.2.1 County History

The medieval landscape of Tipperary is one of the richest in the Ireland. Tipperary has the second highest concentration of tower houses after Limerick city, however evidence suggests that a number settlements date to the late Bronze Age (Dúchas, 2002).

The county boundary is a result of several modifications over the centuries. During the early Anglo-Norman period, Tipperary represented the eastern half of the former kingdom of Limerick but by the mid-thirteenth century, Tipperary came to be regarded as a county in its own right (Empey, 1985). From 1185 to 1716, the Butler family controlled much of Tipperary becoming Lord and Earl of the county and effectively assuming all administrative and judicial power. The county was formally divided into two ridings; north and south in 1838 under the Grand Jury (Consolidation) Act of 1836. The north and south county councils were introduced in 1898.

2.2.2 County Archaeology

Archaeological remains in the county date from the Neolithic period, but more recent settlement patterns dating from the early and later medieval periods are evident on the landscape. North Tipperary County Council published a (draft) Heritage Plan (2004-2008) in 2003, which is a five year vision representing a strategic method of protecting, conserving and managing North Tipperary's heritage resources. The aims of the heritage plan are to promote appreciation and enjoyment of the built, natural and cultural heritage of the county through increased awareness and understanding.

2.2.3 Statutory Protection

Archaeology is an essential and non-renewable component of Irish culture, heritage and the landscape and as such archaeological structures are of great interest for visitors and locals. Ireland is exceptionally rich in archaeological sites and monuments which form a central component of Irish Heritage. Archaeological sites and monuments are considered a core tourism product. Protecting our national monuments and sites is paramount and statutory legislation exists to facilitate their preservation.

European Legislation

The European Union is committed to protecting sites of archaeological interest. Protection of archaeology is facilitated under the revised European Union Convention on the Protection of Archaeological Heritage (1992). This introduced a number of significant requirements for archaeologists and developers, including the preservation, *in situ*, of archaeological sites where feasible, and the concept that the costs of archaeological mitigation required during development must be borne by the developer. The revised European Convention on the Protection of the Archaeological Heritage (The Valletta Convention) which Ireland ratified in 1997, notes that

> *'the European archaeological heritage ... is seriously threatened with deterioration because of the increasing number of major planning schemes,*

natural risks, clandestine or unscientific excavations and insufficient public awareness' (The Heritage Council)

Irish Legislation

Legal protection for archaeological sites in Ireland is provided under the National Monuments Acts (NMA), 1930 to 2004 as outlined in table 2.18.

Table 2 1: National Monument Acts

National Monuments Act (1930)
National Monuments (Amendment) Act 1954
National Monuments (Amendment) Act 1987
National Monuments (Amendment) Act 1994
National Monuments (Amendment) Act 2004

The original definition of a 'monument' was redefined in 1987 as

'any artificial or partly artificial building, structure or erection or group of such buildings, structures or erections, any cave, stone or other natural product ... that has been artificially carved, sculptured or worked upon ... any, or any part of any, prehistoric or ancient tomb, grave or burial deposit, or ritual, industrial or habitation site, and any place comprising the remains or traces of any such building, structure or erection..'

(National Monuments (Amendment) Acts, 1987)

Record of Monuments and Places:

Under Section 12.1 of the National Monuments (Amendment) Act 1994, all known or suspected monuments are to be registered in the Record of Monuments and Places (RMP). The Record is based on the Sites and Monuments Record (SMR) and inventory information and its compilation is the responsibility of the National Monuments and Historic Properties Service. Unlike Registered sites, the owners of land on which a Recorded site exists do not have to be notified of the inclusion of the site in the Record. As with Registered sites, anyone intending to carry out work 'at or in relation to' Recorded sites, must notify the Minister of Environment, Local Government and Heritage of their intention prior to commencement of such work (The Heritage Council).

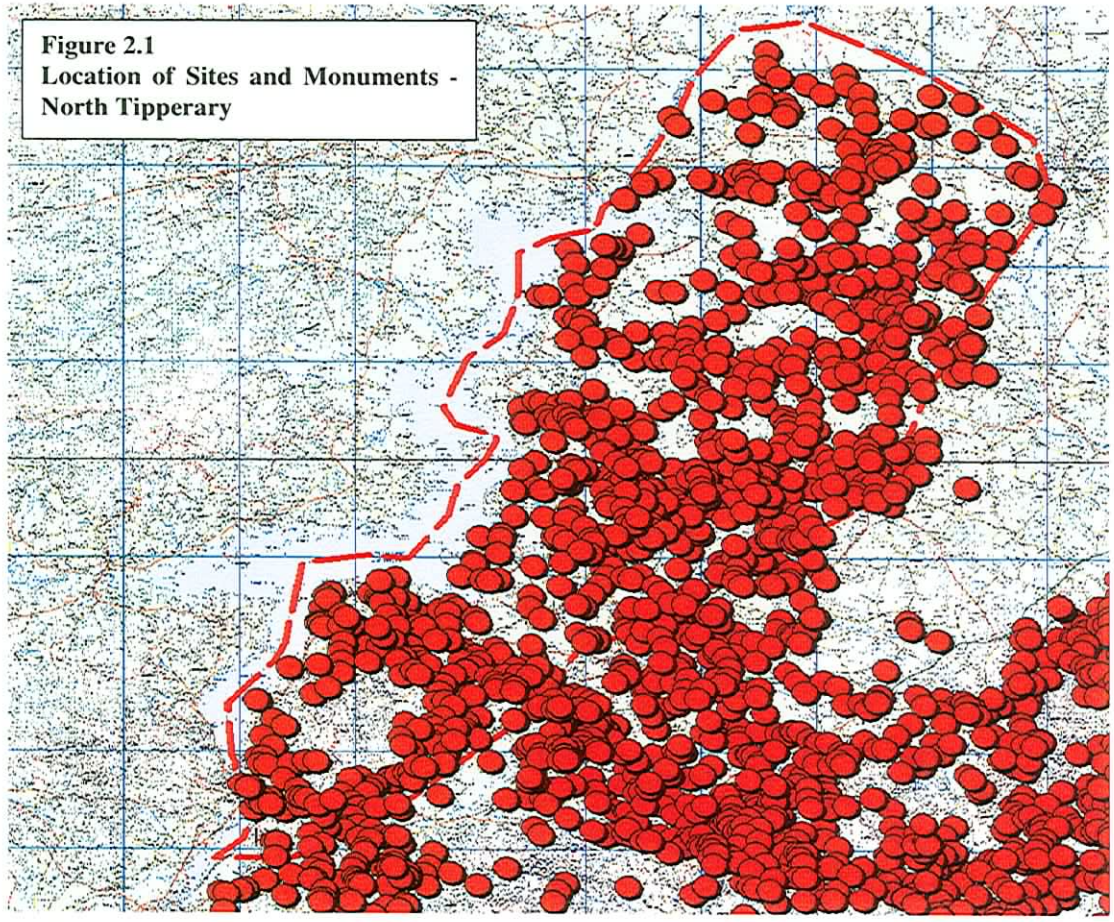


Figure 2.1
Location of Sites and Monuments - North Tipperary

The Sites and Monuments Record

The Sites and Monuments Record (SMR) is a list of all known sites of archaeological potential in a county. There are over 120,000 protected archaeological sites throughout Ireland (The Heritage Council). One of the primary uses of the SMR is as a reference database for county planning committees and for State and EU-assisted development proposals. There is often, however, a tendency to over rely on SMRs at the expense of unrecorded sites

Record of Monuments and Places in North Tipperary

Section 12 of the National Monuments (Amendment) Act 1994 was implemented in North Tipperary in September 1998 thereby conferring statutory protection on all listed monuments. The RMP is available in the form of constraint maps and an accompanying manual and is available for consultation in the North Tipperary Planning Office, Libraries and Department of Agriculture Offices (Dúchas, 2002).

Figure 2.1 illustrates the location of all listed sites under the Record of Monuments and Places in North Tipperary. North Tipperary has a rich and varied archaeological heritage as evidenced in the number and distribution of the sites listed. Some of these monuments and places have greater significance in terms of tourism potential; nonetheless, it is necessary to protect archaeological sites from potential damage incurred as a result of development.

Sites and Monuments Record in North Tipperary

The SMR for North Tipperary was issued in 1992. This record was based on a 'paper' survey drawing on available data including archaeological and historical publications; ordnance surveys maps, cartographic sources (such as Sir William Petty's seventeenth century maps), earlier Dúchas reports, National Museum of Ireland and Irish Tourist Association field reports
(Dúchas, 2002).

The SMR for North Tipperary was presented as a set of archaeological constraint maps and an accompanying manual listing all of the known and suspected archaeological sites and monuments in North Tipperary. The SMR is

regularly updated. The SMR is designed for use by local authorities or individuals whose work may affect sites/monuments in any way.

The Archaeological Inventory of Ireland

The Archaeological Survey of Ireland and Dúchas under the Department of the Environment and Local Government are preparing, compiling and publishing archaeological inventories for each county. According to the Heritage Council both *'the SMRs and Inventory Surveys represent the most comprehensive census of archaeological sites ever compiled in Ireland'* (The Heritage Council, 2002).

The Archaeological Inventories of Ireland only represent recorded sites and monuments but these inventories do offer greater detail on the nature, location and condition of the sites. Fieldwork and photographic evidence is used to compile these inventories in conjugation with data from the SMR , RMP and ordnance survey maps. These inventories are aimed both at general and academic readership and seek to increase cultural awareness and prevent further destruction of archaeological sites (Dúchas, 2002).

The Archeological Inventory of North Tipperary

The Archaeological Inventory of County Tipperary, Volume 1: North Tipperay was completed in 2002. The Inventory was compiled by Jean Farrelly and Caimin O'Brien on behalf of the Archaeological Survey of Ireland and Dúchas.

The entries in this inventory run in chronological order beginning with the megalithic period and ending around 1700 (Dúchas, 2002). The Archaeological Inventory of County Tipperary offers a comprehensive listing of all archaeological sites and monuments in the county in book form. The book is divided into chapters and each chapter is prefaced by a brief introduction outlining the nature, function and where possible the date of the respective monument types (Dúchas, 2002). Each entry details the monument name, inventory number, townland name, ordnance survey maps and national grid reference coordinates and a description of the monument.

2.3 CULTURE

2.3.1 Introduction

The local culture of a tourism destination area plays an intrinsic role in attracting tourists to a region. The cultural element of the Irish tourism product is recognised as a core component and is a growing niche market.

The North Tipperary Enterprise Board (2002) recognise that cultural diversity within the county can contribute to a balanced social and economic life. It is through the promotion of cultural events such as festivals and performing arts that both tourists and residents have an opportunity to learn, meet, participate and be entertained.

Culture in North Tipperary is promoted by many voluntary and public organisations. Table 2.2 lists the principal organisations involved in the promotion of cultural activities in North Tipperary.

Voluntary Groups based in the local areas:

- Carrig and Riverstown
- Cloughjordan Development Group
- Kilbarron District Development Association
- Latteragh Graveyard Association
- Loughmore Heritage Group
- Milestone Development Association
- Moyne-Templetouhy Parish History Group
- Templederry Development Group

Local Societies:

- Co Tipperary Historical Society (Tipperary Libraries).
- Borrisokane Historical Society
- Newport Archaeological and Historical Society
- Ormond Historical Society CAVA, Nenagh
- Roscrea Heritage Society.Damer House, Roscrea
- Sister Aine Historical Society, Templemore
- Nenagh Choral Society

Table 2. 2: Cultural Organisations Active in North Tipperary

Despite the rich heritage of cultural activity in the county, many cultural groups are facing some difficulties. These difficulties include:

- Poor awareness among general public of local events
- Poor dissemination of information to general public regarding cultural events
- Lack of adequate performance venues
- Difficulty in accessing venues due to poor transport systems
- Numerous voluntary and statutory groups involved can lend to uncoordinated approach when planning and organising cultural activities and events.

Role of North Tipperary County Council

North Tipperary (Draft) Arts Plan (2003-2007)
North Tipperary Council County published a draft North Tipperary Arts Plan. This (draft) Arts Plan recognises the importance of cultural diversity in the county and recommends the increased involvement of the county council in encouraging cultural activities. The objectives of the (draft) Arts Plan are closely linked to those outlined by the North Tipperary Enterprise Board (2002).

Arts Officer
The first Arts officer was appointed to North Tipperary County Council in January 1999 in conjugation with the Arts Council. The arts service has developed in terms of activity and levels of funding in the past four years.

The arts service is located within the department of Community and Enterprise in North Tipperary County Council. Currently the Arts service is staffed by one full-time Arts officer and one clerical officer. The Arts officer reports to the Director of Community and Enterprise. The geographical remit of the arts service is the administrative area including the urban areas of Nenagh, Thurles and Templemore. Since 2002, North Tipperary County Council have published an on-line Arts newsletter which includes an events listing. This on-line arts newsletter is estimated to have a readership of 1,500.

Tipperary Libraries
The role of the county libraries was highlighted in the (draft) Arts Plan as playing a strategic role in the promotion of cultural activities.

Tipperary libraries operate a service with 13 networks throughout the county reflecting a strong foothold in cultural activity at local community level. In addition to their primary role as public libraries, other services are provided including reference and local studies collections, study facilities, exhibition space, clubs and events and competition organisation.

2.3.2 Folklife

Exhibition Centres and Museums
There are a number of exhibitions centres in Tipperary as outlined in the box 2.

Box 2.: Exhibition Centres in North Tipperary

- Cahir Castle
- Heritage Centre, Carrick-on-Suir
- Cashel of the Kings Heritage Centre
- Bolton Library, Cashel
- Tipperart County Museum, Clonmel
- Silveardaagh Heritage Centre, Killenaule
- Lár na Páirce, Thurles
- Tipperary EXCEL Heritage Centre, Tipperary Town
- Killaloe & Brian Ború Heritage Centre, Killaloe
- The Governor's House, Nenagh Heritage Centre

Local Festivals

North Tipperary is a distinctly rural county (67% living in rural areas) thus many of the festivals and events are organised and held locally. The importance of local festivals cannot be underestimated in terms of safeguarding the local culture and history. These local festivals strengthen communities and are considered tourism attractions in their own right. Recently, regional tourism development in Ireland is experiencing increasing pressure and a reason often cited is the lack of activities and events outside urban centres thus the continuation of local events and festivals has a strategic role to play in promoting tourism in North Tipperary.

Local festivals and events have a role to play in sustainable development as they highlight elements of local culture and are organised by locals who wish to safeguard their own area. Table 2.3 lists the annual festivals held in the study area.

Festivals in North Tipperary are predominantly organised by voluntary committees who are highly committed to providing access to particular cultural activities in their areas. In terms of their involvement, these festivals are organised and held locally but have the potential to grow and appeal to wider audiences. Some challenges to date have emerged in organising local festivals including securing suitable venues, sourcing funding and sponsorship and problems such as burn out due to a small number of committed individuals giving a huge amount of time and energy to organising festivals. (North Tipperary County Council, 2003).

There are two local festivals in particular which have grown in reputation and appeal to wider audiences: the Terryglass Arts festivals and the Spleodar Festival. Both festivals are held annually. The festivals held in North Tipperary serve as attractions for both the domestic and international tourists visiting the area.

Table 2.3: Festivals held annually in North Tipperary

Month	Festival	Location
April	Roscrea Spring Festival (pilgrimage)	Mount St. Joseph, Roscrea
June	Tipperary Point-to-Point Races	Ballingarry, Roscrea
July	Feile Brian Boru Fleadh na Mumhan	Killaloe Roscrea
August	North Tipperary Agricultural Show	Nenagh
August	Terryglass Arts Festival	Terryglass
September	International Pikefly Competition	Derrycastle, Ballina
October/ November	Spleodar Community Arts Festival	Nenagh
November	Roscrea Autumn Festival (Medieval Literary Festival)	Mount St. Joseph, Roscrea
November	Dromineer Literary Festival	Dromineer

2.3.3 Irish Language

Introduction

The Irish language is a vital part of the living heritage of the State and an important natural resource in Gaeltacht areas. A core task of the Department of Community, Rural and Gaeltacht Affairs is to promote the following:

- To preserve the cultural, economic and social welfare of the Gaeltacht as the main source of the living language
- To reverse the decline of Irish as the principal means of communication in the Gaeltacht
- To extend its use in the rest of the country, both North and South

The Official Languages Act (2003) was signed into law on 14 July 2003 and it is the first piece of legislation to provide a statutory framework for the delivery of services through the Irish Language. The primary objective of this act is to ensure better availability and a higher standard of public services through the medium of Irish.

The continued existence of the Irish language strengthens the vibrancy and diversity of a cultural tourism product.

Irish Language Statistics

Table 2.4 details the number of persons aged 3 and over classified to speak the Irish Language in North Tipperary. There has been an overall increase in the numbers of Irish speakers in the county between 1971 and 1996. The

percentage of Irish speakers as a percentage of the total population of North Tipperary has grown from 31.6 in 1971 to 50.6 in 1996 (see table 2.5 and figure 2.2). In terms of tourism development, this increase represents a resurgence of Irish culture.

Table 2.4: Number of Persons Aged 3 and Over Classified by Ability to Speak Irish

Functional Area	1971	1981	1986	1991	1996
North Tipperary	16086	19202	20087	21405	27085

Source: CSO (SAPS Data)

Table 2.5: Irish Speakers as a Percentage of Total Population

Functional Area	1971	1981	1986	1991	1996
Tipperary (NR)	31.6	34.7	35.6	38.6	50.6

Source; CSO (SAPS Data)

The Irish Language in North Tipperary

North Tipperary is not located in a Gaeltacht region however, the Irish Language is recognised and promoted by Local Authorities and Tiobraid Árann ag Labhairt Teo. The Department of Community, Rural and Gaeltacht Affiars recognise that North Tipperary is a county always to the fore in Irish language development.

Presently, North Tipperary Local Authorities (North Tipperary County Council, Nenagh

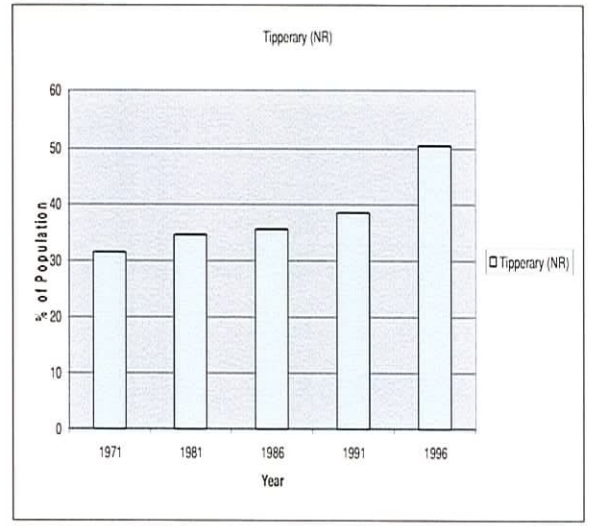


Figure 2.2 Irish Speakers in North Tipperary

Town Council, Thurles Town Council, Templemore Town Council & County Tipperary Joint Libraries Committee) are requesting submissions on the Official Languages Act (2003) in order to propose to draft a Scheme for the county in accordance with Section 11 of this Act.

Tiobraid Árann ag Labhairt Teo

Tiobraid Árann ag Labahirt Teo is an organisation located in Nenagh in North Tipperary which offers bilingual services to the community. The organisation regularly provides translation services for local businesses, schools, churches, clubs and individuals. They also provide Irish names for housing estates and shops and organise 'Oíche le Gaeilge' for adults.

Tiobraid Árann ag Labahirt Teo organises many of its initiatives with the assistance of grant aid received from Ciste na Gaeilge. In 2002, Tiobraid Árann ag Labahirt Teo received €40,000 in funding from the Department of Community, Rural and Gaeltacht Affairs and this funding increased to €41,950 in 2003.

Irish Language Development in Study Area

Table 2.6 outlines a dramatic increase in the numbers of persons who can speak Irish in the study between 1981 and 2002. There was also a significant decline in the number of persons unable to speak Irish (figure 2.3). It should be noted that the increase in Irish language speakers and decline in non-Irish speakers correlates and reflects population growth in the area.

Table 2.6: Irish Speakers/ Non-speakers in the Study Area

Year	Persons aged 3+ can speak Irish	Persons aged 3+cannot speak Irish
1981	4732	10016
1986	5323	10217
1991	5468	5468
1996	6930	7098
2002	7529	7793

Source: CSO (SAPS Data)

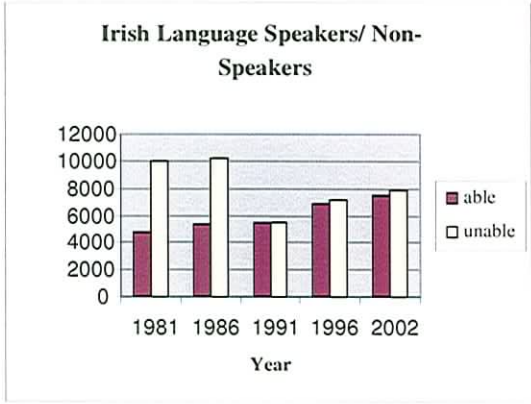


Figure 2.3: Number of Persons able/unable to speak Irish in Study Area

The information inputted in above table was acquired from the Central Statistics Office, Small Area Population Statistics (SAPS). The SAPS data used is available at District Electoral Division (DED). A total of 31 DEDs which are located in the study were examined as listed in table 2.7. SAPS data for the census years: 1981, 1986, 1991, 1996 and 2002 has been acquired. Owing to the abundance of statistical data available it was decided to compile the numbers of Irish language speakers in each given census year. Throughout this report, there are instances of where SAPS data was compiled together for ease of manipulation and readability for the DEDs in the study area.

Table 2.7: District Electoral Divisions in the Lough Derg Study Area

DED 005 AGLISHCLOGHANE
DED 006 BALLINGARRY
DED 007 BALLYLUSKY
DED 008 BORRISOKANE
DED 009 CARRIG
DED 010 CLOGHJORDAN
DED 011 CLOGHPRIOR
DED 012 CLOHASKIN
DED 013 FINNOE
DED 014 GRAIGUE
DED 015 KILBARRON
DED 016 LORRHA EAST
DED 017 LORRHA WEST
DED 018 MERTONHALL
DED 019 RATHCABBAN
DED 020 REDWOOD
DED 021 RIVERSTOWN
DED 022 TERRYGLASS
DED 023 USKANE
DED 026 ARDCRONY
DED 027 BALLINA
DED 031 BIRDHILL
DED 032 BURGESBEG
DED 033 CARRIGATOGHER
DED 034 CASTLETOWN
DED 035 DERRYCASTLE
DED 037 GREENHALL
DED 044 KNIGH
DED 047 MONSEA
DED 048 NENAGH RURAL
DED 051 YOUGHALARRA

2.3.4 Place Names

The legal provisions giving statutory protection to place names are in three parts:

1. The Ordnance Survey Maps dating from 1824 to 1874 provide the definitive legal place names, however these place names are published exclusively in English (for the most part they are anglicised spellings of the original Irish language place name.
2. The Places Names (Forms Act) Act 1973 effectively allowed the Irish meaning of the place name to be the equivalent of the English form in force and effect.
3. Under the Official languages Act (2003) the Minister of Community, Rural and Gaeltacht Affairs may by statutory order in respect of any particular place name in any area outside the Gaeltacht confer the same status, legal force and effect for both Irish and the English versions of the place name.

Place names in Irish Language

The Place Names Order (Co. Tipperary) 2005 has been completed and this order declares the official Irish versions of place names for County Tipperary.

Place Names Branch

The Place names Branch under the auspices of the Department of Community, Rural and Gaeltacht Affairs researches the place names of Ireland and provides the authoritative Irish language forms of those place names. Research is normally done on a county basis. To date there are nine counties complete. The Irish forms of the names are published in the Liostaí Logainmneacha series. The Place Names Branch prepared Liostaí Logainmneacha: Tiobraid Árann (Tipperary) which was published in 2004

Place Names and Tourism

The name of a town/ village or region can have a significant role to play in attracting tourists to

a particular destination. A place name can act as 'pull' factor enticing tourists to come visit as tourists interpret and associate place names with experiences and emotions that they may have encountered while visiting the area. For those tourists who have not yet visited the destination, the place name may act as a trigger factor or a conceptual image enticing them to visit. For the host community, the place name reinforces their identity.

3. PHYSICAL STRUCTURE

3.1 INTRODUCTION

The physical dimension of tourism carrying capacity is primarily concerned with the basic infrastructure and facilities available in a destination (see box opposite). Water supply, land supply, energy supply, transport and parking facilities, visitor amenities and accommodation are examined. The impact of increased demand and greater visitor numbers on the ability of these services to operate efficiently is also examined. The local authorities have many statutory obligations in respect of the protection of the environment, the provision of services and the control of development. Consequently much of the information required in the identification of quantifiable dimensions of carrying capacity in Strand 2 will be available through the local authority.

A significant document which provides data on the physical structure of the study area was North Tipperary County Council's Proposed Western Area Local Area Plan (LAP), 2005. This proposed plan was published during the summer of 2005 and is currently under review. The Western Area LAP is a statutory document which sets out North Tipperary County Councils proposals for the planned sustainable development of the section of North Tipperary designated as the Western Area. This area encompasses the lakeside area of North Tipperary and stretches from north of Terryglass to a point south of Ballina. The

Physical Dimensions of Tourism Carrying Capacity
• Water supply*
• Land supply*
• Energy supply
• Transport*
• Parking facilities
• Visitor amenities*
• Accommodation
* = Key dimensions of Carrying Capacity Web

Western Area is wholly within the study area and includes villages such as Dromineer, Puckane, Garykennedy, Newtown and Ballinderry.

3.2 TRANSPORT

3.2.1 Introduction

Transport is required to allow tourists to travel to a destination where they can use the tourism services. '*Because we cannot take the tourism product to tourists in their home areas, we have to take the tourists to the tourism product*' (Swarbrooke, 1998, p.289). Therefore, all tourists and tourism services require transportation of some description.

Swarbrooke (1998) states that the negative impacts of tourist transport are well documented particularly, the increasing usage of the aircraft and the private car. However, Swarbrooke (1998) advises that tourism is not the only activity, which uses these transport systems. He also warns that efforts to encourage sustainable transport measures for tourism are often hampered by lack of measurements pertaining to the actual (environmental) impacts of tourism transport systems. Authors often concentrate on two principal transport modes that degrade the environment; aircraft / airports and private car. For the purpose of this study, the emphasis will be on the impacts of private car usage as this mode of transport is predominantly used in the rural area around Lough Derg as it has a poor public transportation service.

Swarbrooke (1998, p.291) warns that;

> '*the car has moved from being a liberator to an enslaver in society in general with traffic jams and air pollution in towns and cities and the building of new roads across the countryside*'

However, in order to encourage more people to use public transport, it must be made a more attractive option.

Technological improvements and measures in relation to sustainable transport have been made such as hybrid cars, but '*difficulties caused by the car appear to be increasing all the time. Transport is perhaps the most important aspect of the sustainable tourism debate because all tourists use transport*' (Swarbrooke, 1998 p.294).

It should be noted that destination providers attitudes toward the development and provision of public transport in the Lough Derg region are negative as they feel that the undiscovered nature and relative seclusion of the area

enhances the tourism product that being offered. However, Shannon Development; the agency responsible for the development of the area as a tourism destination including marketing and promotion of the area have outlined a new strategy which will include the provision of a water taxi service. It is envisaged that this service will offer both tourists and locals a new and more sustainable transport system which will integrate the natural resource of the lake with land and shore based activities.

Role of Transport Indicator

Environmental indicators have been used as

> *'tools to examine and measure environmental performance, and to encourage the assimilation of environmental concerns into sectoral policies' (EPA, 2000, p. vi)*

Increasingly, transport issues are being monitored with a view to develop transport indicators.

> *'Transport and environmental indicators, specifically, emphasise the boundary between transport activities and environmental issues, and identify the means by which policy instruments inter-relate with the environmental impacts of transport'* (EPA, 2000, p. vi)

The EPA have been monitoring transport issues in Ireland and published reports in both 2000 and 2004. Following these reports, it is *'increasingly recognised that transport is at the core of numerous environmental problems'* in Ireland (EPA, 2000). It is hoped that an investigation of transport issues within the study area will result in indicators that can be incorporated into policy documents ensuring that transport can become more sustainable.

Richardson (2005) has investigated the role of transportation structures from a global perspective and recognised the necessity of a viable sustainable transport system

> *'in order to continue to afford to all people access to the economic and social opportunities necessary for a meaningful life'* (Richardson, 2005, p. 29).

Richardson (2005, p.30) derives a definition for sustainable transport from the Brundtland Commission (1987):

> *'the ability to meet today's transportation needs without comprising the ability of future generations to meet their transportation needs'.*

However, Richardson (2005) notes several shortcomings in determining transport indicators.

> *'Each transportation system is complex, and this complexity derives from the pluralism of its hardware (infrastructure and vehicles) and of the people and organisations involved. The complexity is multiplied by the existence and roles of different modes, regulatory and legislative bodies, service providers, builders, financing systems, technologies, land-use patterns, and, most importantly, human behaviour'* (Richardson, 2005, p. 29).

National Transport System

In the 2004 edition of *Ireland's Environment*, the EPA concluded that

> *'inadequacies in public transport systems and in the national road network now threaten regional development and cost-competitiveness, and are contributing to decreased labour mobility and house price inflation'* (EPA, 2005, p.159)

The EPA stress that there is an overdependence on road travel leading to adverse effects such as air pollution, noise, ecological damage and habitat fragmentation. Despite the recognised negative impacts of road travel, little progress has been achieved in developing an alternative or a viable and sustainable public transport system.

The aim of the National Spatial Strategy (2002-2020) is to develop regional hubs outside the ever-growing city of Dublin and linking these to the city via gateways or transport corridors. The EPA is critical of the lack of investment in public transport system. The number of private cars on the road has increased by 81.85% between 1990 and 2002 and the number of goods vehicles has increased by 62.8%, the levels of road traffic have already reached levels predicted for 2010. These statistics are worrying during an era when Ireland is booming.

> *'The conflicts between the environment and the demand for transport are well recognised and are particularly pertinent to Ireland at the present time'*
> (EPA, 2005, p.161)

The transport indicators examined by the EPA are investigated at a national level and tend to concentrate on larger urban areas; however they are indicative of a systematic problem that is universally prevalent in Ireland. In this section transport issues pertinent to Tipperary Lakeside will be examined.

3.2.2 Availability of Transport in the Study Area.

There are several access methods to Tipperary North Riding; road, rail, air and water. The county is centrally located in Ireland, therefore a number of national roads go through the county connecting North Tipperary to the principal urban centres in Ireland.

Use of Transport Systems

The Mid-Western Regional Authority (2004) state that inequalities exist between the usage of private car transport and public transport and stress the need for an improved public transport system. *'While road traffic has grown substantially, usage of public transport has been static in recent years, highlighting the immense challenge of tackling congestion in the centre of the region by encouraging consumers to opt for public transport while ensuring high-quality access between the centre and the more peripheral parts of the region'*
(Mid West Regional Authority, 2004, p.5)

Private Car Ownership

Reference is made to the high proportion of private car ownership in the North Tipperary County Development Plan (2004-2010). The principal reason attributed to this is the lack of an efficient public transport system and because North Tipperary is a largely rural county with few urban settlements. In the County Development Plan it was estimated that in 1999, there were 2,429 vehicles registered in North Tipperary increasing to 3,025 between January and October 2000.

Presently, there are approximately 22,650 cars registered in North Tipperary and 34,675 people hold a current driving licence. Car ownership in North Tipperary at 39 cars per 100 people is above the national average. It had been estimated in a survey that 56% of all households in North Tipperary own two or more cars (North Tipperary County Development Plan, 2040-2010, p.57).

Settlement growth has occurred principally in areas within commuting distance to the towns of Ennis, Shannon and Limerick city. Around the Lough Derg area Ballina has witnessed a marked increase recently due to its scenic beauty and because it is within commuting distance of larger urban centres, namely Limerick city (Mid West Regional Authority, 2004). Evidently, the need to own and use a private car is high due to an inefficient public transport system but in order to encourage sustainability a viable and cost effective public transport system must be available for both residents and visitors alike.

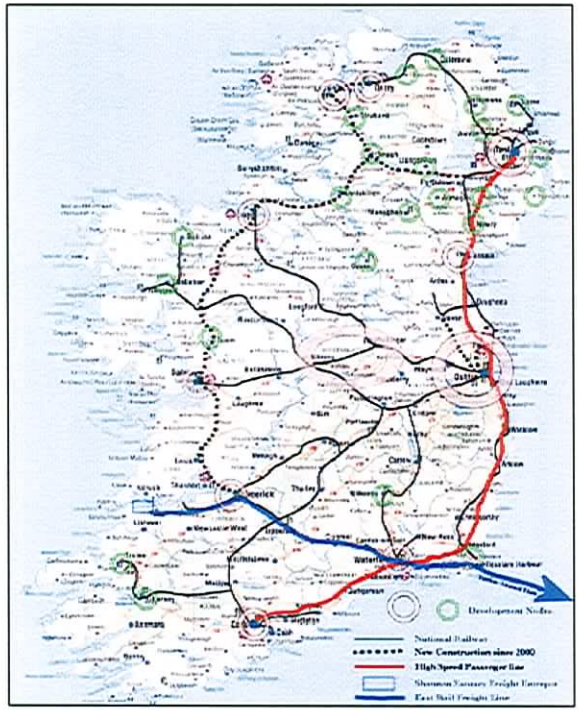
3.2.3 Public Transport

Rail

Map 3.1 shows the principal rail routes in Ireland. There are two rail lines that traverse the county, constituting a total of 80 kilometres of rail track (North Tipperary County. 2004). The main Dublin-Cork line, with a branch line to Limerick City, serves the towns of Thurles and Templemore and provides regular and frequent services. The second (minor) line, Dublin-Limerick passes through the towns of Nenagh, Cloughjordan, Birdhill and Roscrea and a more limited service is offered on this line.

The towns; Nenagh, Cloughjordan are located within the study area and serviced by the secondary line. The rail services provided to Nenagh, Cloughjordan and Birdhill to and from Dublin are outlined in table 3.1. The cost of rail travel in Ireland is not competitive compared to European standards, services are limited on some routes, therefore this form of transport does not offer a viable alternative to the private car.

Map 3.1: Rail Network in Ireland



Source: The Irish Academy of Engineering (2004)

Table 3.1: Rail Transport Availability to Tipperary Lakeside Region

Town	Weekday Service Frequency	Saturday Service Frequency	Sunday Service Frequency
Dublin-Cloughjordan	4	3	3
Cloughjordan-Dublin	4	4	2
Dublin-Nenagh	4	3	2
Nenagh-Dublin	4	4	2
Dublin-Birdhill	4	3	2
Birdhill-Dublin	4	4	2

Source: Iarnód Éireann

Bus

There are eight Bus Éireann routes in North Tipperary and 14 private licensed bus routes (North Tipperary County Development Plan, 2004-2010, p.56). Three of these Bus Éireann routes are expressways services while the other five provide local services. The expressway services concentrate on the main routes such as the N7 and N52. The privately owned bus services are based around Thurles and tend to service the eastern part of the county where Bus Éireann services are low.

Table 3.2 outlines the services provided by Bus Éireann to the principal towns and villages along the Tipperary lake shoreline. As already stated, local bus service provision is poor. Ballingarry is the most serviced town, followed by Ballina. However, it should be noted that Ballingarry is situated inland and visitors seeking to utilise Lough Derg amenity area need some form of (public) transport to get from the shoreline to Ballingarry.

In addition, no buses serve Dromineer where the only hostel in the region is located. Backpackers are considered environmental-friendly tourists and usually overnight in hostels and use public transport thus the potential to attract this niche market is being lost.

Table 3.2: Bus Transport Provided by Bus Éireann to Tipperary Lakeside Region

Village/Town	Weekday Service	Saturday Service	Sunday Service
Carrigahorig- Nenagh	1 (only Fri.)	/	/
Carrigahorig-Lorrha	1 (only Fri.)	/	/
Terryglass-Nenagh	1 (only Fri.)	/	/
Terryglass-Lorrha	1 (only Fri.)	/	/
Lorrha-Nenagh	1 (only Fri.)	/	/
Ballingarry-Limerick (via Nenagh)	4	4	2
Ballingarry- Athlone	4	4	2
Ballina- Limerick	1	1	/
Ballina-Birr	1	/	/
Newtown-Nenagh	1 (only Tues. & and Fri.)	/	/
Newtown-Scariff	1 (only Tues. and Fri.)	/	/
Coolbawn-Nenagh	1 (only Fri.)	/	/
Coolbawn-Lorrha	1 (only Fri.)	/	/
Puckane-Nenagh	1 (only Fri.)	/	/
Puckane-Lorrha	1 (only Fri.)	/	/
Portroe-Nenagh	1 (only Tues. and Fri.)	/	/
Portroe-Scariff	1 (only Tues. and Fri.)	/	/

Source: Iarnód Éireann

Another major difficulty is the fact that local bus services run intermittingly and are not serviced daily. Sunday services are available in

very few towns. Table 3.3 details the bus services from Nenagh town to other principal destinations, namely; Dublin, Limerick and Athlone. If a tourist wishes to travel further afield, they will need to get connecting buses. Nenagh and Birdhill have relatively good services to other principal destinations; some of the services are expressways and other services call at all stops.

More local public transport services are required for tourists and locals alike wishing to get from one village or town to the next on a daily and more regular basis. It is imperative that public transportation is provided to avoid increased congestion on the narrow rural roads owing to increased numbers of private cars. Bus services are considered to be the most viable form of public transport and offer a sound alternative to private car usage as the road network is already in place.

Table 3.3: Bus Éireann services from Nenagh

Town/ Village	Weekday Service	Saturday Service	Sunday Service
Nenagh to Limerick	19	17	15
Nenagh to Dublin	13	13	13
Nenagh to Athlone	4	4	2
Nenagh to Lorrha	1	1	/
Nenagh to Scariff	1 (only Tues. and Fri.)	/	/
Nenagh to Newport	1 (only Fri.)	/	/
Nenagh to Kilbarron	1 (only Thursday)	/	/
Nenagh to Birr	1 (Mon-Fri)	/	/

Source: Iarnód Éireann

Public Transport Services for Locals

There is a considerably higher (19.3%) than national average percentage (16.2%) of people who hold a Free Travel Pass (North Tipperary County Development Plan, 2004-2010, p.56). These statistics suggests that an efficient public transport is imperative. It has been suggested in the County Development Plan that both public and private buses which provide a school service should be used outside school hours to supplement the already existing bus services.

In 2002, North Tipperary County Development Board commissioned a '*Rural Passenger Transport Audit & Needs Assessment in North Tipperary*'. This report assessed public transport provision for the entire county including the study area. While this report focuses on residents living in North Tipperary, key findings and recommendations would pertain to the tourism industry.

The key findings of this report state that people living in rural North Tipperary have poor accessibility to transport services. Poor accessibility includes lack of services and poor design of vehicles operating in the area. Other findings suggest that there is a higher percentage than the national average of people engaged in agricultural and farming activities, therefore living in rural areas and a higher than national average of people who hold free travel passes in the county. The report reiterates national findings (by the EPA) that there is an over-reliance on the private car. One reason attributed to this is the lack of other alternative forms of transport in the area.

The report highlighted two categories of groups without access to a private car: younger (14-18 years) and older (65+) age groups and persons with disability of all ages. Both these categories would benefit from improved public transport provision. It is envisaged that as a result of this report supplementary and appropriate forms of transport vehicles will be proved in order to carry rural residents into the larger towns from where they can then connect to other services.

From a tourism perspective, research suggests that some tourism providers are not in favour of supplementary forms of transport as they feel the countryside, especially the rural roads will become congested. Providing more services will bring extra visitors and increase environmental and social pressures in a relatively secluded area. The Lough Derg region remains a relatively undiscovered region and tourism providers feel that this factor adds to its appeal especially with repeat visitors. Therefore, the provision of increased transport services for locals needs to be balanced with the perceived image of the area that is being projected to tourists.

Air Transport

One airport is located in the Mid-Western region located at Shannon in Co. Clare. Shannon airport is approximately 63 kilometres from Nenagh, via Limerick, however, access to the study area can be problematic due to traffic congestion in Limerick city. Air Services into Shannon airport are frequent offering domestic, European and transatlantic flights. '*Passenger*

traffic in 2002 was 2.4 million, up 30% since 1997' (Mid West Regional Authority, p.24). Table 3.4 shows that air traffic into the Shannon Region has increases correlating with a growth in overall tourism numbers to the region.

Table 3.4: Numbers of arrivals at Shannon Airport

Arrival from	2000	2001	2002	2003	2004
Transatlantic	682,715	677,068	617,877	685,312	693,102
Britain	751,176	714,285	702,313	713,658	697,391
Europe	317,264	363,251	495,324	466,759	442,942
Domestic	164,665	158,362	117,871	135,740	106,822
Transit	492,432	491,692	420,145	399,208	454,859
Total	**2,408,252**	**2,404,658**	**1,840,008**	**2,400,677**	**2,395,116**

Source: Central Statistics Office

North Tipperary and in particular the Lough Derg region are fortunate to have an airport situated in such a strategic location at such close proximity. This resource could be better harnessed if proper public transport to and from the airport was initiated thereby encouraging more tourists to visit the region. The other principal national airports of Dublin and Cork are between two and three hours driving of the Region.

Water Transport

North Tipperary borders the largest river in the British Isles; the Shannon river. The Shannon is traditionally a navigable waterway. Navigational use of the river has changed dramatically over the years. Prior to the seventeenth century, the Shannon was used to transport goods and people and little modification had been conducted on the waterway. Between the seventeenth and eighteenth century the Shannon works were carried out and locks were added to improve navigation (Delany, 2000). In the eighteenth century, the Royal and Grand canals were added, linking the River Shannon to Dublin city. During the eighteenth and nineteenth centuries the River was used to transport goods throughout Ireland. From the 1890's to 1920's the Shannon enjoyed relative prosperity providing passenger services on steamers, which were a precursor to cruising holidays. Gradually, water transport in Ireland was replaced by the rail and road transport from the beginning of the twentieth century.

Since 1960 there is no commercial traffic on the River Shannon but the number of private pleasure craft and cruising vessels has steadily increased. Shannon Estuary has two ports at Limerick and Foynes which are used for commercial transportation.

Lough Derg, the largest lake on the Shannon, 39km in length forms the northern border with much of County Tipperary (Delany, 2000). The lake is of '*considerable depth for more than half of its length: there is a continuous trench with depths of 24-30 metres which runs almost to Killaloe*' (Delany, 2000, p. 21).

The lake supports a diverse flora and fauna is surrounded by rich fertile soils which are used for agriculture. Since the late 1920s, the lake has been harnessed to produce hydro-electricity and is a visitor amenity used for fishing, cruising and sailing. Waterways Ireland claim that Lough Derg is only using 10 -15% of its potential capacity. This would suggest that there is a major potential for water based tourism to be developed. Table 3.5 lists the facilities presently available along the Tipperary shoreline of Lough Derg.

Table 3.5: Facilities available along Lakeshore

Location	Harbour	Mooring	Slipway	Marina	Boat Hire
Ballina	√	√ (7)	√	√	√
Garykennedy	√	√ (11)	√		√
Domineer	√	√(45)	√	√	√
Luska Pier			√		
Kilbarron Quay			√		√
Coolbawn Quay				√	
Mota Quay			√		
Kilgarvan	√		√		√
Gortmore Point			√		
Terryglass	√	√ (25)	√		√
Youghal	√		√		

Both the River Shannon and Lough Derg provide a natural attraction and amenity but in order to ensure sustainability, care must taken in promoting and branding these products in order to mitigate against negative impacts.

3.2.4 Access to the Study Area: Road Network

The total road network including national prmary, national secondary and regional and local roads in North Tipperary amounts to 2,871 kilometres (North Tipperary Economic, Social and Cultural Strategy, 2002-2012, p.9). Table 3.6 details the distribution of the different roads categories throughout the county.

Table 3.6: Road Network Distribution

Road Type	Length Km	%of Total
National Primary	121	4.2
National Secondary	40	1.4
Regional	414	14.4
Local Primary	956	33.3
Local Secondary	894	31.1
Local Tertiary	446	15.5
Total	2871	100

Source: North Tipperary County Council, 2004

National Primary Routes: There are two national primary routes traversing the county the N7 and N8. The N7, the Dublin-Limerick road, passes through Roscrea and Nenagh running east-west while the N8, the Dublin-Cork road passes through the southern part of the county, outside the study area.

National Secondary Routes: There are three national secondary routes; N52, N62 and N75. The N52 links Nenagh to Birr and then joins the N62 and travels westward to Athlone. The N62 also links Thurles, Templemore, Roscrea and Birr. The N75 links Thurles to Two-Mile Borris and ultimately to the N8.

Regional Routes: In addition to the national routes, the county is serviced by regional roads. The regional roads account for the largest percentage of the road network with in the county, 94.8%. Strategically, two of the most important regional routes are the R498 (Nenagh-Thurles) and the R503 (Thurles-Newport) which link the principal urban settlements.

Development Restrictions on Congested Roads

In the County Development Plan (2004-2010), several regional roads have been identified for restricted development. These routes have been classified into two categories;

- Class 1: development severely restricted (Box 1)
- Class 2: development restricted and must meet sightline guidelines (Box 2).

Box 1: Class 1: Regional Roads (Development severely restricted)

R445 Nenagh (Old Limerick Road)
R466 Birdhill-O'Briens Bridge (Coosane Road) (Shannon Crossing)
R489 Birr-Portuma
R494 Nenagh-Portroe-Ballina
R496 N7- Ballina (Shannon Crossing)
R498 Thurles-Nenagh
R501 Borrisoleigh-Templemore
R503 Thurles-Newport-Templemore
R660 Thurles-Holycross

Source: North Tipperary County Council, 2004

Box 2: Class 2: Regional Roads (Development Restricted, must meet sightline requirements)

R438 Borrisokane-Athlone
R495 Nenagh-Dromineer
R493 Puckane-Carrighorig
R499 Toomevara-Silvermines-N7
R504 Newport-Birdhill (access to new N7)
R421 Roscrea-Kinnity
R433 Templemore-Clonmore
R490 Moneygall-Borrisokane
R491 Cloghjordan-Shinrone-Roscrea
R497 Nenagh-Dolla
R500 Nenagh-Silvermines
R502 Templemore-Templetuohy
R659 Thurles-Holycross (via Sugar Factory)
R661 Holycross-Dundrum

Source: North Tipperary County Council, 2004

A large number of the aforementioned roads are located within the case study area thus proving the importance of restricted development which if not monitored could impinge negatively on the carrying capacity of these regional roads leading to increased traffic and congestion.

By protecting these routes in the county development plan North Tipperary County Council is recognising a need to restrict development which may impinge on carrying capacity on both the roads and surrounding areas.

3.2.4.5 Traffic Congestion

There are three principal issues emerging from both the community / residents survey and the visitors' survey:

- difficulty of parking on peak days;
- congestion on Ballina-Killaloe Bridge;
- overcrowding on some regional roads at peak times;
- the need for visitors to have their own form of transport owing to the lack of public transportation.

The main issue that emerges is congestion on the Ballina-Killaloe Bridge. Traffic monitoring studies have been conducted and are on-going in attempt to alleviate or rectify the cause of congestion.

RPS-MCOS Ltd. who prepared the *Shannon Bridge Crossing: Feasibility Study and Preliminary Report: Constraints Study Report* (2005) for Clare, Limerick and North Tipperary County Councils undertook a series of Traffic surveys on two bridges which cross the Shannon, Ballina-Killaloe Bridge (located in study area) and the O'Briensbridge (located in southern Lough Derg near Limerick city) in March 2005 during periods when conditions which would be considered normal. A supplementary survey was carried on the 1st May Bank holiday to monitor visitor and match traffic.

The findings of these surveys suggest that trips across the Shannon River (Ballina to Killaloe) were busier during the afternoon (PM period) (16:00 to 19:00) than morning (AM period) (7:00 to 10:00) periods by about 6%.

In terms of regional roads, the R494 south and north of the Ballina-Killaloe Bridge was the busiest connecting road.

> '*A comparison of peak hour flows on the Killaloe/Ballina Bridge from 2001 and 2005 show that AM peak hour flows have increased by an average of 3.5% pr annum (530 in 2001 rising to 608 vehicles in 2005) while flows during the PM peak hour have increased by an average of 5% per annum (520 in 2001 rising to 632 vehicles in 2005)*' (RPS-MCOS Ltd., 2005, p.20).

Findings from the RPS traffic survey conducted on the May Bank Holiday during a two-hour period observed that traffic was 3% higher than the average weekday PM peak hour volume.

Pedestrian crossing counts for two-way crossing are high during lunchtime (12:00 to 13:00) with a maximum of 211 on a normal day compared to only 164 movements observed on the Bank Holiday. Clearly, pedestrian crossings are of equal importance for locals and tourists especially as Killaloe is the main service town for both urban areas.

Numerous options have been suggested to alleviate the problems of the Ballina-Killaloe Bridge. These are outlined in Box 3. As a temporary measure, while feasibility studies continue, the erection of traffic lights at the Ballina-Killaloe Bridge is underway to address traffic congestion formalising an alternating one-way operation and providing a pedestrian footway. In addition, in January 2006 North Tipperary County Council introduced proposals to limit parking to one hour only between 7am and 7pm Monday to Saturday inclusive a portion of Ballina Main Street.

Box 3: Case Study of pressure alleviation: The Shannon Bridge Crossing; Ballina-Killaloe Bridge

The Ballina-Killaloe Bridge joins the east and west sides of Lough Derg and the urban settlements of Ballina in North Tipperary and Killaloe in County Clare. There are three means of crossing the Shannon in this area: Portuma Bridge to the north of the study area, Ballina-Killaloe Bridge located at the southern end of Lough Derg - the only means crossing the river in the study area and a third crossing at O'Briensbridge closer to Limerick city.

> *"The traffic problems within the study area are best demonstrated at the narrow and historic*

Killaloe Bridge crossing over the River Shannon, which links the towns of Killaloe and Ballina. This bridge has a 4.95 metres wide carriageway, which is shared by both vehicles and pedestrians. The bridge is only just wide enough to allow two cars to pass each other. Traffic flow is often reduced to 'one way' as a result of HGV's and other large vehicles crossing the bridge. As a result on the approaches become congested and delayed at peak times" (RPS-MCOS Ltd., 2005).

It should be noted that there is no dedicated footpath or cycle path on the bridge, therefore pedestrians and cyclists have to share the road with vehicular traffic. (RPS-MCOS Ltd., 2005). The Ballina-Killaloe Bridge is an historic, long, masonry, eighteenth century 13 arch construction which is a recorded protected structure. Therefore no works can take place to alter its historic character.

Several studies have been conducted to assess conditions and possible methods of traffic management over various years in both jurisdictions (Clare and North Tipperary):

- Shannon Bridge Crossing-Feasibility Study and Preliminary Report-Constraints Study Report prepared by RPS-MCOS for Clare, Limerick and North Tipperary County Councils
- Clare County Development Plan (1999)
- Draft Clare County Development Plan (2005-2011)
- North Tipperary Development Plan (2004-2010)
- Limerick County Development Plan (2005)
- South Clare economic Corridor Local Area Plan (2003)
- East Clare Draft Local Area Plan (2004)
- North Tipperary Western Area Plan (2005)
- Ballina/Killaloe Traffic Management Strategy (2003) prepared by JB Barry & Partners
- Killaloe-Ballina Action Plan (1969)
- Killaloe-Ballina Theme Town Study (1989)
- Ballina Strategic Development Study (1997)
- The Feasibility Report on Bridge Widening (1996) prepared by Michael Punch & Partners
- Killaloe Bridge Widening: Environmental Impact Assessment (2000) prepared by Michael Punch & Partners.

Several proposed traffic correction measures have been put forward. However, given that the no construction can alter the existing Ballina-Killaloe Bridge (protected structure) crossing the River Shannon the option of constructing another bridge is considered most viable. Following the Killaloe Bridge Widening: Environmental Impact Assessment (2000) three options are considered:

(i) A new stand alone footbridge adjacent to the existing bridge,
(ii) A new bridge approximately 1.1 kilometres downstream of the existing bridge accommodating two way traffic and pedestrians, and,
(iii) A new bridge adjacent downstream to the existing bridge, accommodating one way traffic and pedestrians, which would act in conjunction with the existing bridge

(RPS-MCOS Ltd., 2005).

The second option from this study was considered most suitable; however, further studies have given rise to other route suggestions. Another bridge which crosses the lower Shannon is located downstream at O'Briensbridge and it is suggested that in order to minimise congestion on this bridge, constructing a new bridge which would accommodate traffic from both bridges and could be located somewhere between both bridges is an alternative option. However, difficulties may arise in regard to the location of this bridge due to the pre-existing location of the Ardnacrusha Power Station in this area.

Traffic Accident Data

'During the period 1996 to 2002 there were 38 recorded accidents within the Study area. Of these 2 were fatal, 5 were serious and 31 were considered minor. 37% (14 no.) of the accidents involved a single vehicle only and 58% (22 no.) involved two vehicles. Pedestrians were involved in 8 accidents, 2 of which were serious' (RPS-MCOS Ltd., 2005, p, 27). Accidents concentrated around the two bridges; Ballina-Killaloe Bridge, in the area where most congestion occurs and O'Briensbridge-Montplier Bridge (located further downstream). This evidence would suggest that due to increased volumes of traffic and the poorly equipped bridges are proving hazardous for motorists and pedestrians alike.

Figures recorded by the National Road Safety Authority outlined in table 3.7 suggest that there has been an increase in the number of fatalities arising from road accidents in both North and South Tipperary, this can be attributed to a growth in car usage.

Table 3.7: Road Fatality Statistics in Tipperary

1992	27	1998	23
1993	29	1999	17
1994	14	2000	23
1995	12	2001	16
1996	16	2002	15
1997	22	2003	21

Source: National Road Safety Authority

3.2.6. Analysis of Transport System in the Study Area

A SWOT Analysis (strengths weaknesses opportunities and threats) examines both internal factors; strengths and weaknesses and external factors; opportunities and threats and is considered is an important part of the strategic planning process'. A SWOT analysis provides information that can help harness a destination's resources and capabilities whilst understanding its weaknesses and threats.

A SWOT analysis of transport indicators in North Tipperary is outlined in box 4. The strengths refer to the resources and capabilities that can be harnessed to develop a competitive edge. The weaknesses refer to the absence of certain strengths. Both of these factors are internal and thus permit destination managers a certain degree of control over their outcome. The opportunities are identified as possible areas of growth. The threats are external factors which the destination has to be aware of as possible changes in the environment.

Box 4: SWOT Analysis: Infrastructural System in North Tipperary

Strengths	Weakness
1.Road • Substantial amount of road network • Vast amounts of regional roads covering large areas of rural hinterland • Development is restricted along areas of scenic beauty on regional roads to lessen additional traffic flows and prevent non-linear development • Large areas of lands have been identified in the County Development Plan as areas where no development should occur as land is reserved for road building 2. Private Car Ownership • Many families have two or more cars in residence proving good economic prosperity 3. Rail • Two rail tracks travelling through county providing frequent services on Dublin-Limerick Line and adequate services on Dublin-Cork line 4. Bus • Both Private and public bus services in operation 5. Air • Location of Ireland's second largest airport within two hours driving distance • Shannon Airport services domestic, European and transatlantic flights 6. Water • Presence of Ireland's largest waterway and Lough Derg • Presence of commercial ports in the Shannon Estuary at Foynes and Limerick	1. Road • National Primary and Secondary roads need upgrading and extension • Regional roads are narrow and have a high volume of traffic • Traffic congestion is somewhat of a problem along regional roads in areas of high beauty and also in smaller towns and measures need to be taken to curb this problem • Care and caution is needed to prevent pristine environment being ruined by unnecessary road building 2. Private Car Ownership • Number of cars on road adding to traffic congestion and road deprivation as volume of traffic on certain roads had not been anticipated 3. Rail • Not frequent enough service provision • Lack of strategically located stations to serve commuters 4. Bus • Services not frequent or cost competitive enough n rural areas 5. Air • Not attracting enough visitors who land in Shannon Airport to North Tipperary 6. Water • The river Shannon and Lough Derg are not harnessed enough as an amenity • Not enough caution taken to protecting river and lake environment
Opportunities	**Threats**
1. Road • Reduction of car use by introducing car pooling, introduction of park and ride facilities 2. Private Car Ownership • Reduce number travelling on roads 3. Rail • Increase services on both lines to encourage people to commute using rail • Reduction in price/ Fare serving as an incentive to use rail • Re-opening of previously used stations to prevent commuters using cars and providing a better quality of life 4. Bus • Introduction of more services in rural areas 5. Air • Encourage more tourists to visit North Tipperary when they arrive at Shannon Airport • Using of co-operative branding techniques to encourage visitors to all parts of Mid-Western region 6. Water • Encourage more activities on the Shannon and its lakes, greater promotion and awareness of natural resource	1. Road • Loss of pristine agricultural land if motorways have to be build to contain volume of traffic on roads 2. Private Car Ownership • Increase in pollutants and toxins emitted from cars 3. Rail • If services are not provided more people will use cars and stations will be closed • Rail services need to be extended • Rail travel could be encouraged especially for those commuting to large towns to work • Re-opening of certain strategically located stations to encourage higher usage of rail travel 4. Bus • More people using private car 5. Air • Loss of potential tourists by not tapping into ready available market arriving at Shannon Airport 6.Water • Destruction of natural resource through pollution from domestic and industrial sources

Conclusions on the Transport Systems

This section focused on the transport systems presently existing within the study area. The principal findings suggest the inadequacies, which exist, are;

- Over reliance on private car usage
- Lack of cohesive public transport
- Congestion occurring on the Ballina-Killaloe Bridge
- Parking facilities are compromised on Public Holidays and busy summer weekends.

In response to this the following are proposed;

- Provision of more comprehensive public transport system for both locals and tourists, possibly supplementary bus services as a viable road network already exists. The provision of a water taxi service by Shannon Development can supplement public transport. This may encourage more people to use public transport rather than private car. This measure would also alleviate road congestion and parking shortages and potentially act as a tourist attraction.
- Provision of traffic lights at the Ballina-Killaloe Bridge and clear zones on the roads leading to bridge in both towns (as already proposed).

3.3 PARKING FACILITIES

3.3.1 Introduction

The study area is located in a rural region with a poor public transport system, therefore many tourists are car dependent. As already depicted ed the number of licensed car vehicles in North Tipperary has increased. Both tourists and residents alike need facilities to park their car in order to pursue their daily and holiday activities. The principal car parking facilities are located in the towns close to the lakeshore. Figure 3.1 shows the location of car parking facilities in the study area. These are listed below:

- Ballina (4 car parks: near slipway, shopping centre, beside bridge and beside marina)
- Ryneduff Point (lookout point and car park)
- Castlelough (lookout point and car park)
- Garykennedy (located beside harbour)
- Dromineer (located beside harbour)
- Kilgarvan (located beside harbour)
- Terryglass (2 car parks: located by the Derg Inn and beside harbour)

RPS Limited conducted traffic congestion surveys as part of the Shannon Bridge Crossing Feasibility Study. It has been concluded from this study and preliminary observational fieldwork that there is adequate parking in the principal towns along the lakeshore for the majority of the year. However, it was noted that there was a shortage of car parking spaces on peak days such as Bank Holiday weekends or during a festival period.

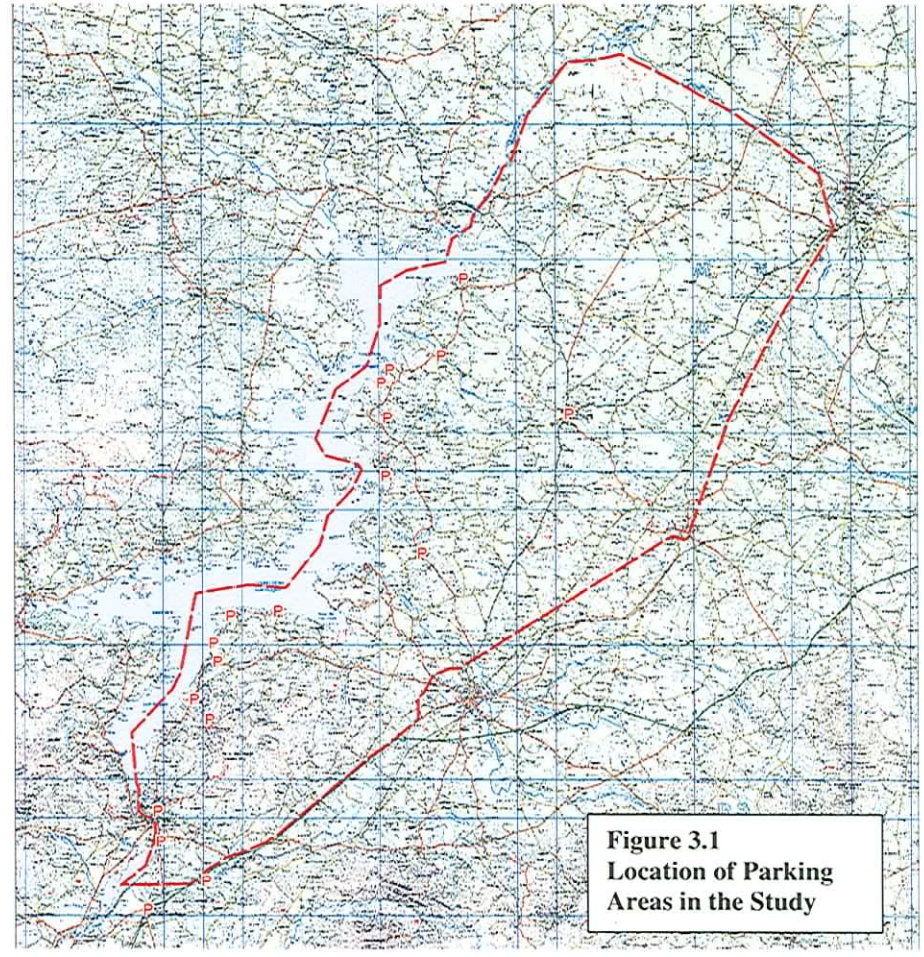


Figure 3.1
Location of Parking Areas in the Study

3.3.2 Observational Points

There are two elevated lookout points located in the study area. Both observational lookouts are located on the R494 between Ballina and Garykennedy. The first lookout point is located at Castlelough consists of large area with car parking and toilet facilities and is accessed by turning off the R494 to as local primary road. The second

observational point is commonly referred to locally as the 'lookout' and is located close to the village of Portroe on the R494. This lookout point is popular amongst locals and tourists alike, as it is adjacent to the regional road. Recently, North Tipperary County Council upgraded the car parking facilities at the 'lookout' and also erected a road safety barrier. North Tipperary County Council have received criticism from local residents as they feel that the barrier is not in keeping with the natural beauty of the area and somewhat of an eyesore. One local resident claimed 'it is something you would see on the Falls Road. It is an ugly structure and they have ruined one of the most scenic places in North Tipperary' (The Irish Times, September 15th 2005). The council insist that they will not be taking the barrier down as it was erected for road safety purposes.

Conclusions

Supplementary fieldwork is required to quantify the number of car spaces and plot these using GIS mapping software.

3.4 SIGNPOSTING

3.4.1 Signposting: Introduction

Directional signage to tourism destinations and attractions is prerequisite in order to direct the flow of tourists.

North Tipperary County Council recognised that the access and signage is important to tourist destinations in the County Development Plan (2004-2010). North Tipperary County Council insist that inappropriate signage can negatively impact tourists and lead to confusion, therefore they suggest a uniform approach to signposting, insisting on composite signs being distinctive in character to North Tipperary. Unauthorised signage will be subject to an enforcement action set out in Section 6.11 of the North Tipperary Development Plan (2004-2010).

3.4.2 Road Signage

National Roads

It was recommended in North Tipperary Marketing Action Plan (2005) that directional signage be examined. It was also recommended in this plan that directional signage from areas of high tourist concentration such as Limerick city direct tourists to North Tipperary. Signage is particularly important on the principal routes.

The National Roads Authority (NRA) are responsible for designing and erecting signage on national roads in accordance with European standards. The NRA are required to consult relevant bodies such as the local authorities and statutory bodies for example in the case of North Tipperary; North Tipperary County Council, Fáilte Ireland and Shannon Development. The NRA are responsible for the maintenance and upkeep of these signs.

Signage is particularly important on the N8 and N7. Signage should be placed on the N7 and N8 northbound approach to attract tourists from Limerick city and Shannon town. Signage should also be placed on southern approach routes of the N7 and N8 in order to attract sizeable tourism numbers heading southbound from Dublin.

Regional Road Signage

The local County Council are responsible for designing, erecting and maintaining signage on the regional and local roads in accordance with national standards. The local authority must consult with the appropriate organisations in the area to ensure a comprehensive system of signage is in place.

3.4.3 Other Signage

Car Park Signage

In the case of public car parks located on county council owned land, North Tipperary County Council are responsible for the erection and maintenance of the signage.

Tourist Signage

Private organisations wishing to erect directional signage for a privately owned tourist facility are required to obtain a license from the local authority.

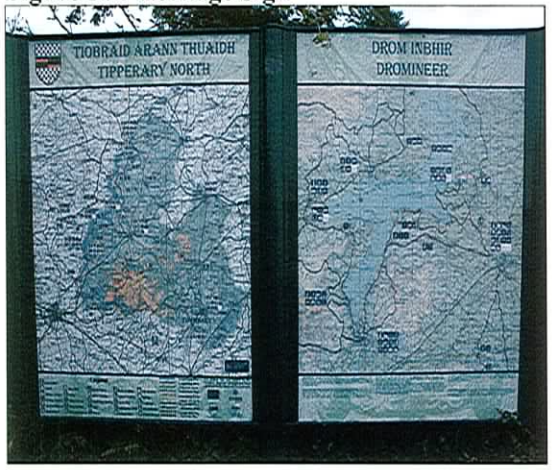
Heritage Signage

Heritage signs direct tourists to points of interest (services, institutions, tourist sights) and are identified with white text on a brown background. The study area is located in a predominantly rural region, it is therefore imperative to have adequate and well maintained signage to all heritage sites and attractions.

The Heritage Council provide funding for the design and erection of heritage signage. Generally, the regional tourism authority, Shannon

Development in this case applies for funding having consulted with relevant local tourism organisations and the local authority. All the names and logos of the consulted bodies appear on the signpost reinforcing their commitment to tourism and also as a means of identity and form of branding and advertising. Figure 3.2 features a typical heritage signpost located in the Lough Derg study area.

Figure 3.2: Heritage Sign



It was recommended in the North Tipperary Marketing Action Plan (2004) that a review of directional signage to heritage sites be conducted. It was concluded following preliminary field work that many of the heritage signs in the study area are dated (displaying old logos for Shannon Development and North Tipperary County Council) and beginning to show signs of wear and tear thus requiring investment and a greater degree of professionalism.

Water Signage:

Waterways Ireland and North Tipperary County Council are responsible for signage along the shoreline of Lough Derg. North Tipperary County Council have erected cautionary and safety signage as exemplified in figure 3.3.

Figure 3.3: Safety Sign (North Tipperary County Council)

Waterways Ireland are responsible for erecting signage which relates to the activities taking place on the Shannon Navigation system such as speed control or boat licensing (see figure 3.4).

Figure 3.4: Signage erected by Waterways Ireland

Conclusions: Signage in the Study Area

A comprehensive signage audit is required for the study area. This review should examine directional signage, heritage signage and placename signage. CHL Consulting (2004) have already highlighted and recommended that an improvement in signage around Lough Derg is required.

Owing to the large number of organisations involved at local (North Tipperary County Council), regional (Shannon Development) and national level (National Roads Authority, Heritage Council, Waterways Ireland) designing and erecting signage displaying a consistent message can be a challenge.

It has also been recommended that signage development and management should be conducted in collaboration with county councils in

neighbouring counties. Lough Derg borders four counties and two regional tourism authorities promote the lake, therefore using a template signpost design around the lake would ensure uniformity.

3.5 VISITOR AMENITIES

3.5.1. Visitor Attractions: Introduction

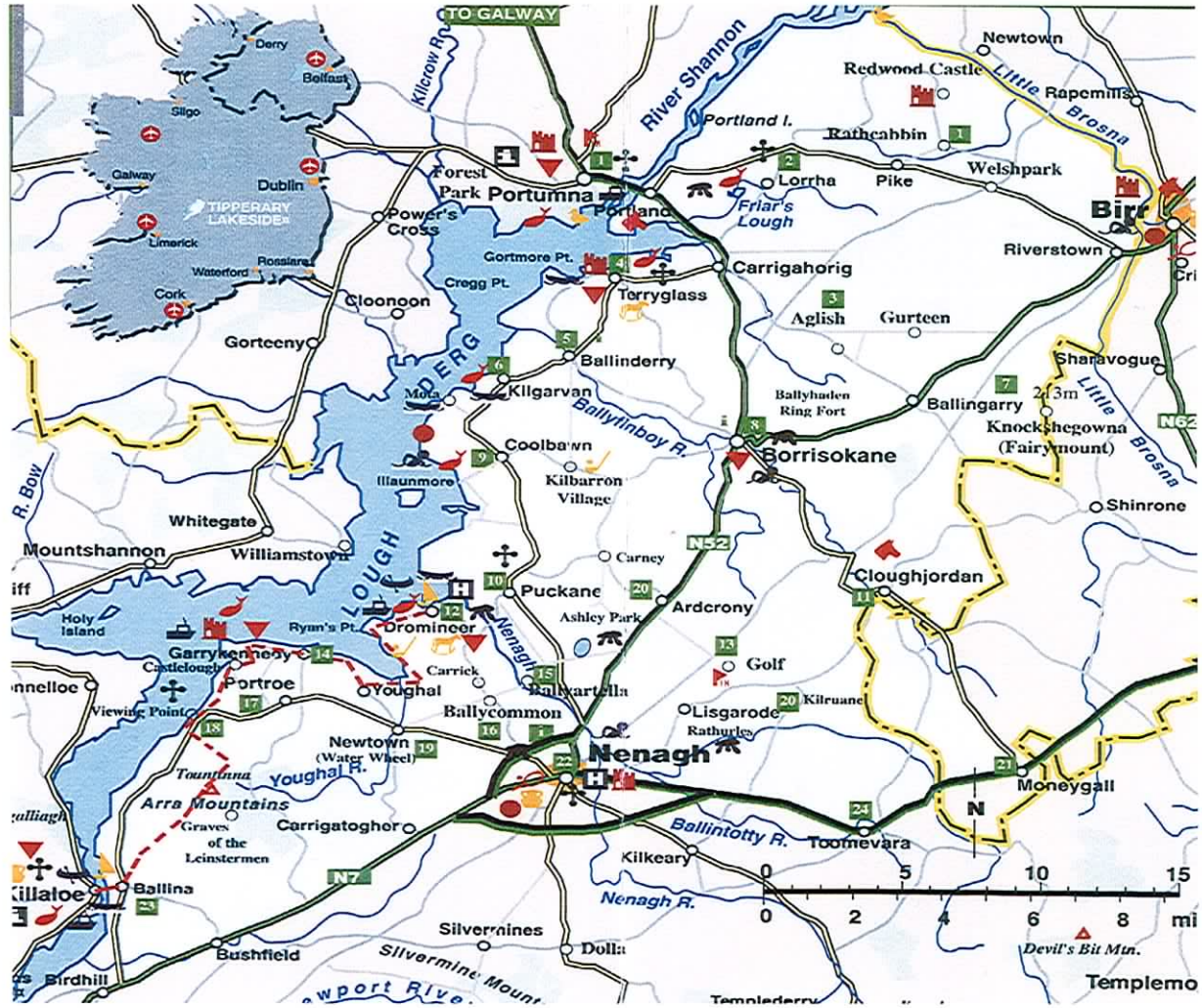
Implicit in the nature of tourism is the need for attractions and services to entice people to travel to an area. Visitor attractions can be broadly and loosely defined as areas of interest to visitors travelling to them in order to appreciate their value. Attractions motivate tourists want to visit a particular area.

Attractions are categorised under different types but essentially are either natural or man-made. Hunter & Green (1995) categorise the environment under three sub-headings: physical or built, biological or natural and socio-economic or cultural. According to Hunter and Green (1995) these categorisations relate to the typology utilised to describe the environmental assets that attract tourists. Fennell (2003) has loosely categorised these attractions under the following headings; cultural, natural, events, recreation, and entertainment. Swarbrooke (2003) divides visitor attractions into four categories; natural environment attractions; man-made attractions not designed to attract tourists; man-made attractions designed to attract tourists and finally special events and festivals.

For the purpose of this study, tourism attractions located in the Lough Derg region were categorised as either natural or built attractions. Map 3.2 indicates the location of the principal attractions in the study area.

Map 3.2 Attractions in Tipperary Lakeside Region

(Source: Tipperary Lakeside Tourism)



3.5.2: Use of Attractions in Ireland and Shannon Region

Fáilte Ireland regularly conduct surveys to monitor and ascertain what attractions and activities are used by both domestic and overseas visitors. The majority of overseas and domestic visitors who come to Ireland and the Shannon region come primarily for holidaying, and also to visit family and friends (see table 3.8).

Figure 3.5 and figure 3.6 illustrate the activities engaged in by both overseas and domestic tourists in Ireland in 2004. For both groups of tourists the natural environment remains a core attraction. It is therefore imperative the natural 'green' unspoilt environment be safeguarded for future generations.

Table 3.8: Purpose of Visitors (2004)

Ireland -Overseas Tourists (2004)					
(%)	Total	Britain	M. Europe	N. America	Rest of World
Holiday	53	49	52	69	52
VFR[1]	28	33	21	20	29
Business	13	13	18	7	8
Other	6	5	9	4	8
Shannon Region- Domestic Tourists (2004)					
	2000	2001	2002	2003	2004
Holiday	43	49	44	46	46
VFR	34	21	35	34	34
Business	10	10	8	9	9
Other	13	9	12	12	11

Source: Fáilte Ireland

Figure 3.5: Overseas Tourists (Source: Fáilte Ireland)

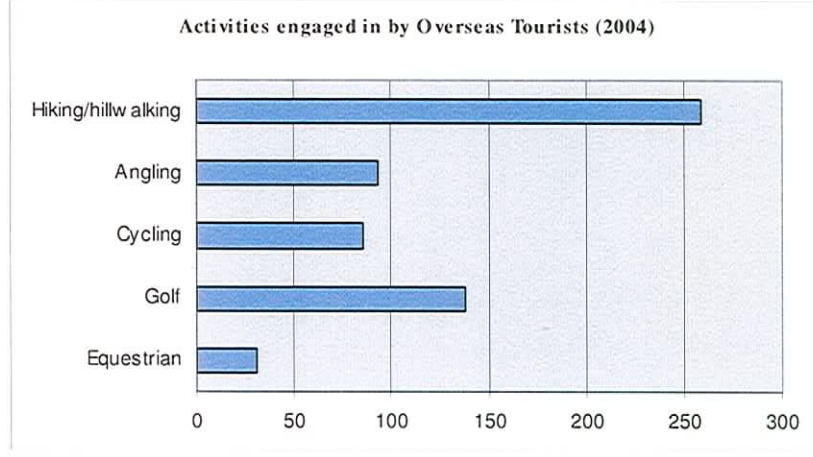
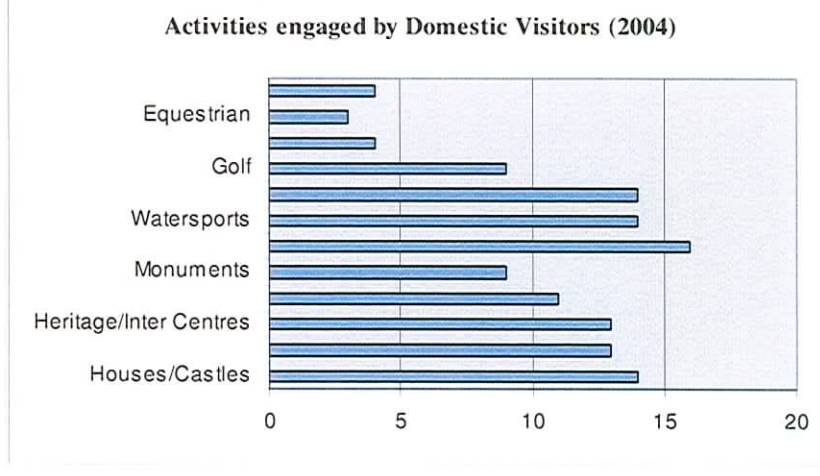


Figure 3.6: Domestic Tourists (Source: Fáilte Ireland)



3.5.3: Built Attractions in the Study Area

This type of attraction includes attractions which are purpose built for tourists or local communities. Examples include heritage centres, museums, sports centres. These visitor attractions can be sub-divided into man-made attractions that are not designed specifically for tourism for example churches, cathedrals and those that are designed for tourist use for example zoos or heritage centres.

For the purpose of this report, a list of the built attractions has been compiled and sub-divided into three categories, historic attractions, retail attractions (crafts and shops) and leisure attractions (including water based activities, equestrian and golf). Table 3.9 to 3.11 outlines the principal attractions and their location in each sub-category. These tables depict preliminary findings, it is envisaged that more extensive will be carried out during the tourist season in 2006 to map the location and usage of visitor attractions.

Table 3.9: Historic Attractions in the Study Area

Attraction	Location	Category
Nenagh Castle and Franciscan Friary	Nenagh	Monastic
Nenagh Heritage Centre	Nenagh	Heritage/ Exhibition Centre
Newtown Water Mill	Newtown	Historic
Killaloe Heritage and Brian Ború Centre	Killaloe	Heritage Centre
Beal Ború 'Brian Ború's Fort'	Killaloe	Monastic
St. Flannan's Cathedral and Churches	Killaloe	Ecclesiastical
Roscrea Castle and Damer House (Roscrea Heritage Centre)	Roscrea	Monastic/ Medieval
Monaincha Church	Roscrea	Monastic
St. Cronan's Church, Cross and Tower	Roscrea	Monastic
Franciscan Friary	Roscrea	Monastic
Mount St. Joseph Cistercian Abbey	Roscrea	Ecclesiastical
Rathurles Fort and Church	Rathurles	Historic
Ashley Park	Nenagh	Neolithic Site
Kilodiernan Church	Puckane	Monastic
Kackeen Castle	Lorrha	Medieval
Lorrha Churches / Dominican Abbey	Lorrha	Monastic
Fancroft Millhouse	Roscrea	Gardens/ Parks open to the public
Nenagh Genealogical Centre	Nenagh	Genealogical Centre
Redwood Castle/ St. Kieran's Well	Rathcabbin	Historic
Oldcourt Castle	Terryglass	Medieval
St. Colman's	Terryglass	Monastic
The Commons (1848 Warhouse)	Ballingarry	Historic Building
Lismacrory Burial Mounds	Ballingarry	Neolithic Monument
Canal Company Storehouse Yacht Club	Dromineer	Historic
Garykennedy Church and monastic settlement	Castlelough	Monastic

Table 3.10: Retail Attractions in the Study Area

Attraction	Location	Category
The Old Church	Terrygalss	Handmade crafts/ painting
Antique Centre	Kilgarvan Quay	Antique mirrors/ furniture
Puckane Crafts	Puckane	Irish crafts
Hanly's Woolen Mills	Nenagh	Wool/ linen factory/ craft shop
McQuaid's Traditional Music Shop	Nenagh	Music shop
Country Choice	Nenagh	Gourmet home-cooking

Table 3.11: Leisure Activities/Attractions in the Study Area

Activity	Location	Type
Ballycormac Stables	Roscrea	Equestrian
Watermark Skiclub	Ballinderry	Wakeboarding and water skiing
Shannon Sailing	Dromineer	Sailing courses
Powercharter	Nenagh	Water taxi/ water safari
Nenagh Golf Club	Nenagh	Golf club
Roscrea Golf Club	Roscrea	Golf club

The Spirit of Killaloe River Cruises	Killaloe	Passenger ferry
Nenagh Swimming Pool	Nenagh	Indoor public swimming pool
Ballina Swimming pool (Summer only)	Ballina	Outdoor swimming pool
Killaloe Pitch and Putt	Killaloe	Pitch and Putt
Nenagh Pitch and Putt	Nenagh	Pitch and Putt
Kilbarron Pitch and Putt	Kilbarron	Pitch and Putt
Tennis Courts	Nenagh	Tennis
Tennis Courts	Terryglass	Tennis
Tennis Courts	Ballinderry	Tennis

3.5.4 Natural Attractions in the Study Area

The natural environment serves as an attraction for many tourists. The study area is located in an area of high scenic beauty. Table 3.12 lists the natural attractions located in the study area.

Table 3.12: Natural Attractions in the Study Area

Attraction	Location	Type
Lough Derg	Co. Tipperary	Lake
Coarse fishing	Various locations	Fishing
	on/onshore lake	
Keeper Hill route		Cycling
Lough Derg Way		Walking
Cominchas Forest Walk	Coolbawn	Walking
Castlelough Walkk	Castle Lough	walking
Slí Eala Walk	Ballycommon	Walking
Fairymount farm	Ballingarry	Walking
Slieve Bloom Mountains		Walking/ trekking
Slieve Felim Way	Silvermines	Walking
Arra Mountains		Walking/ Trekking
Silvermines Forest Walk	Silvermines	Walking/ Trekking
Nenagh Town Trail	Nenagh	Walking
Killaloe Town Trail	Killaloe	Walking
Ashton's Callows	Rathcabbin	Bird watching
Carney Fen	(Between) Borrisokane and Kilbarron	Local wildlife and flora
Carney Commons	(Between) Borrisokane and Kilbarron	Bird watching/ flora

Case Study 2 illustrates the extend to which natural attractions and walking routes in particular are a highlight attractions for both visitors and locals (see box 5 below).

Box 5: Walking Routes in the Study Area

The Lough Derg Way:
Lough Derg serves as both an attraction and amenity area. Typical watersports conducted on the lake are canoeing, wind surfing, rowing and sailing. Cruising vessels also use the lake. The Lough Derg Way is a lakeside walking tour.

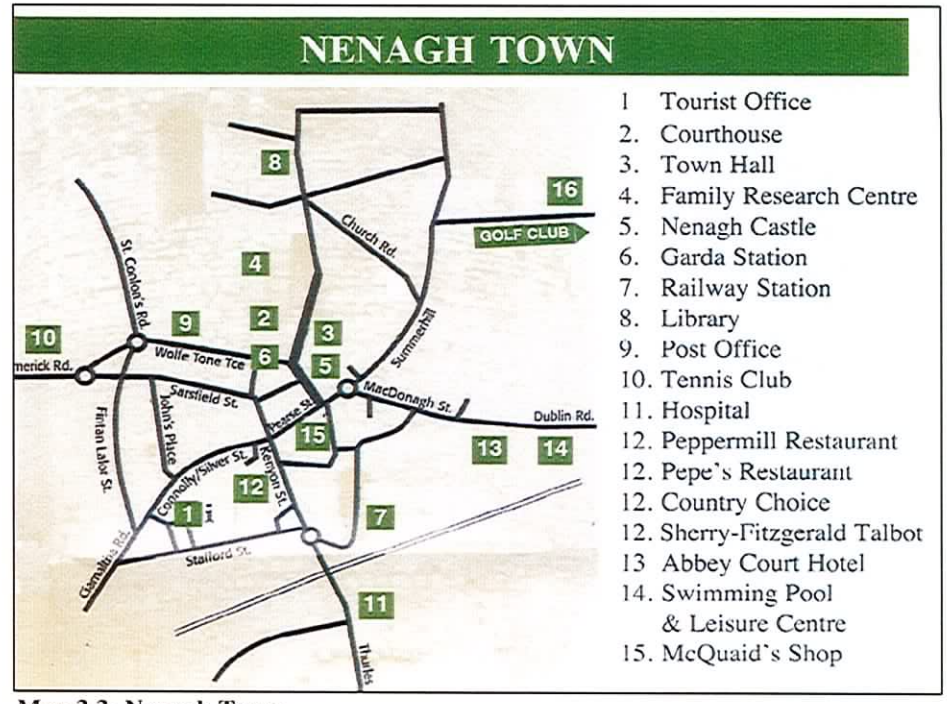
The Silvermines Forest Walk:
The Silvermines Mountains have witnessed mining of silver and base metals on and off for seven hundred years and yet still enthral archaeologists, however, the presence of mining in the area has resulted in residual tailings which are unsightly and subject of controversy regarding their toxicity. Thus, the mountains are not necessarily promoted as a tourist attraction. North Tipperary County Council are presently overseeing a clean up operation and when completed it is thought the area around the Silvermines will be more attractive.

The Slieve Felim Way:
The Slieve Felim Way is an extensive and well known walking route stretching 36 Kilometres from Murroe in Co. Limerick to Silvermines Village in Co. Tipperary. It is described as taking the tourist into 'the heart of the beautiful, rural countryside'. The route consists of valleys and hills running east to west, commencing at the Slieve Felim range in Limerick and moving north to Silvermines. The route provides scenic views of the surrounding countryside as well as vistas of Lough Derg and the river Shannon The Slieve Felim Way is a waymarked trail and promoted by Shannon Development.

3.5.5. Amenity and Ancillary Services

Amenities are the support facilities and services available at the destination and required by a tourist. '*The provision of amenities demonstrates the multi-sectoral nature of tourism supply and the interdependence of various sectors*' (Cooper *et al*, 1998, p.106). These businesses tend to have a low level of concentration of ownership and are operated by small to medium sized enterprises (SMEs). The one of advantage is that these businesses are that are owned by locals therefore tourist expenditure flows into the local economy quickly and without much leakage. However, from a negative aspect these businesses are usually quite fragmented, lacking management expertise and rarely investing in their product and possibly only operating during the tourist season.

Nenagh is the principal town in North Tipperary with the largest population therefore it is an important service settlement for both local residents and visiting tourists. Nenagh is also the administrative capital of North Tipperary. The civic offices of North Tipperary County Council and Nenagh Urban District Council are located in the town. The presence of both local authorities encourages and fosters economic and socio-cultural growth in Nenagh town. The tourist information point is located in Nenagh town however; it is only open from April to September and located somewhat off the beaten track. It is recommended that the tourism office be open year round and be relocated closer to the main tourist attractions such as Nenagh Castle. Map 3.3 details the layout of the town indicating the location of the principal services.



Map 3.3: Nenagh Town

Source: Tipperary Lakeside Tourism Brochure

Towns and villages located along the shore of Lough Derg also serve needs of the tourists visiting the study area. Table 3. 13 outlines the findings of a preliminary desk based inventory study of ancillary services provided in the small lakeshore villages in the study area. It is envisaged that this preliminary inventory will be supplemented with fieldwork to be carried out in 2006.

Table 3.13: Inventory of Services in Study Area:

Location	Rest	Bar	Coffee Shop	Harbour/ Jetty	Number of Mooring(s)	Toilets	Pump Outs	Showers	Laundry	Elsan Unit	Slipway	Marina	Boat Hire	Car Parking	Tourist Info. Point
Killaloe	4	7	1	√ (H)	7	√	√	√			√	√		√	√
Ballina	5	6	2	√(H)		√	√	√			√	√	√	√	
Garykennedy	1	3		√ (H)	11	√	√	√		√	√		√	√	
Dromineer	2	3		√ (H)	45	√	√	√		√	√	√	√	√	
Luska Pier											√				
Kilbarron											√		√	√	
Coolbawn Quay	1	2				√ (Private)		√ (Private)				√ (Private)		√ (Private)	
Mota Quay											√				
Kilgarvan	1	3		√ (H)		√					√		√	√	
Gortmore Point											√				
Terryglass	1	2		√ (H)	25	√	√	√			√		√	√	
Borrisokane	2	6				√								√	
Nenagh	12	35	3			√								√	√

3.5 ACCOMMODATION

3.5.1 Introduction

Accommodation is considered a large and important sub-sector within the tourism industry. *'The accommodation/food and beverage sector of the destination not only provides physical shelter and sustenance, but also creates the general feeling of welcome and a lasting impression of the local cuisine and produce'*(Cooper *et al*, 1998, p.106). Traditionally dominated by Small to Medium sized Enterprises, the accommodation sector usually offers a mix of establishments, and it is important for destinations to adapt and change this mix to meet market aspirations. Tourists when visiting a destination require accommodation like transportation. There is undoubtedly a link between transport and accommodation. Cooper *et al* (2005, p. 385) argue this relationship is long established however it is increasing in sophistication and complexity *'as transport providers recognise that accommodation can be an attraction to guests in its own right and not just a necessary service to be provided en route'*.

Accommodation and the Tourism Product

Accommodation is not considered to be the sole motivating factor for tourists to visit an area but accommodation is a necessary component in the development of tourism within any destination that seeks to serve visitors other than day-trippers. *'The quality and range of accommodation available will both reflect and influence the range of visitors to a location. As such, achieving the appropriate balance of accommodation to meet the destination's strategic tourism development objectives can be a challenge'* (Cooper *et al*, 2005).

However, the type and range of accommodation can greatly enhance the desirability of a destination. Cooper *et al* (2005) claim that accommodation contributes to the economic welfare of a destination, some estimates suggest as much as 33% of total trip expenditure is allocated to accommodation. They argue that in the case of domestic tourism, tourist spend on accommodation can be even greater as transportation costs are minimal. This fact may be worth investigating in the case of Lough Derg as the majority of visitors are domestic tourists thus possibly unleashing previously untapped potential.

3.5.2 Accommodation Supply in the Shannon Region

Accommodation supply is categorised as the follows;

- Hotel
- Guesthouses/ Bed and Breakfasts
- Self-catering
- Hostels

Table 3.14 outlines the accommodation supply base available in the Shannon Region from 2000 to 2004. This table also details the number of rooms available in each category. No such database exists for either North Tipperary or the study area, it is hoped that this can be generated as result of future fieldwork to be undertaken.

Table 3.14: Accommodation Supply in Shannon Region (2000-2004)
Source: Failte Ireland

Category	Number	2000	2001	2002	2003	2004
Hotel	Premises	108	104	106	107	108
	Rooms	5,166	5,256	5,527	5,640	5,627
Guesthouse/ B&Bs	Premises	642	616	597	578	526
	Rooms	2,927	2,870	2,815	2,714	2,524
Self-Catering	Premises	1,346	1,302	1,370	1,268	1,274
	Rooms	3,773	3,906	4,110	3,545	3,545
Hostels	Premises	36	30	30	27	26
	Rooms	1,026	1,561	1,561	1,270	1,204

From the above table, two sectors have increased their capacity: hotels and hostels. The number of rooms available in hotels has increase by 500 rooms despite the number of premises remaining the same. There has been a decline in the number of hostels but an overall increase in the number of rooms suggesting that both categories have expanded existing premises. There has been a decline in the number of premises and rooms in both the guesthouse and self-catering sectors. It should be noted that both these latter sectors make up the core of accommodation available in the study area.

Table 3.15 details the type of accommodation used by overseas tourists visiting the Shannon Region for the last two consecutive tourist seasons.

Table 3.15: Percentage of Accommodation used by overseas tourists to Shannon Region

Category	Year	Total	Britain	M. Europe	N. America	Rest of World
Hotel	2003	29	32	17	38	24
	2004	16	15	7	37	9
Guesthouse/ B&B	2003	42	22	48	56	47
	2004	16	7	12	41	17
Rented	2003	6	7	8	3	9
	2004	21	9	46	2	7
Caravan & Camping	2003	2	2	5	-	2
	2004	1	1	2	-	-
Hostel	2003	4	1	9	1	10
	2004	2	1	3	2	8
Friends/ Family	2003	21	37	13	10	17
	2004	26	49	12	12	21
Other	2003	1	-	3	1	-
	2004	18	18	18	6	38

Source: Fáilte Ireland

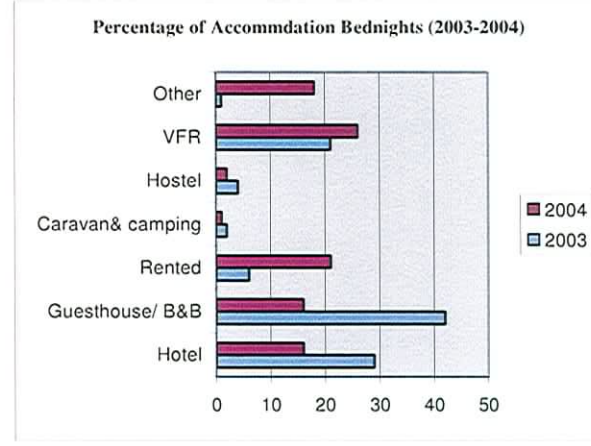
The hotel sector which represented the second largest accommodation segment used in 2003 (29%) decreased to 16% in 2004. The most frequently used type of accommodation; Guesthouses, representing 42% in 2003 decreased to 16% in 2004. This drop in numbers represents a huge fall in revenue for accommodation providers and it is difficult to ascertain a reason as overseas tourists numbers to the region increased in 2004.

Figure 3.7 illustrates the accommodation bednights used in 2003 and 2004 in the Shannon region. As can be seen from this figure, usage of rented accommodation did increase from 6% in 2003 to 21% in 2004. This increase reflects a growing trend in self-catering accommodation. Self-catering accommodation is aptly suited to the region around Lough Derg and offers families a greater chance to experience this rural destination. It is suggested that further research be conducted to understand why rented or self-catering accommodation is attracting increasing numbers with the aim of further promotion this accommodation sector.

The caravan and camping sector does not attract large numbers of tourists. In 2003, this sector represented 2% and decreased to 1% in 2004. However, owing to the nature of the rural environment of the Lough Derg region, this type of accommodation should be encouraged especially for youth groups. Similarly, hostel accommodation represented a small fraction of accommodation used by overseas tourists. In 2003, hostel accommodation accounted for 4% and in 2004 only 2%. This can be partly explained by the fact that there is only one hostel in the region.

The final two sectors: staying with family and relatives and 'other' category account for a considerable percentage of accommodation types used by overseas tourists. Staying with family and relatives increased from 21% in 2003 to 26% in 2004. This increase represents a growing international trend, a reason attributed is that less expense is incurred by the tourist. However, another contributing reason is number of non-locals who have taken up residence in North Tipperary and have their family visiting.

Figure 3.7: Percentage of Accommodation Bednights (2003- 2004)



Source: Fáilte Ireland

The final category; 'other' represents an increase from 1% in 2003 to 18% in 2004. It is difficult to pinpoint what 'other' means however, it is an accommodation category that increased by 17% in one year thus possibly indicating a new trend.

Unfortunately, no similar statistics regarding accommodation types used exists for domestic tourists visiting the Shannon Region. However, we can assume that domestic tourists are either

day-trippers or own their own accommodation in North Tipperary in the form of second/ holiday homes or stay on cruising vessels. Another possibility is to extrapolate from figures received for overseas tourists, though the level of accuracy is debatable. Similarly, no figures exist estimating the accommodation types used in North Tipperary or the study area, however, it is hoped, in conjugation with Strand 2 to extrapolate figures using the visitors' survey conducted as part of this Strand 2.

3.5.3 Audit of Accommodation Sector in the Study Area

A preliminary audit of accommodation supply in the study area was conducted as part of Strand 1. The internet, in particular the Shannon Development and the Fáilte Ireland websites were used to carry out this study.

The Hotel Sector

According to Cooper *et al* (2005) '*hotels are undoubtedly the most significant and visible subsector within accommodation or lodging*'. They argue that although hotels are a varied collection of properties, this sector provides the greatest level of employment and also accounts for highest level of receipts. In the tradition sense, a hotel is an establishment which provides accommodation and offers food and beverage services to fee paying guests on a short-term basis.

Traditionally, hotels are small family run businesses; however, increasing hotels chains and franchises are becoming more prevalent. Cooper *et al* (2005) argue that the cost of re-investment in order to meet changing consumer demand combined with the marketing and operational challenges poses a threat to smaller hotels trying to stay in business.

There are 29 hotels listed on the Shannon Development website for North Tipperary, however, none of the hotels listed are within the research area. However, it should be stated that there are three hotels within the study area none of which are listed on the Shannon Development website. Two hotels which are located in Ballina, Co. Tipperary have registered on the Shannon Development with an address in County Clare as Killaloe is considered more of tourist destination than Ballina therefore they are likely to get more hits. The third hotel is located in Dromineer. The reason this hotel is not listed can be attributed to the fact that recently it was undergoing renovations. Table 3.16 outlines the location of hotels in the study area.

It is suggested that the Shannon Development website (www.shannonregion.ie) should be updated to include these hotels located in study area as this website is the principal source of information for tourists wishing to visit the region.

Table 3.16: Hotel Accommodation in the Study Area

Hotel Accommodation	
Ballina	2 (unrated) (total 56 rooms) Lakeside Hotel (46 rooms) Watermans Lodge (10 rooms)
Coolbawn	Coolbawn Quay Lakeshore Spa and Marina (33 rooms)
Dromineer	1 (unrated) Dromineer Bay Hotel (23 rooms)
Nenagh	1 3* Hotel Abbeycourt Hotel and Trinity Leisure Centre (82 rooms)
Killaloe	1 (unrated) Hotel Kincora Hall Hotel (31 rooms)
Roscrea	2 Hotels Grant's Hotel Racket Hall

Guesthouses and Bed and Breakfasts

According to Cooper *et al* (2005) this subsector can offer facilities similar to small hotels, however their operations are on a smaller scale and guests often share facilities with other guests.

Table 3.17 lists the number and location of the guesthouses and Bed and Breakfasts in the study area. There are nine guesthouses advertised on the Shannon Development website however none of these are within the study area. There are no country houses located within the study area.

Table 3.17: Guesthouses/ B&Bs in the study Area

Guesthouses	
Ballina	5 B & Bs (21 rooms)
Birdhill	1 B & B (4 rooms)
Borrisokane	1 B & B (4 rooms)
Coolbawn	1 B & B (6 rooms)
Dromineer	3 B & Bs (10 rooms)
Killaloe	10 B & Bs (44 rooms)
Ardcroney	2 B & Bs (8 rooms)
Nenagh	13 B &Bs (52 rooms)
Newport	1 B &B (4 rooms)
Terryglass	4 B & Bs (16 rooms)

Farmhouse Accommodation

Farmhouse accommodation is a central component in the growing international agri-tourism movement (Cooper *et al*, 2005). Farmhouse accommodation is increasing in previously agricultural dependent countries, especially Ireland and New Zealand in order to supplement decreasing farm incomes.

Table 3.18 details the number and location of farmhouse accommodation in North Tipperary. There are twelve farmhouses promoted on the Shannon Development website however only two of these are located within the study area.

It is suggested that this form of accommodation be encouraged as it benefits both tourists and locals. Tourists often find this type of accommodation highly rewarding as they experience more of the countryside and know that they are directly helping the local economy. Farmers providing this type of accommodation supplement their own livelihoods and it can be assumed that they provide a more insightful holiday to the tourist owing to their local knowledge.

Table 3.18: Farmhouse Accommodation in the Study Area

Farmhouse Accommodation	
Borrisokane	1 (Ballymacormac House)
Terryglass	1 (Kylenoe)

Self-catering Accommodation

This sector is considered as important and varied. There are generally two types; individual cottages or gîtes and purpose-built cottage colonies (Cooper *et al*, 2005). In 1968 Shannon development set up the 'rent an Irish Cottage' brand, which were a collection of purpose-built cottage colonies. This brand was very successful and later sold off to private interests.

Table 3.19 lists the distribution and location of self-catering accommodation in North Tipperary. There is a sizeable number self-catering units in total representing the highest proportion of all accommodation types within the study area. Self-catering accommodation is clearly an appropriate form of accommodation in a rural area, especially an area where families visit as this form gives them the freedom to do their own thing.

However, the down-side of self-catering accommodation is that during off-season the community is only a fraction of those at peak periods. *'Where holiday homes are not purpose but purchased within the normal housing market, they can create considerable distortion to the local property market and resentment within local communities which may see prices rise and young people unable to buy into the local housing market'* (Cooper *et al*, 2005). This problem is evident in villages close to the lakeside shore especially Terryglass, Dromineer and Ballina.

Table 3.19: Self Catering Accommodation in the Study Area

Self Catering Accomodation	
Ballina	1 premises (3 rooms)
Borrisokane	2 premises (4 rooms)
Coolbawn	1 premises (3 rooms)
Dromineer	1 self-catering village (11 premises, 33 rooms) and 3 premises (8 rooms)
Killaloe	2 self-catering villages (43 premises, 132 rooms) and 6 premises (19 rooms)
Lorrha	1 self-catering village (5 premises, 8 rooms) and 1 premises (3 rooms)
Nenagh	1 self-catering village (12 premises, 34 rooms) and 15 premises (36 rooms)
Newport	4 premises (13 rooms)
Portroe	5 premises (14 rooms)
Terryglass	2 self-catering villages (11 premises, 30 rooms) and 5 premises (11 rooms)

Hostel Accommodation

Backpackers and tourists travelling on lower budgets principally use hostel accommodation. It is considered that tourists using this form of accommodation are more environmentally aware. Therefore, it is suggested that this form of accommodation provision should be encouraged.

There is one hostel located in Dromineer within the study area. However, this hostel is not listed on the Shannon Development website. It is thought that this hostel would benefit from greater promotion.

Table 3.20: Hostel Accommodation in the Study Area

Hostel Accommodation	
Dromineer	1 Hostel (30 Beds)

Conclusions

The accommodation sector plays a pivotal role within the tourism industry and although it is not the principal motivating factor encouraging people to visit an area, it can have a participatory influence on their choice of destination.

Lough Derg is a rural destination, therefore provision of accommodation is important as generally tourists wish to over-night in the area. There is an abundant and wide variety of accommodation available in the study area. The most commonly available form of accommodation is self-catering accommodation. This form of accommodation offers most flexibility to tourists who wish to discover the countryside and lakeshore. However, it is interesting to note that this form of accommodation is not the most frequently used category in the Shannon Region. Guesthouses and hotels are the most commonly used forms of accommodation, perhaps because of their strategic locations.

It is suggested that the accommodation sector would benefit from greater promotion either through the Shannon Development website or leaflets distributed by Tipperary Lakeside Tourism Co-operation.

4. ECONOMIC STRUCTURE

This section will examine the economic impacts of tourism development in the Lough Derg study area. This section will investigate the destination's ability to absorb tourist functions without squeezing out desirable activities. Box 1 outlines the economic dimensions that will be examined in this section.

Box 1: Economic Dimensions of Tourism Carrying Capacity

- Cost of Living*
- Seasonality of tourism
- Employment patterns / Labour* (rates of employment/unemployment)
- Participation rates by gender
- Landuse patterns
- Tourist spend*
- Swings in local economic prosperity corresponding to trends in tourist demand
- Investment*
- Technology*

* = Key dimensions of Carrying Capacity Web

4.1 Cost of Living

4.1.1 Introduction: Population Statistics

There is been an increase in national population figures since 1901 as outlined in table 4.1. The last census conducted in 2002 recorded the highest population figures in the history of the state. Population growth is expected to increase.

Table 4.1 Population of Ireland

Year	Total	Males	Females
1901	3,221,823	1,610,085	1,611,738
1911	3,139,688	1,589,509	1,55,179
1926	2,971,992	1,506,889	1,465,103
1936	2,968,420	1,520,454	1,447,966
1946	2,955,107	1,494,877	1,460,230
1951	2,960,593	1,506,597	1,453,996
1961	2,818,341	1,416,549	1,401,792
1971	2,978,248	1,495,760	1,482,488
1981	3,443,405	1,729,354	1,714,051
1991	3,525,719	1,753,418	1,772,301
1996	3,626,087	1,800,232	1,825,855
2002	3,917,203	1,946,164	1,971,039

Source: Central Statistics Office

Population in North Tipperary

The total number of persons living in North Tipperary in last census (2002) was 60,010. This figure represents 1.53% of the total national population (see table 4. 2). The male population of North Tipperary was 30, 864 equating to 1.6% of the national male population. The female population of North Tipperary is 30,416 representing 1.5% of the national population. The proportion of males to females is higher in North Tipperary and differs from the national trend of more females to males.

Table 4.2: Population of North Tipperary compared to National Statistics

Year	Area	Total	m	F
2002	National	3,917,203	1,946,164	1,971,039
2002	N. Tipp	61,010	30,864	30,146

Source: Central Statistics Office

The proportion of males and females in North Tipperary does not concur to the national trend as more males than females lived in North Tipperary in 2002. This can be partly explained by the fact that North Tipperary is largely a rural county with a sizeable male population engaging in agricultural activities.

Population in the Lough Derg Study Area

Small Area Population Statistics (SAPS) data received from the Central Statistics Office for the district electoral divisions (DEDs) in the study area were analysed (see table 4.3). In order to illustrate this data it was decided to summate population figures received for each DED in the study area for each census year (1981-2002), owing to the large amount of data amount.

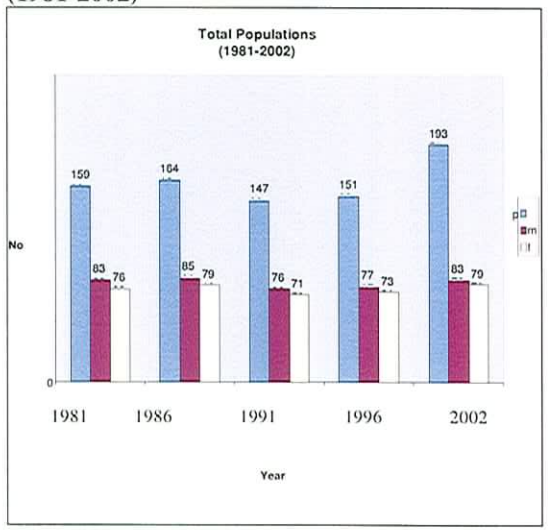
Table 4.3: Population Breakdown (1981-2002) by District Electoral Division for the Study Area

geog area	year	p	m	f	Year	P	M	F	year	p	m	f	year	p	m	f	year	p	m	f
DED 005 AGLISHCLOGHANE	1981	295	164	131	1986	295	160	135	1991	288	154	134	1996	261	140	121	2002	292	149	143
DED 006 BALLINGARRY	1981	629	366	263	1986	616	371	245	1991	659	388	271	1996	615	358	257	2002	583	312	271
DED 007 BALLYLUSKY	1981	272	146	126	1986	268	144	124	1991	277	151	126	1996	261	145	116	2002	267	147	120
DED 008 BORRISOKANE	1981	1137	584	553	1986	1119	558	561	1991	1098	558	540	1996	1129	563	566	2002	1171	590	581
DED 009 CARRIG	1981	160	86	74	1986	176	87	89	1991	178	88	90	1996	193	97	96	2002	186	95	91
DED 010 CLOGHJORDAN	1981	833	425	408	1986	867	447	420	1991	850	430	420	1996	813	418	395	2002	740	393	347
DED 011 CLOGHPRIOR	1981	231	131	100	1986	231	124	107	1991	239	125	114	1996	252	135	117	2002	238	120	118
DED 012 CLOHASKIN	1981	212	110	102	1986	193	100	93	1991	214	120	94	1996	197	98	99	2002	222	107	115
DED 013 FINNOE	1981	158	84	74	1986	157	88	69	1991	150	80	70	1996	155	69	86	2002	158	80	78
DED 014 GRAIGUE	1981	286	147	139	1986	303	153	150	1991	289	145	144	1996	304	157	147	2002	267	134	133
DED 015 KILBARRON	1981	568	313	255	1986	541	283	258	1991	530	277	253	1996	553	286	267	2002	576	292	284
DED 016 LORRHA EAST	1981	363	190	173	1986	376	197	179	1991	366	192	174	1996	338	184	154	2002	329	173	156
DED 017 LORRHA WEST	1981	366	188	178	1986	336	171	165	1991	322	171	151	1996	337	180	157	2002	319	173	146
DED 018 MERTONHALL	1981	179	105	74	1986	186	98	88	1991	185	98	87	1996	172	84	88	2002	168	84	84
DED 019 RATHCABBAN	1981	262	151	111	1986	261	147	114	1991	238	134	104	1996	223	121	102	2002	222	118	104
DED 020 REDWOOD	1981	194	98	96	1986	172	86	86	1991	163	86	77	1996	168	84	84	2002	143	73	70
DED 021 RIVERSTOWN	1981	380	202	178	1986	407	213	194	1991	375	190	185	1996	396	209	187	2002	482	242	240
DED 022 TERRYGLASS	1981	487	249	238	1986	485	246	239	1991	464	235	229	1996	451	227	224	2002	504	256	248
DED 023 USKANE	1981	257	135	122	1986	239	122	117	1991	221	107	114	1996	211	103	108	2002	195	103	92
DED 026 ARDCRONY	1981	446	231	215	1986	458	240	218	1991	434	234	200	1996	441	236	205	2002	451	247	204
DED 027 BALLINA	1981	819	405	414	1986	909	459	450	1991	908	468	440	1996	1058	536	522	2002	1720	873	847
DED 031 BIRDHILL	1981	489	246	243	1986	516	268	248	1991	497	253	244	1996	537	275	262	2002	588	304	284
DED 032 BURGESBEG	1981	376	202	174	1986	417	220	197	1991	397	215	182	1996	430	236	194	2002	418	225	193
DED 033 CARRIGATOGHER	1981	567	302	265	1986	591	309	282	1991	584	299	285	1996	611	304	307	2002	641	320	321
DED 034	1981	1101	574	527	1986	1095	558	537	1991	1086	541	545	1996	1148	578	570	2002	1223	613	610

CASTLETOWN																				
DED 035 DERRYCASTLE	1981	237	117	120	1986	295	145	150	1991	288	145	143	1996	311	155	156	2002	349	174	175
DED 044 KNIGH	1981	623	326	297	1986	624	329	295	1991	620	326	294	1996	593	320	273	2002	678	354	324
DED 047 MONSEA	1981	504	244	260	1986	558	269	289	1991	547	249	298	1996	593	285	308	2002	628	307	321
DED 048 NENAGH RURAL	1981	2620	1352	1268	1986	2790	1416	1374	1991	1388	681	707	1996	1463	729	734	2002	1710	832	878
DED 051 YOUGHALARRA	1981	613	322	291	1986	679	365	314	1991	646	344	302	1996	654	345	309	2002	626	340	286
DED 037 GREENHALL	1981	268	135	133	1986	259	136	123	1991	288	152	136	1996	260	140	120	2002	257	142	115
Totals		15932	8330	7602		16419	8509	7910		14789	7636	7153		15128	7797	7331		16351	8372	7979

Table 4.4 illustrates the population trends for the Lough Derg Study area from 1981 to 2002. There has been an overall growth in population from 15,932 persons in 1981 to 19,351 persons in 2002, reflecting the national trend of population growth.

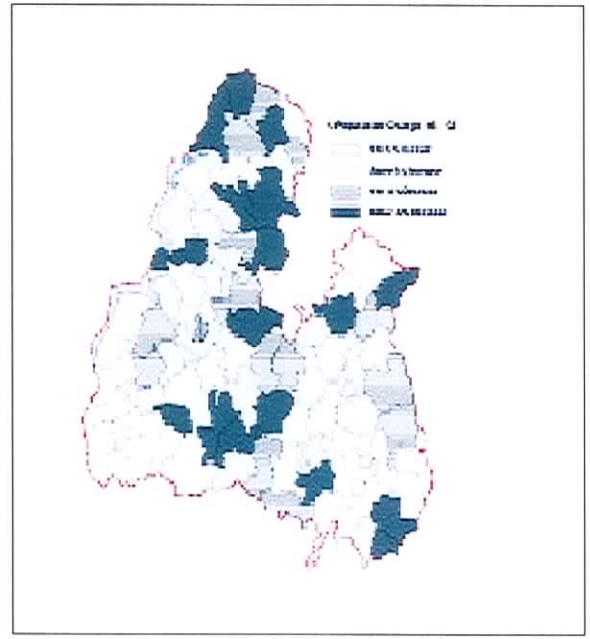
Table 4.4: Population Trends in Study Area (1981-2002)



Source: Irish Social Science Data Archive

North Tipperary County Council recognize that data pertaining to local population is required in order to be able to plan for the amount of land needed for housing, industry and infrastructure (North Tipperary County Development Plan, 2004-2010). Monitoring population growth indicates key trends emerging and track how some areas have changed in relation to others. North Tipperary County Council have identified specific 'problem areas' where populations are in decline including the East Urban area of Nenagh and larger rural settlements. Map 4.1 shows the DEDs that experienced population decline between 1996 and 2002.

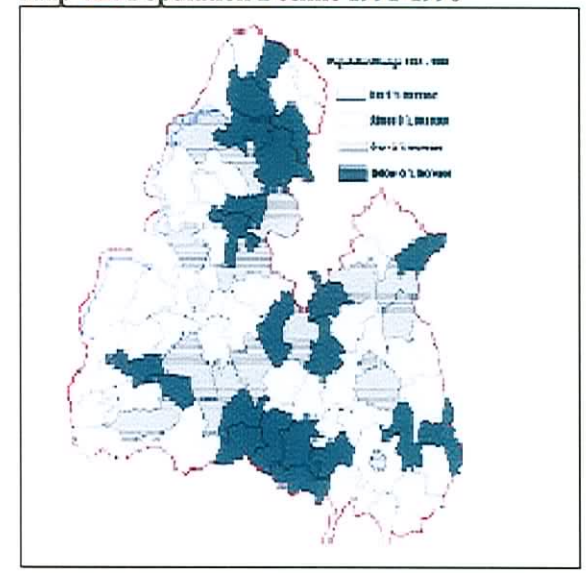
Map 4.1: Population Decline 1996-2002



Source: North Tipperary County Council, 2004

Map 4.2 illustrates the decline between 1991 and 1996 (North Tipperary County Development Plan, 2004-2010). The County Council hope that by identifying areas in decline measures can be taken to alleviate and readdress future population deprivation.

Map 4.2: Population Decline 1991-1996



Source: North Tipperary County Council, 2004

As seen from Table 4.3, some DEDs have experienced population growth for example Ballina while other DEDs have suffered a decline in population such as Nenagh Rural. Both DEDs represent polar extremes as the population of Ballina has more than doubled in 21 years and the population of Nenagh Rural has almost halved during the same period as exemplified in table 4.5. A reason attributed to the dramatic rise in population in Ballina is its relative proximity to larger urban areas making it possible for people to commute to Limerick city and Shannon

town. North Tipperary County Council noted in the County Development Plan, 2004-2010 that the Western area of the county experienced significant population increase. The average population growth was 15.5% and Ballina experienced a growth of 98.2% between 1996 and 2002.

Table 4.5: Populations of Ballina and Nenagh Rural

DED	1981	1986	1991	1996	2002
Ballina	819	909	908	1058	1720
Nenagh Rural	2620	1790	1388	1463	1710

Source: Irish Social Science Data Archive

Ballina is located on the southern end of Lough Derg and is considered one of most important towns along the Tipperary shoreline in terms serving both as a tourism attraction and providing tourism facilities such as a hotel and marina. Housing development has mushroomed on the approach roads to Ballina. As a small rural town, Ballina occasionally suffers from traffic congestion and lack of service provisions especially during peak tourism months.

While population and housing growth can have positive benefits for both tourists and the host community i.e. increased provision of services and improved infrastructural systems, negative impacts such as overcrowding and traffic congestion can also occur. It is important therefore to weigh up the benefits and disadvantages of population and housing growth. From tourism perspective the rural and natural integrity of Ballina must be maintained as this is often cited as a reason for visiting the area.

Population: Conclusions

Both population growth and housing growth are necessary and inevitable; therefore North Tipperary County Council must plan for any rise and fall in populations at a local level. North Tipperary County Council must ensure that any future developments are sustainable and in keeping with the overall character of rural landscape of the Lough Derg shoreline.

4.1.2 Consumer Price Index

The Consumer Price Index (CPI) is used by governments to measure the average change in prices over time in a fixed market basket of goods and services typically purchased by consumers. This statistical device is used to illustrate the extent that prices have risen or the amount of inflation that has taken place. CPI is one way the government measures the general level of inflation (www.globalfund.com).

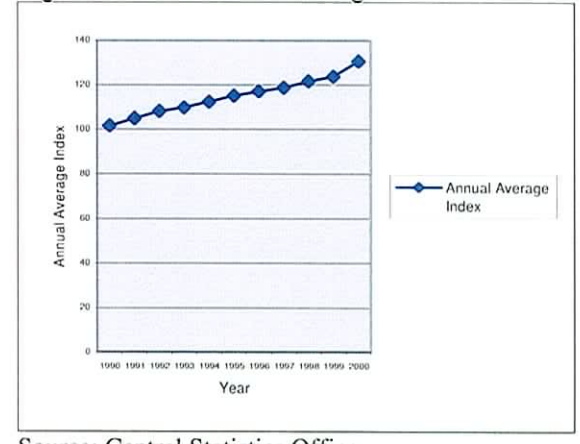
The Central Statistics Office measure CPI on behalf of the government. CPI figures are only available at national level but it can be assumed that a national increase in consumer prices is reflected throughout the country. Table 4.6 and Figure 4.1 illustrate the changes in consumer prices. Consumer prices have increased annually from 1989 to 2000 corresponding to population growth and a rise in income levels.

Table 4.6: Average Annual and Yearly CPI Increases

Year	Average Annual Increase (on base 1989)	Yearly Increase
1989	(100)	-
1990	101.7	1.7
1991	105	3.24
1992	108.2	3.05
1993	109.8	1.48
1994	112.4	2.37
1995	115.2	2.49
1996	117.1	1.65
1997	118.8	1.45
1998	121.7	2.44
1999	123.7	1.64
2000	130.6	5.58

Source: Central Statistics Office

Figure 4.1: CPI Annual Changes



Source: Central Statistics Office

From an economic perspective, high inflation levels reduce market competitiveness which has implications for long-term economic prosperity. From a 'quality of life' perspective, inflation increases may make it more difficult for some consumers to purchase goods and services, especially if wages are not increased in line with inflation.

Recently, criticism has been aired regarding the overpricing of tourism products and services in Ireland. Although price increases in tourism products and services must be in line with the annual growth rate of inflation, it is imperative that tourism products and services are not overpriced as this can lead to tourists feeling cheated or 'ripped-off' and they may seek alternative destinations which are more competitive.

4.1.3 Disposable Income

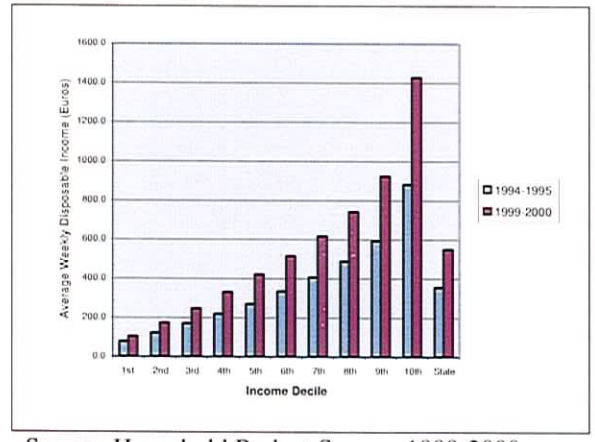
Data on average weekly disposable income was obtained from the *Household Budget Survey 1999-2000* conducted by the Central Statistics Office (see table 4.7). Figure 4.2 indicates an increase in the average weekly disposable income for all ten income deciles in the period from 1994/95 to 1999/00.

Table 4.7: Average Weekly Disposable Income by Gross Income Deciles

Gross Income Decile	1994-1995 (€)	1999-2000 (€)	Change (%)
1st	79.7	106.2	33.3
2nd	124.8	174.4	39.8
3rd	169.9	249.4	46.8
4th	220.6	331.7	50.4
5th	273.2	423.0	54.8
6th	335.3	515.7	53.8
7th	408.3	617.6	51.2
8th	488.1	743.4	52.3
9th	596.7	925.5	55.1
10th	882.9	1428.7	61.8
State	358.0	551.6	54.1

Source: Household Budget Survey, 1999-2000

Figure 4.2: Average Weekly Disposable Income by Gross Income Deciles



Source: Household Budget Survey, 1999-2000

Fig. 4.3 shows that the top income decile increased by almost 62% over the five years compared with 33% in the lowest income decile. Households in other income brackets recorded average increases of between 40% and 55%.

Figure 4.3: Change in Average Weekly Disposable Income

Source: Household Budget Survey, 1999-2000

Average weekly disposable income is an important indicator not just from the perspective of economic development, but also from a 'quality of life' and social cohesion standpoint. For these reasons, it is an important indicator of sustainable development.

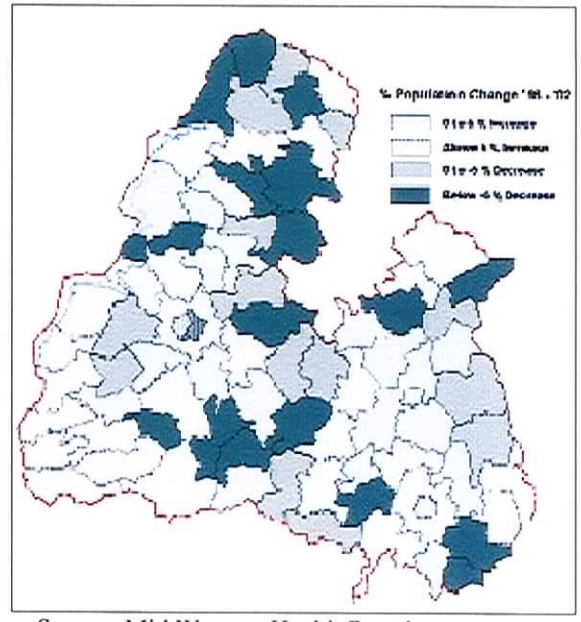
A recent report commissioned by the ESRI for the Combat Poverty Agency supported the view that while Ireland has become increasingly wealthy in recent years, it has also become more unequal (Farrell, 2000). The report highlights that income inequality is bad for social inclusion, resulting in alienation of marginalised groups. It also states that income inequality may be bad for a nation's health, and that the healthiest nations are not the richest ones, but the ones with the smallest gap between rich and poor.

Social Deprivation in North Tipperary

North Tipperary County Council recognise that greater social inequality and polarization has emerged as an unfortunate outcome of the increased economic prosperity.

The level of deprivation in the county is 4.2 but is below the national average of 4.6 (see Map 4.3). However, some DEDs such as Graigue and Finnoe '*have disadvantage scores of 8 and 9 and some of the more upland areas of the county also experience disadvantage in respect of access to employment and services*' (North Tipperary County Development Plan, 2004-2010).

Map 4.3: Relative Deprivation in North Tipp



Source: Mid Western Health Board

4.1.4 The Cost of Housing

There has been much commentary in the media of late regarding the sharp increase in Irish house prices. Recent economic prosperity and demographic factors such as population growth, distribution changes, smaller household sizes and increased pay levels have led to a significant increase in the demand for new housing (EPA, 1999). This in turn has had a knock on effect on house prices which are *inter alia*, determined by the willingness of households to pay for, and the willingness of builders to supply, a constant quality house (Green and Herdershott, 1996). Other factors that contribute to house prices include ease of obtaining mortgage finance and aesthetic factors (houses located in an attractive, green setting are likely to be more expensive than a similar house in a less favourable location) (Luttik, 2000).

Data on house prices was obtained from the *Housing Statistics Bulletin* 1990-2000 published by the Department of the Environment and Local Government. Data is not available at county level but 'All Other Areas' include all counties except Dublin, Galway and Waterford. There has been an increase in average house prices for new and second-hand homes for the years 1990 to 2000.

House Prices in North Tipperary

No information is available at county level for house prices in North Tipperary but it can be assumed that house prices in North Tipperary have increased. North Tipperary County Council recognised that some DEDs located in the Eastern part of the county have suffered from a decline in population between 1996 and 2002 whilst other DEDs especially those located in the Western area of the county experienced population growth. Demographic distribution impacts greatly on house prices, therefore, it can be assumed that house prices are higher in the western area of the county i.e. along the eastern shore of Lough Derg.

Cost of Housing: Conclusions

House price movements are important to the economy in terms of the effects on general price levels and its effects on consumer expenditure (Brown *et al*, 1997). *'The increasing buoyant economic conditions are fuelling demand for housing and making the task of securing housing market stability more difficult'* (Bacon Report, 2000). It was recommended in the Bacon Report (2000) that an increase supply will be required to meet the housing demand and it was estimated that 54,500 houses will need to be constructed annually between 2000 and 2005 to meet present demands.

In terms of sustainable development, the negative environmental impacts of housing development need to controlled and monitored.

4.2 Tourist Spend

4.2.1 Introduction

Ireland is ranked as a premier tourist destination and figures for both tourism numbers and revenue have increased steadily annually since 1973. In 1973, 1.28 million tourists arrived in the country this figure increased to 6.38 million in 2004 (Failte Ireland). *'The improved performance of Irish tourism and its contribution to employment growth since 1987 can be attributed in part to a more focused concentration of government efforts, improved access transport policies, liberalisation of air fares, more favourable external demand factors and increased European input through structural funds and the resulting emphasis on tourism investment'* (Kennedy and Deegan, 1999).

Tourism operates in a global environment with increasingly discerning tourists and a shift towards shorter breaks and more frequent holidays. A new trend emerging in the tourism market is the growth in short break holidays to city destinations. This phenomenon is impacting negatively on regional tourism performance. North Tipperary is located in the centre of the country and is part of the Shannon tourism region, therefore outside the principal city destinations.

Tourism Performance in North Tipperary

North Tipperary is an inland county located in the centre of Ireland and borders seven surrounding countries (CHL Consulting, 2004). Traditionally inland counties in Ireland lag behind coastal counties in terms of attracting tourist numbers and revenue.

Table 4.8 details the total number of overseas tourists to Ireland and North Tipperary. This table serves to illustrate the growth in overall numbers of overseas tourists.

Table 4.8: Overseas Visitor Number (000's) to Ireland and North Tipperary, 1993- 2004

	1993	1995	1997	1999	2001	2004
Ireland	3,274	4,231	5,007	5,943	5,840	6,384
N. Tipp	34	42	40	41	39	51

Source: Bord Fáilte/ Fáilte Ireland

4.2.2 Overseas Tourism in North Tipperary

North Tipperary is part of the Shannon Tourism region. The other counties located in the Shannon Region are Limerick, Clare, West Offaly and North Kerry. North Tipperary only accounts for a small share of tourists who visit the region (CHL Consulting, 2004). Table 4.9 compares overseas tourist numbers to all counties in the Shannon Region during the period 1993 to 2004.

Table 4.9 Overseas Tourists to counties in the Shannon region, 1993- 2004

	1993	1997	1998	1999	2000	2003	2004
C	391	540	570	597	615	548	391
L	330	380	409	450	439	389	610
NT	27	28	30	41	42	34	51
WO	N/A	N/A	N/A	N/A	N/A	14	13
NK	N/A	N/A	N/A	N/A	N/A	122	131

Source: Source: Bord Fáilte/ Fáilte Ireland

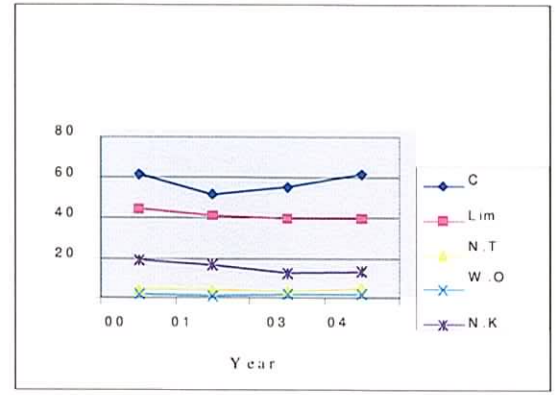
Table 4.9 shows increase in the overall numbers of overseas tourists visiting the Shannon Region

between 1993 and 2003. However, table 4.9 identifies a drop in overseas tourists to North Tipperary between 2000 (42, 000) and 2003 (34,000), this decline can be attributed to global factors such as the September 11th attacks and the outbreak of foot and mouth. There has been an increase in overseas tourist numbers to North Tipperary from 34,000 in 2003 to 51,000 in 2004.

Figure 4.4 compares the number of overseas tourists in the Shannon Region pre and post 9/11.[1] This figure is important because it traces overseas tourism trends to the Shannon Region during a tumultuous period. Figure 4.7 shows a decrease in overseas tourism numbers post 2001, but figures from 2004 depict a improved performance in all counties in the Shannon Region.

[1] The September 11th Attacks followed by the outbreak of the foot and Mouth disease and SARS impacted dramatically on global tourism leading to the emergence of growing trends such as increase in short-break/ short haul holidays and more frequent vacations.

Figure 4.4: Overseas Tourists to Shannon Region, 2003- 2004



Source: Source: Fáilte Ireland

Figure 4.4 demonstrates the low number of overseas tourists arriving in North Tipperary. North Tipperary as a tourist destination lags considerably behind the more popular counties in the region (Clare, 610,000, Limerick, 391,000 and North Kerry, 131,000 (2004). In 2004, North Tipperary attracted 4.2% of overseas tourists visiting the Shannon region, although this figure was an increase on 2003 (3.1%). West Offaly is only county receiving fewer tourists than Tipperary North.

4.2.3 Domestic Tourism to North Tipperary

Domestic travel by Irish residents has increased nationally from 5,478,000 in 2000 to 7,001,000 in 2004 as exemplified in Table 4.10. The domestic tourist is a strategic participant in the Irish tourism industry as domestic tourists do not need to travel to the island and therefore are considered to be in ready supply. Recent trends in the global tourism industry (i.e. increase of short-breaks and more frequent holiday taking) are reflected in the growth in domestic tourism numbers.

Table 4.10: Domestic Travel, 2000-2004

Region	2000	2001	2002	2003	2004 (000s)
Total	**5,478**	**6,307**	**6,452**	**6,657**	**7,001**
Border	597	682	675	699	709
Dublin	722	843	856	863	976
Mid-East	313	352	368	395	414
Shannon (Mid-West)	583	685	689	692	658
Midland	209	225	270	287	335
South-East	882	1,008	1,024	1,042	1,113
South-West	1,227	1,341	1,425	1,400	1,547
West	944	1,171	1,144	1,249	1,251

Source: Central Statistics Office

The South-west is the most popular region to visit for domestic holidaymakers, accounting for 1,547,000 visitors in 2004 (Fáilte Ireland). Other popular destinations in 2004 were the West, South-east, Dublin and the border regions. The Shannon (Mid-West) ranked sixth among the eight regional destinations receiving 658,000 domestic visitors in 2004.

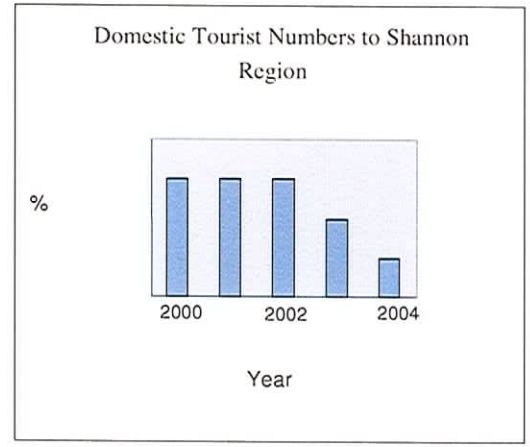
Table 4.11 Region Visited by Domestic Tourists (%)

Region	2003	2004
Dublin	5	6
Midlands-East	8	8
South-East	20	20
South-West	25	26
Shannon	13	11
West	22	21
North-West	8	8

Source: Fáilte Ireland

Table 4.5 illustrates the percentages of domestic tourists visiting the national tourism regions. The percentage of domestic tourists visiting the Shannon region has decreased by 2% between 2000 and 2004 as depicted in figure 4.5. Figures for the number of domestic tourists arriving in both North Tipperary and the study area are unavailable but it can extrapolated from regional figures that there has been a decline in domestic tourists to these areas.

Figure 4.5: Percentage Domestic Tourist Numbers to Shannon Region, 2000 – 2004



Source: Fáilte Ireland

4.2.4 Provenance of Overseas Visitors

Introduction

Fáilte Ireland and the Central Statistics Office routinely conduct surveys, which yield information regarding the origin of overseas visitors to Ireland, no such information is available for domestic tourism. Fáilte Ireland carry out an annual *Survey of Overseas Travellers* and it is from this survey that that the provenance of overseas tourists in the Shannon Region is estimated.

Overseas visitors to the Shannon Region

Table 4.12 shows the origin of overseas visitors for all the counties in the Shannon Region for 2003 and 2004. This table is important because it illustrates not only the origin of overseas tourists to the Shannon region but it serves to demonstrate which nationality identifies with specific counties in the region. For example, Clare attracts the majority of its overseas visitors from North America, followed by Britain and Mainland Europe. The nationality profile of overseas tourists to North Tipperary differs from Clare as the majority of tourists arrive from Britain, Mainland Europe and finally North America. A possible explanation for the divergence in nationality profiles of overseas tourists are the activities and attractions available in each county.

Table 4.12: Overseas Visitors to Counties in region

County	Year	Britain	Mainland Europe	North America	Other Areas
				000s	
Clare	2003	157	151	222	18
	2004	160	156	260	34
Lim	2003	150	102	117	20
	2004	157	99	109	26
N.Tipp	2003	17	11	4	2
	2004	33	9	8	1
W.Off	2003	4	3	5	1
	2004	6	2	3	1
N.Ker	2003	38	41	37	6
	2004	48	41	34	9

Source: Fáilte Ireland

Overseas Visitors to North Tipperary

Traditionally North Tipperary received the majority of its overseas tourists from Britain, it can be assumed that British tourists are attracted to the county for angling and fishing activities

which are widely promoted by Shannon Development. [2] Table 4.13 traces the provenance of overseas visitors to North Tipperary for the 1997 to 2004. Although there has been an increase in the numbers of tourists visiting the county from 1997 to 2004, the source of overseas tourists remains principally the same throughout the years. Britain remains firmly the principal target market, followed by Mainland Europe and finally North America.

Table 4.13: Origin of Overseas Tourists to North Tipperary, 1997- 2004

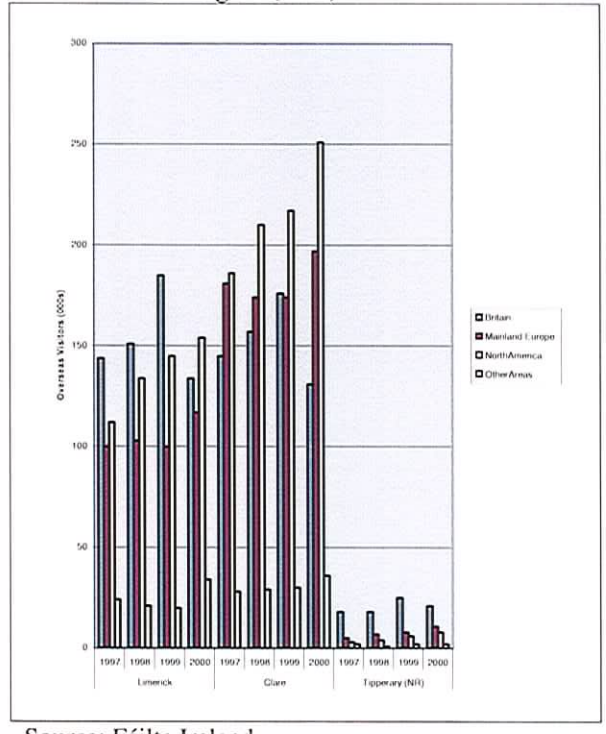
Year	Britain	Mainland Europe	North America	Other Areas
1997	18	5	3	2
1998	18	7	4	1
1999	25	8	6	2
2000	21	11	8	2
2003	17	11	4	2
2004	33	9	8	1

Source: Fáilte Ireland

The provenance of overseas visitors to North Tipperary differs from the traditional nationalities attracted to the more popular tourist counties in the region (see figure 4.6); this can be attributed to the fact that North Tipperary is a rural destination with natural amenities as its core product offering.

[2] Shannon Development is the regional tourism authority responsible for marketing and promoting tourism product in all counties in the Shannon region including North Tipperary.

Figure 4.6: Provenance of Overseas Visitors in the Mid-West Region (000s)



Source: Fáilte Ireland

4.2.5 Tourist Spend: Introduction

The economic benefits of tourism are well documented. In analysing the impact of tourism in terms of economic performance, four variables are important: the impact of tourism on GNP and employment, and the contribution tourism makes to the balance of payments credit and government revenue (Henry and Deane, 1997). Revenue accrued from tourism recipients are a valuable source of income for the Irish State as outlined in Table 4.14. Tourism related income (both domestic and overseas tourism) has increased from €399.5 million in 2000 to €406.2 million in 2004.

Table 4.14 National Tourism Revenue

Revenue					(€m)
	2000	2001	2002	2003	2004
Overseas	312.3	300.9	306.6	315.0	281.1
Domestic	83.3	104.0	98.7	115.0	111.0
Northern Ireland	3.9	4.2	4.9	4.8	14.0
Total Tourism Revenue	**399.5**	**409.1**	**408.2**	**434.8**	**406.2**

Source: Fáilte Ireland

Revenue Generated by Overseas Tourists in the Shannon Region

Revenue generated by overseas tourists in the Shannon Region accounts for a sizeable contribution to the local economy. There has been an increase in the revenue accrued from overseas tourists spending in the Shannon region from 1993 to 2004 as displayed in table 4.15.

Table 4.15: Revenue Generated by Overseas Tourists in Shannon Region (€m)

	1993	1997	1998	1999	2000	2003	2004
C[3]	58.0	87.6	68.6	79.9	81.2	101	95
L	58.9	82.5	85.0	140	182	191	138
NT	6.48	13.9	7.62	8.89	8.80	20	24
WO	N/A	N/A	N/A	N/A	N/A	3	3
NK	N/A	N/A	N/A	N/A	N/A	19	22

Source: Bord Fáilte/ Fáilte Ireland

Overseas Tourist Spend in North Tipperary

In terms of revenue generated by overseas tourists to the Shannon Region, North Tipperary received considerably less revenue (€24m in 2004) than other counties with the exception of West Offaly and North Kerry (see table 4.16). Revenue generated by overseas tourists has increased between 1993 and 2004 in line with a growth in tourist numbers to the county (see table 4.9 and table 4.15). However, one anomaly between overseas numbers and tourist spending was highlighted in North Kerry. North Kerry received more overseas tourists (122,000 in 2004) than North Tipperary (51,000) yet revenue generated by overseas visitors in North Tipperary accounted for €24 million compared to €22 million for North Kerry in 2004.

Revenue generated by overseas tourists to the more popular tourist counties in the Shannon region, namely Clare and Limerick decreased from 2003 to 2004 despite a growth in overseas tourists visiting these areas. Tourism revenue generated by overseas visitors to both North Tipperary and North Kerry increased in 2004 from 2003 as evidenced in table 4.17.

Despite the fact that North Tipperary receives fewer overseas tourists compared to the more popular counties in the region, the average spend for overseas visitors in the county is relatively high at €470.58 (2004) and is higher than the average spend in all other counties in the region

Table 4.16: Revenue Generated by Overseas in Shannon Region (including revenue breakdown by nationality), 2003- 2004

County	Year	Total	Brit	Europe	N. America	Other areas
(€m)						
Clare	2003	101	29	21	50	2
	2004	95	34	19	41	1
Lim	2003	191	68	57	45	21
	2004	138	66	40	23	9
NT	2003	20	4	2	14	1
	2004	24	9	3	11	n/a
WO	2003	3	1	1	1	n/a
	2004	3	1	1	n/a	n/a
NK	2003	19	8	5	6	n/a
	2004	22	14	4	3	n/a

Source: Fáilte Ireland

Table 4.17: Overseas Tourists average spend

	2003	2004
National	€522.4	€508.9
Clare	€184	€155.7
Limerick	€491	€352.9
North Tipperary	€588	€470.58
West Offaly	€214	€230.7
North Kerry	€155	€167.9

Source: Fáilte Ireland

Table 4.18 outlines the trends in terms of overseas tourist numbers and revenue generated for North Tipperary from 1998 to 2004. It demonstrates that visitor number peaked most recently in 2004 but previously in 2000. Following record visitor numbers in 2000, overseas tourism numbers declined in 2001 until 2004 however despite the drop in numbers, revenue generated by overseas visitors increased annually.

[3] Key: C=Clare, L=Limerick, NT=North Tipperary, WO=West Offaly and NK=North Kerry

Table 4.18: Overseas Tourists/ Revenue to North Tipperary (1998-2004)

Year	Total Overseas Numbers (000s)	Revenue Generated by Overseas Tourists (€m)
1998	30	8.8
1999	41	8.8
2000	42	8.8
2001	39	10
2002	34	19
2003	34	20
2004	51	24

Source: Fáilte Ireland

Domestic Tourist Spend in the Shannon Region

Revenue generated by domestic tourists is only available at regional level and is gathered from data received as part of the annual *Household Travel Survey* conducted by the Central Statistics Office.

Domestic tourism revenue is considered to significantly contribute to the local economy of a county/region. Evidence from the Central Statistics Office shows an increase in tourism earnings from domestic travel correlating to the growth in domestic visitor numbers. Table 4.19 illustrates the rise in both domestic tourism numbers and revenue in the Shannon region. Domestic tourism performance in terms of numbers and revenue peaked in 2003 at €115,000 and decreased slightly in 2004 to €111,000 however, the overall trend since 2000 has been towards an increase in revenue generated by domestic tourists.

Table 4.19: Domestic Trips and Revenue to the Shannon Region (2000-2004)

Year	Domestic Trips to Shannon (000s)	Domestic Revenue (€m)
2000	687	83.3
2001	805	104.0
2001	812	98.7
2003	818	115.0
2004	791	111.0

Source: Central Statistics Office Household Travel Surveys

Domestic Tourist Spend in North Tipperary

Figures for domestic tourism spend are available at county level, therefore no information is available detailing revenue generated by domestic tourists in North Tipperary. It can be deduced from the increase in domestic visitor spend in the Shannon region as a whole that revenue generated from domestic tourists rose in North Tipperary during the same period.

Tourism Spend in the Study Area

Figures for both overseas and domestic tourism are only not available at county level, therefore no detailed information regarding tourism spend is available for the study area. It is hoped that estimated figures can be extracted from the visitor satisfaction surveys which have been conducted as part of Strand 2 of the project.

4.2.6 Seasonality of tourism

Introduction

Seasonality refers to the peaking of demand and shortage of supply for tourism services at different times of the year. Kennedy and Deegan (1999) state the importance of analysing seasonality in the Irish industry stems from the severity of the peaking demand in July and August. Traditionally the tourism season in Ireland can be divided in three distinct periods. The months of July and August are considered peak periods, while April, May, June and September are categorised as the shoulder season. The off-peak season is considered to be the months of October through to March.

Tourism policy makers and tourist boards have been advocating spreading the tourist load in both a seasonal and spatial sense. This approach is considered a panacea to the disadvantages of peak season. While the philosophy of 'spreading the jam to avoid the honey' in honey-pot areas is admirable and adherent to the principles of sustainable tourism development, cohesive and real planning instead of 'stop-gap' measures are needed to encourage responsible tourism practice instead of extending the tourist season for the associated economic benefits.

National Seasonality

Overseas Visitors

The seasonal distribution of tourist numbers has considerable consequences nationally, regionally and locally. Peaked season is marked by high demand and short supply of services. The more peaked the season the higher the demand for a particular service by both tourists and host

community members and the shorter the supply to meet demand. In the tourism industry the peak season leads to increased socio-economic pressures as both visitors and residents strive to use the same facilities and services and this can lead to antagonism and ill feeling, leaving both parties feeling unsatisfied with the services provided. Often during the shoulder and off-peak periods, tourism services may be unavailable. The cost of providing services in the shoulder and off-peak season often deters organisations/individuals, as the demand does not meet supply therefore it is not cost competitive to remain open.

In terms of employment generated from tourism activities, seasonal highs and lows lend to labour instability. In some cases, seasonal employment opportunities are received positively as it suits lifestyle habits but is considered unsustainable in terms of socio-economic sustainability.

The national tourist season has peaks and troughs (see table 4.20). Overseas tourist arrivals peak during the months of July (12% in 2004) and August (12% in 2004) and the shoulder and non-peak months have considerably less visitors arriving (average 7.5% in 2004). In order to achieve greater balance in the Irish tourism industry, the issue of seasonal distribution must be addressed.

Table 4.20: National Seasonality 2004

(%)	Total	Britain	M.Europe	N. America	Other Areas
Jan-March	17[4]	19	32	28	31
April	9	9	9	7	7
May	9	9	10	11	11
June	9	8	10	11	10
July	12	11	16	12	12
August	12	12	13	10	12
Sept	9	9	8	11	11
Oct-[5]Dec	22	23	20	21	21

Source: Fáilte Ireland

Domestic Visitors

July to September continue to be the peak months for domestic holidays accounting for 39% of all domestic trips in 2004, this was a decrease in figures from 2003 as exemplified in table 4.21.

Table 4.21: Percentage Seasonality for Domestic Holidays

(%)	2003	2004
Jan-Mar	18	18
Apr-Jun	22	23
Jul-Sept	41	39
Oct-Dec	18	19

[4] Average percentage of total tourists arrivals equates to 5.6% per month in the period January to March 2004.

[5] Average percentage of total tourists arrivals equates to 7.3% per month in the period October to December 2004.

Source: Fáilte Ireland

Fáilte Ireland analysed data received from the *Household Travel Surveys* conducted by the Central Statistics Office in greater depth and sub-divided domestic holidays into two categories: short and long holidays. This analysis concluded that 59% (2004) of all long holidays among domestic tourists occurred during the peak months of July and August compared to short holidays which have a more even spread, this phenomenon can be attributed to the fact that school holidays coincide with the peak tourism period (see table 4.22 and table 4.23).

Table 4.22: Seasonality (%) for Long Holidays among Domestic Tourists

(%)	2003	2004
Jan-Mar	8	10
Apr-Jun	17	18
Jul-Sept	63	59
Oct-Dec	12	13

Source: Fáilte Ireland

Table 4.23: Seasonality (%) for Short Holidays among Domestic Tourists

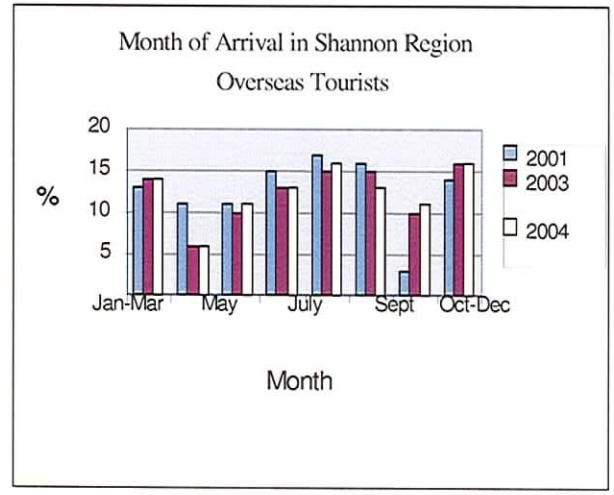
(%)	2003	2004
Jan-Mar	24	23
Apr-Jun	26	26
Jul-Sept	28	28
Oct-Dec	22	23

Overseas Seasonality in the Shannon Region

As highlighted in the table below (see figure 4.6), the Shannon Region has a seasonal pattern with almost half the overseas tourists arriving during the months of June, July and August. In 2001, the peaked period accounted for 43% of all overseas arrivals to the Shannon Region, and remained the same in 2003 (43%) but decreased slightly to 42% in 2004. Seasonality in the Shannon region is above the national average of 38% for the summer months and reflects the difficulty in changing the patterns of holiday-taking, particularly for destinations outside the Dublin region (CHL Consulting, 2004).

Figure 4. 6 traces the temporal arrival of overseas visitors to the Shannon region for the years 2001, 2003 and 2004. Although this figure shows distinct high, low and shoulder seasons for all years, 2004 demonstrated the most even flow of overseas tourist arrivals in the region.

Figure 4.6: Seasonality in the Shannon region



Source: Fáilte Ireland

According to Fáilte Ireland: British, German and American as well as other long-haul visitors have the greatest propensity to visit Ireland in the shoulder and off-peak seasons (CHL Consulting, 2004). It is recommended that North Tipperary invest in identifying and subsequently targeting these markets to achieve greater seasonal spread. Table 4. 24 illustrates the seasonal arrival of overseas tourists in the Shannon region for 2003 and 2004 by virtue of their nationality.

Evidence from this table suggests that there was a greater spread of British tourists in 2004 than 2003 with the exception of the month of July. A more even spread of tourists arriving from mainland Europe occurred in 2004 with the exception of the months of May and July when numbers increased. Tourism numbers from North America increased during the low and shoulder season and decreased in the peak period.

Table 4.24: Breakdown of Month of Arrival according to Tourist Nationality

						(%)
	Year	Total	Brit	M.Eur	N.Amer	Other Areas
Jan-Mar	2003	14	16	10	13	13
	2004	14	18	9	14	10
Apr	2003	6	6	7	7	3
	2004	6	6	6	7	6
May	2003	10	7	11	12	8
	2004	11	6	14	13	13
June	2003	13	14	16	12	7
	2004	13	12	12	15	13
July	2003	15	12	17	16	13
	2004	16	15	24	12	15
Aug	2003	15	17	18	12	21
	2004	11	9	9	14	14
Sept	2003	10	9	10	11	21
	2004	11	9	9	14	17
Oct-Dec	2003	16	19	10	17	14
	2004	16	20	10	16	13

Source: Fáilte Ireland

Domestic Seasonality in the Shannon Region

Domestic tourists are more likely to travel outside the traditional peak holiday periods and therefore targeting domestic visitors can increase the seasonal spread of tourism in the Shannon Region. CHL Consulting (2004) recommended targeting and attracting more domestic tourists to achieve a more even temporal flow of tourists to North Tipperary.

The timing of trips taken by domestic visitors is analysed as part of the *Household Travel Surveys* conducted by the Central Statistics Office. Table 4.25 shows the timing of domestic trips to the Shannon region.

Table 4.25: Timing of Domestic Trips

					(%)
	2000	2001	2002	2003	2004
Jan-Mar	20	20	20	20	21
Apr-June	19	23	24	23	23
July-Sept	34	35	32	34	32
Oct-Dec	27	22	24	24	24

Source: *Household Travel Survey* (Central Statistics Office)

The above table demonstrates a more even spread of tourists in 2004 compared to 2000.

Overseas and Domestic Seasonality in North Tipperary and the Study Area

No data is available for the timing of visits by overseas and domestic tourists at either county or local level, therefore figures for the Shannon Region have been used.

Seasonality: Conclusion

'To promote off-peak business, significant development and promotion within the domestic market segment is required. Otherwise, the realities of the holiday markets need to be taken into account and tourism should be planned on the basis that the seasonal curve will remain or less the same' (CHL Consulting, 2004).

4.3 Investment: Introduction

Tourism products and services require continual investment to keep in pace with development changes. Present day tourists have become more discerning, 'savvy', and expect higher standards and value for money. The capital investment costs of setting up and maintaining tourism businesses are substantial and are rarely bore by one individual or company. The tourism industry is characterised by the existence of multinational chains for example Hilton group of hotels and also smaller individual facilities (both publicly and privately owned) for example Coolbawn Quay Marina and Spa.

The majority of products and services that constitute the tourism industry are privately owned and run by individuals or families on small-scale basis. The start up and maintenance costs involved in running a tourism business can be immense; therefore many are assisted by grant aid.

It is important to examine the investment dimension from the perspective of tourism carrying capacity for the following reasons:

- To establish why the investment (project) is taking place i.e. is there a need for such a investment development
- To discern the environmental, socio-economic consequences of the proposed investment
- To ensure that the investment is consistent with the principles and practice of sustainable tourism development.

4.3.1 Investment in North Tipperary

Investment in tourism facilities, services and attractions is paramount to the success of a tourism destination. Investment must be ongoing in tourism products in the Lough Derg region. However, these investment projects must be sustainable and not endanger the natural environment which attracts visitors. Shannon Development is the principal agency charged with tourism product development in the region thus, the principal source of information regarding tourism investment in North Tipperary.

To date it has been difficult to source information pertaining to tourism investment in both North Tipperary and the Lough Derg study for reasons of confidentiality. However, it is envisaged that as part of Strand 3 that investment projects (past, present and future development proposals) in the area will be examined in order to discern past trends in tourism development and perceive and plan for sustainable tourism projects in the future. To this end a list of organisations involved in development investments is outlined in box 2.

Box 2: Investment Organisations

Level	Organisation
Local	North Tipperary County Council, Nenagh Town Council, Thurles Town Council, Templemore Town Council
	North Tipperary County Enterprise Board
	North Tipperary LEADER Group
	North Tipperary Community and Voluntary Association
	North Tipperary Broadband Group
	Tipperary Lakeside Tourism Co-operative Society
	Lough Derg Branch of the Inlands Waterways Association of Ireland
	North Tipperary Institute
Regional	Shannon Development
	Mid-West Regional Authority
	Shannon Fisheries Board
National	Fáilte Ireland and Tourism Ireland Limited
	Industrial Development Authority (IDA)
	Teagasc
	Department of Arts, Tourism and Sport
	Department of Environment, Heritage and Local Government
	Department of Community, Rural and Gaeltacht Affairs
	The Heritage Council
	Waterways Ireland
European	Funding programmes such as LEADER, Interreg and Operational Programmes for Ireland.

Shannon Development has earmarked €10 million for a project entitled the 'Lough Derg Tourism Cluster' or 'Lough International Waterpark'. This project proposes to develop an integrated system of visitor facilities based on a hierarchical structure of 28 strategically located sites along the shoreline of Lough Derg. It is intended that these sites will be linked by waterbus making the lake more accessible to visitors. Funding has been secured from Fáilte Ireland under the Tourism Product Development Scheme of the National Development Plan (2000-2008). National funding is backed by additional funding from Shannon Development, North Tipperary County Council, Galway County Council and Clare County Council. This project will represent the largest tourism investment in the Lough Derg region to date when completed.

The first phase of this project is due to start in North Tipperary in 2006. Funding secured for developing this project in North Tipperary alone accounts for €2 million and is due to be complete in December 2006. The project proposes to upgrade tourism facilities in Terryglass, Ballina-Killaloe, Garykennedy and Dromineer, including the provision of public amenity areas (green and picnic areas, public toilets and showers), information points, increased mooring space and car parking. Shannon Development has conducted considerable research in relation to the impacts of this project on the area and it is considered that this project will assist in the sustainable development of the region.

Investment: Conclusion

Continued investment in tourism products/ services/ facilities is required to attract both overseas and domestic visitors but any proposed development must be sustainable in order to mitigate negative impacts of tourism.

4.4 Labour

4.4.1 Labour: Introduction

In their 2004 publication on Indicators of Sustainable Tourism, The World Tourism Organisation (WTO) assert that tourism at a destination level will not be sustainable if there are no qualified employees to provide the services and operate the facilities regardless of the other ingredients existing. The WTO insist that there are many issues that contribute to the quality of employment in tourism which in turn contribute to the economic sustainability of tourism. The WTO (2004) have outlined a number of key components and subsequently indicators which they recommend should be examined in relation to employment. These key indicators are outlined in box 3.

Box 3: Employment Indicators suggested by World Tourism Organisation (2004)

Component	Indicator
Number and quality of employment in the tourism sector (turnover, seasonality, pay levels)	• Total number employed in the tourism sector, by industry • Retention levels of employees • Percentage of jobs that are full time, full year • Local unemployment rate in off-season • Income analysis
Professional and personal development	• Number (%) of employees qualified/certified • Training funds spent per employee, frequency of training programmes • Possibility of on-the-job training
Contentment from work including; type of work, environment, safety, development etc.	• Employee satisfaction • Promotion • Income levels (absolute and compared to other sectors) • Ability to influence change/improvements in business processes • Number of workplace accidents (and cost of compensation)
Lack of skilled labour	▪ Measures of errors, resulting in waste ▪ Tourist dissatisfaction ▪ Complaints (by employers/ tourists) ▪ % of labour imported (from outside region/other countries)

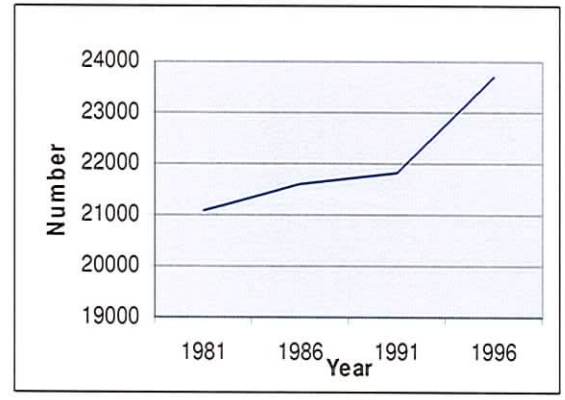
Source: World Tourism Organisation (2004)

4.4.2 Persons in the Labour Force in North Tipperary

The total labour force includes those persons currently in employment and those actively looking for employment. There has been a steady increase in the numbers of persons in the workplace in North Tipperary since 1981 as shown in figure 4.7.

The availability of a skilled, knowledge-intensive workforce is a key determinant in terms of social and economic advancement. The numbers of people gainfully employed in North Tipperary has increased from 19,195 in 1981 to 20,769 in 1996. The figures for the number of persons unemployed have increased corresponding to the rise in numbers at work (see table 4.26).

Figure 4.7: Numbers of Persons in Labour Force in North Tipperary (1981-1996)



Source: Shannon Development

Table 4.26: Number of Persons Classified by economic Status in North Tipperary

Economic Status	Year	Tipp (NR)
No at Work	1981	19195
	1986	18161
	1991	18536
	1996	20769
No Unemployed	1981	1911
	1986	3408
	1991	3302
	1996	2918
No in Labour Force	1981	21106
	1986	21569
	1991	21838
	1996	23687

Source: Central Statistics Office

4.4.3 Job Availability in North Tipperary

The stock of jobs available has been increasing since the mid-1990s. Therefore, it can be surmised that jobs in the tourism and hospitality industry have increased. Table 4.27 compares job gains and losses from 1981 to 2000. In general, job gains have overweighed job losses in North Tipperary. Job gains and losses in the county peaked at the height of the economic boom from 1988 to 1996.

Table 4.27: Job Stock, Gains and Losses in North Tipperary

Year	Job Stock	Job Gains	Job Losses
1981	2635	224	203
1982	2566	187	256
1983	2443	60	183
1984	2333	152	262
1985	2136	165	362
1986	1967	83	252

1987	2109	273	131
1988	2162	302	249
1989	2221	412	353
1990	2530	374	65
1991	2792	366	104
1992	2790	205	207
1993	2821	269	238
1994	2947	298	172
1995	2911	284	320
1996	2865	268	314
1997	2927	194	132
1998	2982	175	120
1999	2983	244	243
2000	3138	257	102

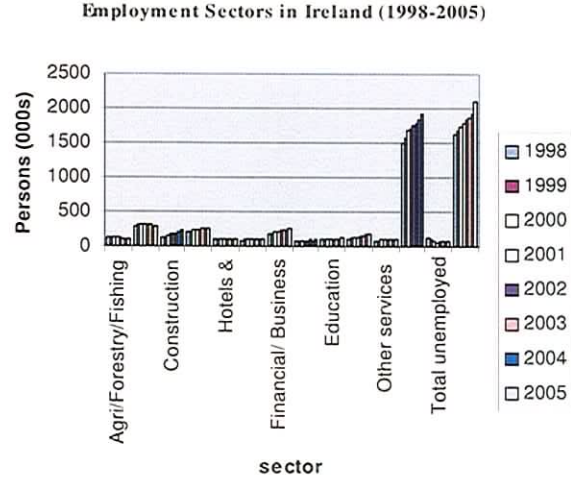
Source: Shannon Development, Enterprise Ireland and Industrial Development Authority

4.4.4 Labour Classifications

National Labour Classifications

Since the roaring of the Celtic Tiger, figures for the number of people employed has increased dramatically across all secondary and tertiary sectors corresponding with a decrease in unemployment. Primary employment sectors such as agriculture, forestry and fishing industries have experienced weaning numbers of individuals actively engaged in these jobs. Figure 4. 8 traces participation rates by sector from 1998 to 2005. There has been an overall growth the numbers actively engaged in service sector industries. The tourism and hospitality industry has witnessed an unprecedented increase in persons employed. There was total of 269,3000 involved in tourism related employment (Hotels/restaurants, transport / storage/ communications and other services) in 1998 and this figure rose to 345,600 in 2005.

Figure 4.8: Employment Sectors in Ireland (1998-2005)



Source: Central Statistics Office

The tourism industry is characterised as a labour intensive industry and the role of employees is paramount to the success of a tourism service. Presently, there is a shortage of skilled workers for to supply demand in the tourism and hospitality industry. Non- Irish nationals are now filling this shortage. Overseas tourists have aired criticism as they expect to be greeted and served by Irish nationals and in some cases this has lead to discontentment. However, Ireland as part of the European Union is becoming a multicultural society, therefore it is the role of both national tourism authorities to embrace and recognise this shift in traditional employment patterns.

Labour Classifications by Occupational Groups in North Tipperary

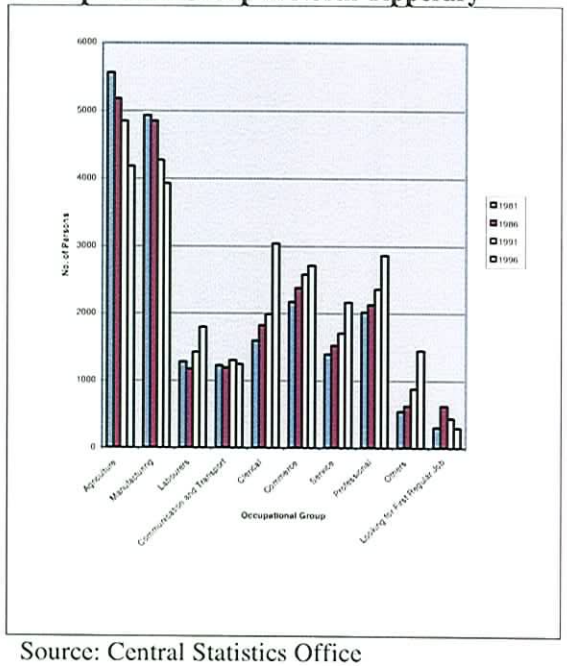
In correlation with national figures, the number of persons employed in tertiary industries in North Tipperary has increased while the number of persons engaged in agricultural and manufacturing industries has decreased. It can be surmised from table 4.28 that the numbers of persons actively engaged in the tourism and hospitality sectors in North Tipperary has increased in line with the service sector as a whole.

Figure 4.9 illustrates the shift in trends according to the number of persons employed in the different occupational groups in North Tipperary. The service and transport industries have increased substantial in recent years.

Table 4.28: Labour Classifications by Occupational Groups in North Tipperary

Tipperary (NR)	1981	1986	1991	1996
Agriculture	5572	5188	4857	4183
Manufacturing	4941	4858	4272	3932
Labourers	1287	1180	1425	1805
Communication and Transport	1235	1200	1310	1253
Clerical	1599	1829	1987	3044
Commerce	2176	2386	2581	2715
Service	1399	1528	1710	2171
Professional	2029	2133	2361	2872
Others	553	633	888	1453
Looking for First Regular Job	315	634	447	304

Figure 4.9: Number of Persons Classified by Occupational Group in North Tipperary



Source: Central Statistics Office

Labour Classifications by Occupational Groups in the Lough Derg Study Area

Data received and analysed at district electoral division notes an increase in the service industry and a marked decline in more traditional employment activities such as agriculture and manufacturing (see table 4.29). Table 4.29 also details the labour activities engaged by both males and females in the study area. This table identifies trends which have emerged from 1981 to 2002 such as an increase in the number of females actively engaged in employment and a growth in the number of males employed in the service sector.

Table 4.29: Employment classified by sector and gender in the study area (1981-2002)

Year	Gender	Agr[6]i	Manu[7]	Co[8]nst	Trans[9]	Fin[10]	Admin[11]	Other[12]
1981	Male	2019	499	632	156	437	105	244
	Female	166	178	13	43	275	51	397
1986	Male	1703	815	202	199	312	85	467
	Female	126	135	0	34	197	365	455
1991	Male	2290	384	209	223	316	79	493
	Female	135	126	24	28	199	371	516
1996	Male	1293	585	429	242	310	296	600
	Female	94	149	6	26	256	473	801
2002	Male	992	690	584	292	394	381	938
	Female	46	166	9	39	366	670	1220

Source: CSO; Irish Social Science Data Archive

4.4.5 Gender Balance in the Labour Force in the study Area

The proportion of males to females is higher in the study area (table 4.2), therefore it is not surprising that more males than females are at work in the study area. Table 4.30 details the total number persons at work in the study area and compares the numbers of males and females gainfully employed in the study area from 1981 to 2002. There has been a significant increase in the number of females actively employed since 1981. The greatest rise in total number of females at work occurred between 1996 and 2002 when figures almost doubled, during the height of Celtic Tiger.

The total number of males at work has increased between 1981 and 2002 albeit slightly, after a interluding period (from 1986 to 2002) which saw the number of males employed drop.

The total number of persons gainfully employed in the study area has increased from 5,215 in 1981 to 6,787 in 2002 (see figure 4.10). This increase can be attributed to the growing number of females employed in the study area.

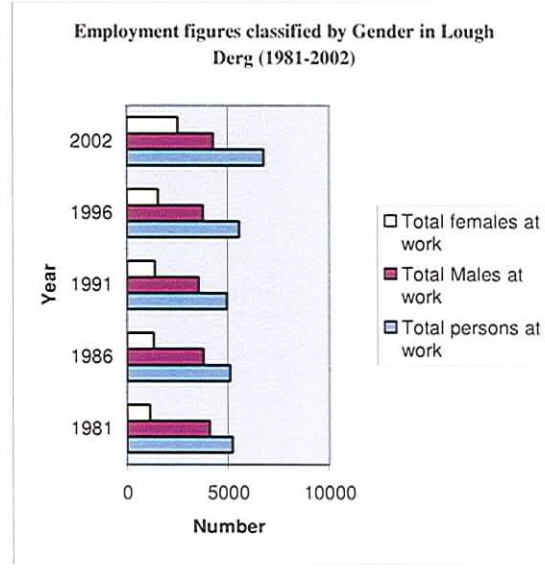
[6]Includes agriculture, forestry, fishing and mining
[7]Includes manufacturing and other production industries
[8]Construction
[9] Includes transport, storage and communication
[10]Includes financial and other business services
[11]Includes Public administration, government services and defence
[12]Includes professional and technical and other services

Table 4.30: Gender Balance in Employment in Tipperary Lakeside Region

Year	Total persons at work	Total Males at work	Total females at work
1981	5215	4092	1123
1986	5095	3783	1312
1991	4948	3549	1399
1996	5560	3755	1535
2002	6787	4271	2516

Source: CSO; Irish Social Science Data Archive

Figure 4.10: Employment by Gender

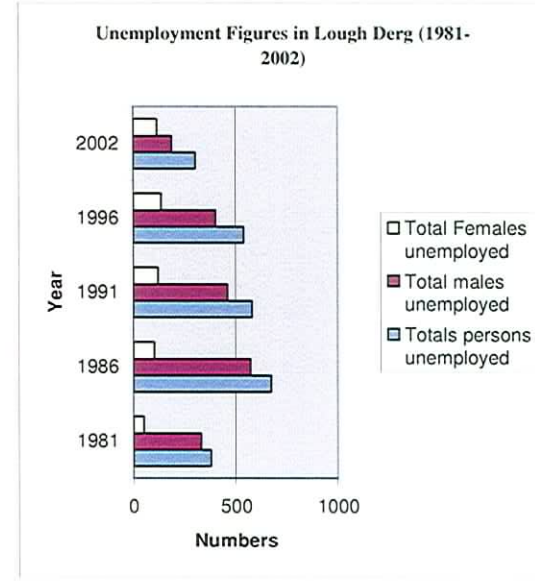


Source: CSO; Irish Social Science Data Archive

4. 4.6 Unemployment in the Study Area

Figure 4.11 shows that there has been a decrease in the number persons unemployed in the study area correlating to the rise in the number of persons at work. There has been a decline in the number of males unemployed however, contrary to employment trends, there has been an increase in the number of females unemployed in the study area.

Figure 4.11: Unemployment Figures in the Tipperary Lakeside Region



Source: CSO: Irish Social Science Data Archive

4.4.7 Professional and Personal Development

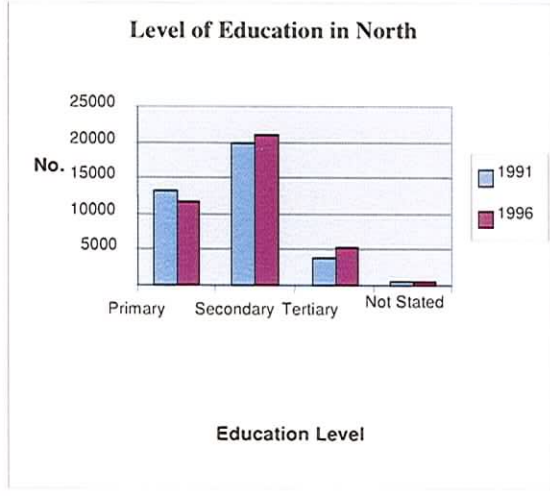
This indicator relates to number of employees qualified, training funds allocated per employee, the availability and frequency of training opportunities and possibility of on-the-job training.

Antagonism can exist between employees within the tourism and hospitality industry as often, especially in developing countries, the majority of available employment is limited to lower end or front-line opportunities thus meaning lower

wages, less training opportunities and slight chances of advantaging.

Information for this indicator was more difficult to source as it is not a question on the national census and generally it is up to the individual employer to provide training. Therefore, information regarding the highest level of education completed by residents of North Tipperary was analysed. Similar information is available at local DED level. Figure 4.12 shows that the majority of individuals received secondary school education in North Tipperary and this figure rose from 1991 to 1996. The number of individuals who completed third level education rose from 1981 to 1996. More third level institutes are facilitating the growing demand for skilled employees for the tourism and hospitality industry by providing more college courses in this field.

Figure 4.12: Persons classified by highest level of Education completed in North Tipperary



Source: Central Statistics Office

The higher the level of education achieved the more skilled the labour force is likely to be. This is important as demand for a skilled workforce is outstripping supply. Table 4.31 highlights an increase in the number of persons with a scientific or technical qualification in North Tipperary between 1981 and 1996 correlating to the rise in the numbers completing third level education.

Table 4.31: Number of Persons in North Tipperary with a scientific or technical qualification

Year	1981	1986	1996
Agricultural Science and Veterinary	84	103	355
Engineering and Architecture/ Surveying	60	85	586
Medical and Related Sciences	84	85	191
Social Science (inc. Economics)	30	123	220
Natural and Other Sciences (inc. Computer Science)	94	120	384
Total	**352**	**516**	**1736**

Source: Central Statistics Office

Labour: Conclusion

Tourism is often the main source of income and employment for rural communities and therefore has positive implications for rural and regional development (EPA, 2004). The ready availability of a skilled workforce is paramount for success of a tourism business as consumers expect a high level of quality service at competitive prices.

4.5 Technology: Introduction

Technology is an important factor to consider for the future development of the region especially in terms of tourism carrying capacity as this dimension may lessen the effects of tourism and mitigate negative destination impacts.

4.5.1 Technology in the Study Area

Technological advances can be used to great benefit and ensure the longevity of the natural environment. Greater use of technology is one of the key recommendations outlined in the 'Lough Derg Tourism Cluster' Development project proposed by Shannon Development. Suggestions include the implementation of a 'swipe card' to access tourist facilities for hired cruise boats, the positioning of floating berths during the peak season to accommodate more boats and provision of water-taxi service linking principal towns and villages along the shore of Lough Derg. Other possible uses of technology are outlined in box 4.

Box 4: Possible Uses of Technology in Lough Derg

- Adoption of leadfree petrol for boats, use of biofuels for both boats and cars
- Development of eco-village
- Increased use and expansion of recycling facilities

5.0 CONCLUSIONS AND RECOMMENDATIONS

The principal objective of Strand 1 of the project was to establish a detailed inventory of the principal attributes and activities of the study area. This inventory covers the ecological physical and economic dimensions of the Carrying Capacity Web as discussed in the introduction to this report. These dimensions are 'ecological systems' (or the natural environment), 'physical structure' and 'economic structure'. The purpose of the inventory is to present a clear picture of the current state of the natural, physical and economic environment of the study area in the context of tourism and to identify current strategies for maintaining its sustainability. This report summarises the key data gathered and outlines the main findings of the research and analysis undertaken.

Conclusions

The initial research undertaken as part of Strand 1 of the project indicated that there is a myriad of agencies involved in the collection of data on the natural and physical environment of North Tipperary, including the study area. Due to the time-consuming and often technical nature of primary data collection, it was decided to exploit existing data sources as much as possible before carrying out primary research. Adopting this approach was considered to be the most effective means of achieving the strand objectives and of avoiding the possibility of spending resources on collecting primary data that was already available through other sources.

During the course of Strand 1, the initial indications were proven correct and ultimately Strand 1 largely became a desk based exercise with data for the study area inventory being mainly acquired from secondary sources. This approach has been successful in many regards, particularly as regards minimising the expenditure and resources required to obtain the large data set which makes up the current inventory. However a number of problems associated with the chosen methodology did become apparent during the course of Strand 1. These problems were mainly associated with the nature of the existing data that was available and also with accessing the data. The problems encountered are summarised below:

- The available data tends to be very specific and detailed. Thus, there is a large quantity of data available but only for particular focused aspects of the environment.
- The data tends to be recorded at particular spatial scales, therefore it can be difficult to interpolate data for a specific area such as the study area.
- There can be difficulty contacting the holders of the data.
- There can be difficulty in obtaining the data even where it is technically available to the public.
- It can be difficult to establish who, or what body holds the rights to the data and who can give permission for its use.
- There can be issues concerning confidentiality and conflict of interest regarding data.

It was anticipated from the outset that the available secondary data was unlikely to provide all of the data necessary for the completion of Strand 1. The obvious solution to this problem was to supplement secondary research with the collection of appropriate primary data as and when identified. Unfortunately, however, the timing of Strand 1 meant that it was not possible to establish the requirement for primary data collection before the end of the 2005 summer tourism season. Because of this it has been necessary to rely almost entirely on existing data for the Strand 1 inventory.

A more significant issue regarding the use of existing data concerns the suitability of the data with respect to the overall objectives of the

project. These objectives can be summarised as follows:

- To develop practical methods for the implementation of sustainable tourism policy aspirations.
- To devise and improve methods for the implementation of carrying capacity indicators at a destination level.
- To facilitate government and tourism business managers in making more informed decisions.

In the context of these project aims, two particular problems have been identified which are associated with the existing data which was acquired for the Strand 1 inventory. These are:

- It is often not possible to link the data with the effects of tourism.
- Much of the data, though useful in the context of Strand 1, has limited use in the context of the overall project aims (as explained below).

The overall aim of the project is to develop practical techniques to implement the carrying capacity concept in tourism management. The principal technique being investigated is based on the identification and use of indicators which can be used to assess tourism carrying capacity. This technique will form the basis of an 'environmentally integrated, tourism destination management model' which will be used to identify and monitor trends that occur as a direct or indirect consequence of tourism in the area.

Thus, in spite of the large quantity of information available, analysis of the data has shown extensive gaps in the database when considering the applicability of the data to the carrying capacity indicator concept and the ultimate aims of the project. That is, the data may be relevant to tourism in one sense, but as a potential indicator of the effects of tourism it has little value. The use of such data as part of a tourism management model is therefore limited.

In light of the above, the subsequent work of the project will need to focus on the identification and acquisition of data that can be used as tourism focused environmental indicators and that can ultimately be applied to a carrying capacity based tourism management model. While this data must be relevant and applicable, it is imperative that the data is also practical and relatively inexpensive to obtain.

Notwithstanding this, it is envisaged that any practical model for the management of tourism and its effects on the environment would seek to exploit existing data sources as much as possible. This would obviously minimise the resources required to use such a model. A major finding of Strand 1 therefore concerns the applicability of available data to the project aims and the identification of gaps in the existing database.

Table 6.1 lists the data that has been acquired for the Strand 1 inventory and indicates additional data that may need to be acquired in order to complete Strand 3 and ultimately achieve the aims of the project. This data essentially illustrates possible shortfalls or gaps in the existing database or inventory. The table also indicates the data from the inventory which has been presented in this report.

Table 6.1: List of Inventory Data and Possible Data to be Collected

Strand 1 Dimensions	Data Acquired for Inventory	Data used for Interim Report	Potential use as Carrying Capacity Indicator	Possible Additional Information to be Acquired (identified data gaps)
ECOLOGICAL SYSTEMS				
Archaeology and History	- Review of existing legislation - Archaeological Inventory of North Tipperary	Yes Yes	X √	- Strategic conversations with local historian/ historical groups - Fieldwork to be carried out to locate and map key archaeological sites in the study area
Culture	- Analysis of Small Area Population Statistics (SAPS) Data re. Irish Language speakers in study area - Review of existing legislation - Review of North Tipperary (Draft) Arts Plan - (2003-2007) - Review of North Tipperary (Draft) Heritage Plan (2004-2008) - Comprehensive listing of local festivals	Yes Yes Yes Yes Yes	√ X √ √ √	- Strategic conservations to be conducted with Arts Officer and Voluntary groups - Analysis of placenames and Liostaí Logainmneaha: Tiobraid Árann
PHYSICAL STRUCTURE				
Transport	- Description of availability and access (road, rail, air and water) - Basic study conducted assessing public transport - Planning restrictions applicable to local road - Preliminary studies conducted in traffic congestion - Preliminary investigation of car parking facilities and signage	Yes Yes Yes Yes Yes	√ √ √ √ √	- Study of amenity routes e.g. cycle paths, walkways - Counts of parking allocations - Access to foreshore of lake
Visitor Amenities	- Preliminary listing of visitor attractions and service facilities	Yes	√	- Need to assess visitor amenities: count, availability, quality and access

				- Seasonality of usage - Signage to facilities
Accommo-dation	- Preliminary listing of accommodation supply	Yes	√	- Need for in-depth analysis: type available, variety, distribution, choice location, pricing - Issue of seasonality to be investigated - Prevalence of agri-tourism businesses
ECONOMIC STRUCTURE				
Cost of Living	- Population analysis at national, county, study area level using SAPS data - Consumer Price Index/ Disposable Income/ Social Deprivation/ House prices analyzed	Yes	√	- How much data is appropriate to use as SAPS data is highly detailed?
Tourist Spend	- Tourism performance (overseas/ domestic) - Provenance of overseas tourists - Revenue generated by overseas tourists - Revenue generated by domestic tourists - Seasonality issue	Yes Yes Yes Yes Yes	√ √ √ √ √	- How to measure tourist spend in study area as not contained in national/regional surveys? - Requirement to break down visitor spend per sector - Access to visitor surveys conducted in the study area - Leakage of revenue from local area
Investment/ Technology	- Information available but confidential in nature	No	√	-Level of investment in tourism product versus other sectors
Labour	- Detailed SAPS data used to document employment figures in the study area - Education and professional development	Yes Yes	√ √	- Calculation of numbers employed specifically in tourism in study area - Effect of seasonality on labour - Labour stability - Gender balance

Recommendations

It is recognised that much of the data presented in the report provides only a snapshot of the current situation regarding the natural, physical and economic environment. However, this data does fulfill the aims of Strand 1 in so far as it allows an assessment of the present state of the landscape and current strategies for its protection. To truly consider sustainability, a broader focus, both spatially and temporally is needed. Whether this is within the remit of the project or not needs further consideration.

It is envisaged that, with regard to indicator selection, the focus will be on fewer elements but in greater detail. It is proposed that the carrying capacity indicators will be more detailed. This would require the use of both existing data and in some cases additional primary data which would be acquired through further primary research.

A further consideration for the following strand of the project concerns the possible benefits of integrating the Drivers Pressure State Impact Responses (DPSIR) Indicator Framework with the Carrying Capacity Model. The DPSIR Framework is used extensively in Ireland and particularly by the EPA. Thus the suitability of any additional or existing data should where possible take into account the requirements of the DPSIR framework.

Bibliography:

Bacon, P. (2000), *The Housing Market in Ireland: An Economic Evaluation of Trends and Prospects* (The Bacon Report), Bacon, P. & Associates in association with Fergal MacCabe

CHL Consulting Company Limited (2004), *A Tourism Development Strategy for North Tipperary*, Dublin

Cooper, C.; Fletcher, J.; Fyall, A.; Gilbert, D. and Wanhill, S. (2005) *Tourism: Principles and Practice*, Essex: Pearson Education Limited

Cooper, C.; Fletcher, J.; Fyall, A.; Gilbert, D. and Wanhill, S. (1998) *Tourism: Principles and Practice*, Essex: Pearson Education Limited

Delany, Ruth, (2000) *'The Shell Guide to the River Shannon'*, ERA_Maptec Limited, Dublin

Department of Community, Rural and Gaeltacht Affairs, http://www.pobail.ie/en/IrishLanguage/ThePlacenamesBranch/ [accessed 19th March 2006]

Department of Community, Rural and Gaeltacht Affairs, http://www.pobail.ie/en/IrishLanguage/ThePlacenamesBranch/PlacenamesOrders/ [accessed 19th March 2006]

Department of Community, Rural and Gaeltacht Affairs, http://www.pobail.ie/en/IrishLanguage/ThePlacenamesBranch/PlacenamesOrders/file,6533,en.pdf [accessed 19th March 2006]

Dúchas, 2002, www.heritagedata.ie [accessed 20th March 2006]

Empey, C. A. (1985) 'The Norman period, 1185- 1500'in Nolan, W. (ed.), *Tipperary: History and Society*, pp.71-91, Geography Publications, Dublin

Environmental Protection Agency (2000), *Ireland's Environment: A Millennium Report*, Wexford

Environmental Protection Agency (2004), *Ireland's Environment 2004*, Wexford

Fáilte Ireland Statistics (various years), Dublin, available at: www.failteireland.ie [accessed: 10 January 2006]

Farrelly, J. & O'Brien, C. (2002), *Archaeological Inventory of County Tipperary: Volume 1, North Tipperary*, Dublin Government Stationary Office

Fennell, D. (2003) *Ecotourism: An Introduction*, London: Routledge

Glasson, J., Godfrey, K. & Goodey, B. (1995) *Towards Visitor Impact Management: Visitor Impacts, Carrying Capacity and Management Responses in Europe's Historic Towns and Cities*, Aldershot: Ashgate Publishing Limited

http://www.quickmba.com/strategy/swot/ [accessed 15th July 2005]

http://en.wikipedia.org/wiki/Road_signs_in_the_Republic_of_Ireland- [accessed 21st March 2006]

http://www.12travel.co.uk/ie/walking/The_Slieve_Felim_Way.html)

Hunter, C. and Green, H. (1995), The Environmental Impacts in Hunter, C and Green, H. *Tourism and the Environment: A Sustainable Relationship*, London: Routledge

Iarnód Éireann, www.irishrail.ie [accessed 15th July 2005]

Irish Social Science Data Archive, *Small Area Population Statistics* (SAPS) (For North Tipperary 1981-2002), UCD, Dublin

Irvine et al (2001). *Ecological Assessment of Irish Lakes. Final Report*, Environmental Protection Agency, Wexford
Johnson, G. (1998) *Archaeology and Forestry in Ireland*, Dublin, The Heritage Council available: http://www.heritagecouncil.ie/publications/archforest/new.htm#legal [accessed 20th March 2006]

Kennedy, E. & Deegan, J. (1999) Seasonality in Irish Tourism, 1973-1995, *Tourism Economics*, Vol 5, No.1

Mid-West Regional Authority (May 2004), *Mid West Region, Regional Strategy and Regional Planning Guidelines*

North Tipperary County Council (2004), *(Draft) Arts Plan (2003-2007)*, Nenagh

North Tipperary County Council (2004), *(Draft) North Tipperary Heritage Plan (2004-2008)*, Nenagh

North Tipperary County Council (2004), *County Development Plan (2004-2010)*, Nenagh

North Tipperary County Council (2005), *North Tipperary Tourism Marketing Action Plan*, Prepared by: The Tourism Research Centre, Dublin Institute of Technology, Dublin

North Tipperary County Council (2005), *Proposed Western Area Local Area Plan* 2005, Nenagh.

North Tipperary County Development Board, (2002) *'Rural Passenger Transport Audit& Needs Assessment in North Tipperary'*, Prepared by Taylor Lightfoot Transport Consultants in association with Goodbody Economic Consultants, Nenagh

North Tipperary County Enterprise Board (2002), *North Tipperary Economic, Social and Cultural Strategy* (2002-2012), Nenagh

Richardson, Barbara (2005), 'Sustainable Transport: Analysis Frameworks', *Journal of Transport Geography*, Volume 13, pp.29-39

RPS-MCOS Ltd., (2005), *'Shannon Bridge Crossing Feasibility Study and Preliminary Report- Constraints Study Report'*, Cork

Shannon Development, Clare County Council, North Tipperary County Council and Galway County Council, *Lough Derg Tourism Cluster* (Application for grant aid under the Tourism Product Development Scheme, NDP 2000-2008

Swarbrooke, J. (1998) *Sustainable Tourism Management*, New York: CABI Publications

Swarbrooke,. J. (2003) *Adventure Tourism: The New Frontier*, Oxford: Butterworth-Heinemann

The Academy of Irish Engineering (2004), *A Vision for Transport in Ireland*, Dublin

World Tourism Organisation (1995) *'What Tourism Managers need to know'; A Practical Guide to the Development and Use of Indicators of Sustainable Tourism*, Madrid

World Tourism Organisation (2004) *Indicators of Sustainable Development for Tourism Destinations: A Guidebook*, Madrid

Appendix C

The Relationship between Destination Sustainability and Identity; Confluence or Conflict?

June Phelan, Dr. Kevin Griffin, Dr. Sheila Flanagan

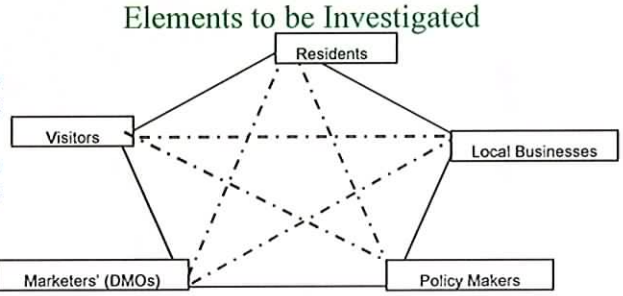
School of Hospitality Management and Tourism and, Dublin Institute of Technology, Cathal Brugha Street, Dublin 1

Context of Study: Exploratory study investigating the relationship of destination branding and sustainable tourism development focusing on regional and rural destinations

Objectives of Study

- Examining the interplay between all the stakeholders at sustainable destination level
- Establishing if this relationship affects how a sustainable destination is branded

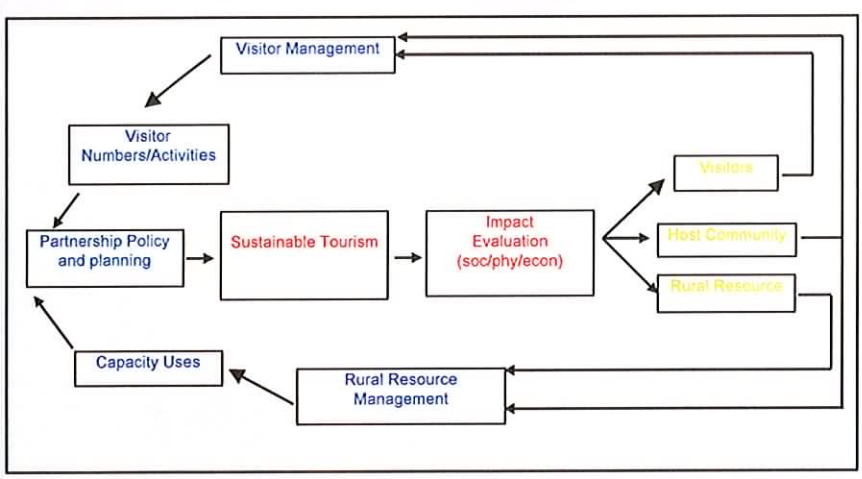
Elements to be Investigated

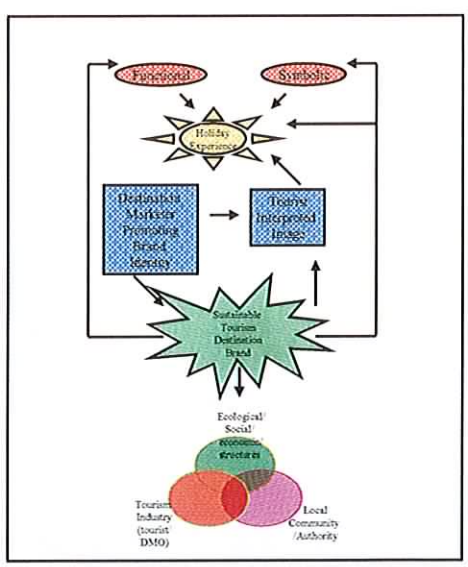


Methodology

- Case study:
- Lough Derg, Co. Tipperary
- Lake District, UK
- Queenstown , New Zealand
- Qualitative Survey
- Strategic Conversations
- Cross Comparisons

Model for Implementation of Sustainable Rural Tourism
Source: Hvenegaard (1994)





Expected Outcomes

- Development of an environmentally integrated tourism destination branding model incorporating the interests of all stakeholders
- Comprehensive review of concepts relating to destination branding and sustainability

Principal Case Study

- Northeast shoreline of Lough Derg, Co. Tipperary, known as 'Ireland's Pleasure Lake' has been identified as the principal case study area
- This area was chosen as it is a identifiable destination which capitalises upon its tourism assets by creating its own identity

References

- Aronsson, L. (2000) the Development of Sustainable Tourism, Bath Press, London
- Bramwell, B. *et al* (1998) Sustainable Tourism Management: Principles and Practice, Tillburg University Press, Holland
- Hvenegaard, G.T. (1994) 'Ecotourism: A status report and conceptual framework', *Journal of Tourism Studies*, 5
- Morgan, N. & Pritchard, A. (1998) Tourism Promotion and Power; creating images, creating identities, Wiley, Chichester
- Morgan, N. et al (2004) (eds) Destination Branding: creating the unique destination proposition, Elsevier Butterworth-Heinemann, Oxford
- Müller, H. (1994) 'The Thorny Path to Sustainable Tourism Development', *Journal of Sustainable Tourism*, 2 (3)
- Ritchie, B. J.R & Crouch, G.I. (2003) The Competitive Destination: A Sustainable Tourism Perspective, CABI Publishing, Oxon
- Swarbrooke, J. (1999) Sustainable Tourism Management, CABI Publishing, Wallingford

NDP
PLEAN FORBARTHA NÁISIÚNTA

Appendix D

FINAL DRAFT CONFERENCE PAPER

Title: Indicators for Sustainable Tourism: Identifying Destination Carrying Capacity

Author (s):

June Phelan (BA Int, MSc) Faculty of Tourism and Food, Dublin Institute of Technology, Cathal Brugha Street, Dublin 1

Peter Roe (BSc, MSc, H Dip) Faculty of the Built Environment, Dublin Institute of Technology, Bolton Street, Dublin 1

Dr. Kevin Griffin (PhD) Faculty of Tourism and Food, Dublin Institute of Technology, Cathal Brugha Street, Dublin 1

Dr. Ruth Kelly (PhD), Futures Academy, Dublin Institute of Technology, Bolton Street, Dublin 1

Dr. Sheila Flanagan, (PhD) Faculty of Tourism and Food, Dublin Institute of Technology, Cathal Brugha Street, Dublin 1

Contact Details:

June Phelan, Dublin Institute of Technology, Sackville Place, Dublin 1, Ireland, 00 353 (0)1 402 4335, junep.phelan@dit.ie

Peter Roe, Dublin Institute of Technology, Sackville Place, Dublin 1, Ireland, 00 353 (0)1 402 4305, peter.roe@dit.ie

Key words:

Sustainable Tourism Development, Tourism Destination Impacts, Carrying Capacity Concept, Development of Sustainable Tourism Development Indicators

Title: Indicators for Sustainable Tourism: Identifying Destination Carrying Capacity

ABSTRACT:
Sustainable Tourism development is being heralded as a plausible solution to the environmental concerns associated with the growth of tourism. The use of indicators, which may be used to determine the carrying capacity of a destination, has been identified as a potential tool for achieving sustainable tourism development.

The concept of carrying capacity relates to the ability of a tourism destination to absorb visitors without adversely affecting the area, the local community or the visitor experience. Due to the potential negative impacts which can result from tourism, the need to limit and control the development of tourism through regulation and management has become a critical issue.

This paper details the interim results obtained from a two-year research programme undertaken by Dublin Institute of Technology. This programme aims to identify indicators and devise and improve methods for their use in determining the carrying capacity of a tourism destination. The carrying capacity model used examines both qualitative and quantitative elements which exist at a local destination level. Preliminary results suggest that the nature of existing available data is crucial when identifying indicators which can subsequently be used to determine the carrying capacity of a tourism destination. The paper also alludes to difficulties in accessing existing data and considers additional data that may be required in order to establish a workable set of indicators for the chosen study area. Consideration is also given to the ultimate aspirations of the programme which is to develop an environmentally integrated tourism destination management model and a management training module.

BACKGROUND:
As part of the Irish Environmental Research and Technological Development Programme 2000-2006, the Dublin Institute of Technology (DIT) was awarded a research grant to investigate sustainable tourism in Ireland and practical measures for its implementation. This research is being lead by the School of Hospitality Management and Tourism in collaboration with the Faculty of the Built Environment and the DIT affiliated Tourism Research Centre. The research steering committee includes expert representatives from the Dublin Institute of Technology, the Irish Environmental Protection Agency (EPA), the Department of Arts, Sports and Tourism, The Environmental Institute, University College Dublin, Fáilte Ireland and the Business School at the University of Strathclyde.

RATIONALE

Introduction
The importance of a sustainable approach to development is now recognised by policy makers and administrations throughout the developed world. This has been an inevitable, though perhaps belated, consequence of the unchecked growth that has taken place in the global economy since the Industrial Revolution. Depending on ideology and viewpoint, the concept of sustainable development can be interpreted in many different ways. However, at its core, sustainable development represents a transformation in both the way society approaches growth and the pressures that this

growth places on the environment and natural resources. The three major strands of sustainable development are:

- the need to arrest environmental degradation and ecological imbalance,
- the need to avoid impoverishment of future generations and
- the need for equity in the quality of life among present-day populations (Redclift, 1987).

Crucially in this context, sustainable development encompasses not only environmental protection but also economic development and social cohesion (Dooris, 1999). In this regard, the 1992 UN Conference on the Environment and Development (The Rio Earth Summit) advocated an integrated approach to sustainable development involving the environmental, social and economic spheres. Through Agenda 21, the conference set out a blueprint for international action for achieving sustainable development in the 21st century. In due course, the concept of sustainable development has been incorporated into EU and Irish policy formation.

In recent decades tourism has evolved to become one of the worlds' largest industries (Weaver, 2005). The management and development of the tourism industry has therefore a crucial role in sustainable development throughout the world.

Tourism and Sustainable Development in Ireland

Ireland, in particular, has seen unprecedented growth in tourism since the late 1970s. The tourism sector therefore presents a major challenge to achieving sustainable development in Ireland as required by Agenda 21.

The major growth in the numbers of overseas tourists is adding to pressure on existing infrastructure and is placing severe stress on the quality of the environment in the more popular tourist sites in Ireland. Consequently, the main challenge for the tourism industry in Ireland is to develop and promote a product that is environmentally sustainable within the context of a rapidly expanding sector. According to the EPA (2000) achieving this objective will require that both current and new tourism developments incorporate adequate environmental protection measures to enhance the quality of the existing environment and to minimise negative tourism destination impacts.

With increased interest in the environmental concerns associated with tourism the ability of a particular area to absorb visitors is becoming a subject of increasing debate. Beyond a certain point the tourism numbers arriving in a particular destination begin to have negative consequences for the evolution of the area (Jakeman, 1993). This problem is addressed by the concept of carrying capacity which is described as the need to limit and control tourism which may threaten the sustained use of limited resources (Theobald, 1998).

The concerns regarding tourism and sustainable development in Ireland are also reflected in the response of the Irish Government to the principles established at the 'Rio Earth Summit'. To this end, the Irish Government published guidelines in 1995 known as 'Local Authorities and Sustainable Development: Guidelines on Local Agenda 21'. These guidelines suggested that each Local Authority review its own policies and practices to assess their compatibility with sustainable development. The commitment by the Irish Government was further strengthened by the adoption of a National Sustainable Development Strategy in 1997, which had the aim of ensuring that economy and society in Ireland develop to their full potential within a well-protected environment (EPA, 2000).

With regard to tourism, the National Sustainable Development Strategy sought to promote the image of a destination which is uncrowded, relaxed, of high scenic beauty, with a distinctive heritage and culture, a friendly welcoming people, high-quality facilities and a superb, unspoilt environment for outdoor activity. This strategy also advocated that Ireland avoid the drift to uniformity, evident in many countries, and concentrate on enhancing its competitive image by targeting the high yield tourist seeking holidays based around the natural environment. Sustainable tourism development has been identified by Irish Government as the way to achieve this goal.

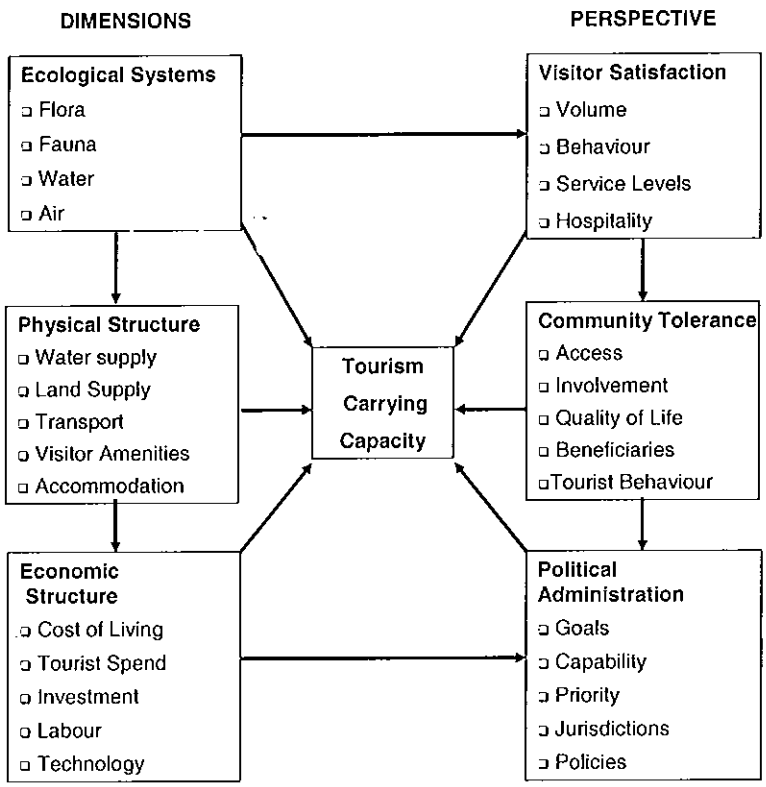
Over the past decade there has been a growing recognition in the Irish tourism industry that each tourism destination has a number of tangible assets, which are unique. These assets which may be historic, cultural, linguistic or scenic represent the essential appeal of a particular destination for the tourist. These resources are considered part of an area's tourism "capital". Managing tourism to sustain local economies in ways that does not result in damage to the very environment, on which successful tourism depends, has become the accepted definition of "sustainable tourism".

Sustainable Tourism and Carrying Capacity

Carrying capacity is not a scientific theory as such but more so a management concept or framework. The pre-occupation with finding techniques or methods, which determine when a destination is full, has been plagued with problems. Given the diversity of factors which affect the nature of capacity, this calculation would seem to be exceedingly difficult considering the intangible qualities inherent in establishing tourism carrying capacity (i.e. community perceptions, visitor satisfaction and attitude and political structures). There cannot be a single unqualified number which determines the optimal solution as each destination is unique in its response to visitor impacts. There are no inherent figures which determine the carrying capacity of a destination but rather a range of qualitative and quantitative factors.

Thus, tourism carrying capacity can be viewed as a 'web' or network of elements split between quantifiable dimensions and qualitative perspectives (see Figure 1). The quantifiable dimensions concern ecology, economics and physical space and infrastructure. The qualitative perspectives concern the real and perceived influence of tourism activity on the interrelationship between hosts, the local community and destination managers. Each of the elements of the 'capacity web' may not have the same magnitude in every destination but each must be considered in establishing the overall carrying capacity of destination.

Figure 1 The Tourism Carrying Capacity Web



PROJECT OBJECTIVES

The Irish National Development Plan (2000-2006) notes that over the last ten years visitor numbers to Ireland have doubled and that foreign exchange earnings have tripled. While these rising tourism numbers may be good news for the Irish Exchequer they may adversely affect the biodiversity and environment which are important assets for tourism in Ireland. It is therefore imperative that a management tool is developed which can regulate the growth of tourism in Ireland while preserving the assets upon which tourism relies.

One approach to achieving this is within the context of tourism carrying capacity as outlined above. The concept of carrying capacity is complex. Therefore, realistic and practical methods for its implementation in Ireland will have to be developed if the concept is to have any positive role in tourism planning and management and ultimately sustainability.

The overall objective of the research is therefore to develop and improve practical methods for the implementation of the carrying capacity concept at a destination level. This will be achieved in part by identifying carrying capacity indicators. This will facilitate government and tourism business managers in making more informed decisions regarding tourism development.

Specifically the objectives of the project are to:

- Bring sustainable tourism policy aspirations into practical implementation
- Address the immediate problems in key tourism pressure points within the study area

- Develop initiatives which can be mainstreamed and applied nationally
- Encourage innovative thinking with particular reference to managerial approaches

PROPOSED METHODOLOGY

In line with the carrying capacity web shown in Figure 1, the project is divided initially into two strands which address the environmental, physical, economic and social aspects of sustainable development. A third strand also exists which is intended to draw together the findings of Strand 1 and Strand 2 in line with the objectives of the project.

Each strand is designed to generate a range of outputs and the methodology involved in each strand is outlined below:

Strand 1: Characterisation of Quantifiable Dimensions - Inventory and Analysis

This strand involves the investigation of the ecological, physical and economic dimensions of the carrying capacity web. The investigation is intended to give an assessment of the present state of the landscape and current strategies for its protection and management.

This is being achieved using the following methodology:

- A desk based investigation involving consultation with external agencies, organisations and experts in the field.
- Fieldwork is being undertaken at various intervals throughout the project in order to supplement desk-based research.
- Data from the investigations is being inputted into a set of inventories to assist in identifying the principle attributes of tourism in the study area.
- Where possible, inventories are being formulated using databases which are being integrated with MapInfo mapping software. Digital mapping software supported by data gathered by GPS will facilitate both the visual representation and analytical manipulation of the research findings. It is intended that this will also allow comparative analysis and direct transfer of findings as this data format is widely used by local authorities and other agencies.
- Analysis of data and production of a comprehensive assessment of the study area.

Strand 2: Identification of Qualitative Perspectives

This strand will identify the processes of change and in particular will address the qualitative dimensions of the carrying capacity web (Figure 1). These qualitative aspects will examine the real and perceived influence of tourism activity on the interrelationship between hosts and guests and the willingness of the political organisational to co-ordinate and direct tourism management.

This is being achieved using the following methodology:

- Community consultation was conducted through detailed residential postal surveys. A statistically representative random sample of the population was drawn from the register of electors to ensure an unbiased sampling procedure.
- Strategic conservations and focus groups are being undertaken with a representative sample of community leaders in order to examine local community attitudes to change in their area and to ascertain what key elements they want sustained for the future. It is noted that these responses may change seasonally and spatially.

- Structured surveys of visitors' attitudes are being conducted face-to-face with tourists visiting the area. 396 questionnaires were carried out at strategic locations along the lakeshore based on the seasonal representation of visitors to the region. Core questions consider those factors which influence visitor satisfaction of the destination area.
- Analysis of existing measures and policies at national, regional and local level.
- Strategic conservations with local and regional tourism agencies and political administrators.

Strand 3: Towards Integrated Management for the mitigation of Tourism Impacts

This strand will incorporate the findings of the proceeding two strands and incorporate best practice policies and procedures of the EU in the development of the carrying capacity model.

The aims of this Strand are:
- Integration and synthesis of Strand 1 and Strand 2.
- Analysis of European best practices models, including examination of management frameworks (Limits of Acceptable Change and Visitor Impact Management Models).
- Development of the carrying capacity model.
- Facilitation of a national workshop and international conference.
- Development of an executive training programme.

The Study Area

Lough Derg, located in the Mid-Western region of Ireland, and known as 'Ireland's Pleasure Lake' has been identified as the principal case study area. The particular focus of this study is the northeast coastline of Lough Derg, which is in the administrative region of Tipperary North. The River Shannon was designated a major resort area in 1963 (Brady Shipman Martin (n.d.)) and since then has played an important part in Irish tourism. At a more localised level Lough Derg (which is the largest lake on the river) has been identified by a number of studies as having major potential for tourism.

For practical reasons, this location known as 'Tipperary Lakeside' was chosen as it is a relatively compact area which is an identifiable tourism destination and one which capitalises upon its tourism assets by creating its own identity based on its particular tourism product (Flanagan, 1992). According to CHL (2004) Tipperary Lakeside is:

> *"an established, but not highly developed, tourism zone which has its own tourism promotion organisation, Tipperary Lakeside Tourism Cooperative Society. Lough Derg is the principal attraction and platform for tourism development in this zone. Numerous water-based activities are available for tourists, and there are several very picturesque villages located along, and close to, the lake shore"*

REVIEW OF STRAND 1*

Introduction

The availability of relevant data on the study area has been identified as a critical issue concerning the overall objectives of the project. It was soon realised that there

* The findings reported are preliminary as research is ongoing, therefore this paper has focused on the more illustrative examples of the data gathered.

was little point in undertaking time consuming and expensive fieldwork to collect data which may be already available from other sources. Initial research indicated that much of the data required for the inventories had indeed been collected, though the issue of availability was less easy to determine in the short term. In light of these initial findings the early focus of the project shifted from the need to physically collect data for inventories to the acquisition of existing data and the subsequent identification of gaps in this existing data. Once the availability of data was determined and the data gaps identified the focus could then be shifted back to fieldwork and the physical collection of data.

This section provides a review of progress concerning the acquisition of available data and considers the relevance of the data acquired to the project needs. Ultimately, these findings provide the basis for the future direction of the project.

The carrying capacity web (see Figure 1) denotes three critical dimensions to Tourism Carrying Capacity which are addressed under Strand 1 of the project. These are Ecological Systems, Physical Structure and Economic Structure. The acquisition of data under each of these dimensions is addressed separately below.

A summary table of available data and identified information gaps is given in Table 1 at the end of this section.

Ecological Systems

This dimension refers to the physical, natural and cultural landscape and examines elements such as; water systems, flora and fauna and built heritage.

Water Quality

There is an abundance of information available on water quality in the study area. Data is routinely collected on Lough Derg and the majority of rivers in the study area as part of the Irish National Lake and River Water Quality Monitoring Programmes. These programmes were set up in response to the growing recognition of the significance of problems regarding water quality in Ireland and also as a coordinated means of implementing the various monitoring requirements of EU Directives.

Data collection under these programmes is primarily carried out by the EPA. Local Authorities do collect water quality data within their jurisdictions but as is the case with Tipperary North Riding County Council, many actually commission the EPA to carry out the monitoring on their behalf.

Where data has been collected by the EPA, this is readily available via the Internet or in the form of the various water quality reports published regularly by the EPA. Local Authorities do hold water quality data but the dissemination of such data is less straightforward. Although water quality data from the EPA is readily available, data collected in a given year is not normally published until up to two years later. This is mainly due to the large quantities of data that are processed. Where once off individual reports on water quality are specially commissioned, data is available straightaway.

Flora and Fauna

Generally, there is little systematic collection of quantitative data regarding flora and fauna within the study area or in North County Tipperary.

Much of the data collected is purely descriptive and relates to the various sites with environmental designations which exist in the study area. There are a total of 26 National Heritage Areas (NHAs), Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) in the study area. The emphasis of the data collected for these sites is on the description of the particular species or habitats which warrant the site designations under the various EU conservation directives. Data for these sites have accumulated over the years as part of the process of their identification and designation. The data have mainly been collected by government departments responsible for the environment and this is currently overseen by the National Parks and Wildlife Service which is attached to the Department of Environment, Heritage and Local Government.

Only two bodies have been identified that are involved in the collection of quantitative data concerning flora and fauna in the study area. These are the Non-Government Organisation 'Birdwatch Ireland' and interestingly the state electricity provider, the Electricity Supply Board (ESB). In Ireland, the ESB have extensive rights and responsibilities regarding a number of important fishery systems in the country. This situation has arisen as a result of a number of hydroelectric power schemes which were implemented by the ESB and which had major implications for the affected fishery river systems. The ESB are responsible for the conservation of the Shannon River Fishery and are involved in the maintenance of the fish stocks and associated salmon and trout counting. Excellent quantitative data is therefore available from the ESB concerning returning wild salmon and the fish populations residing in a number of rivers in the study area.

Birdwatch Ireland have been involved in a Wetland Bird Survey which has been carried out annually since 1995. Several survey sites are found within the study area and hence there is abundant data concerning the populations and movements of wintering bird species in the area.

Air Quality

No sources of local air quality data have been identified as part of the project. The EPA routinely collect data on regional air quality in Ireland. The nearest air quality monitoring location is in the neighbouring county of Limerick. Due to the prevailing wind direction and the homogenous nature of air quality in the region, it is considered likely that this data would be representative of the air quality in the study area.

Physical Structure

This refers to the basic infrastructure and facilities available and the impact of increased demand and greater visitor numbers on the ability of these services to operate efficiently.

Land-Use and Landscape

The study area consists predominantly of low lying agricultural land, though Lough Derg forms a natural and extensive lakeside boundary to the northwest. In addition there is a small upland area known as the Arra Mountains which occurs in the south of the study area. There is a limited range of land use in the area with the predominant use being agriculture. Tourism is a significant yet minor use of land in the area.

Tipperary North County Council is the primary source of data regarding landscape and land use in the study area. Much of this data has been collected and produced for the County Development Plan. North Tipperary County Council have also produced a Western Area Local Area Plan (2005) which provides a more detailed

assessment of current and proposed land use and zoning around various villages in the Lough Derg area. North Tipperary County Council are also in the process of preparing a County Landscape Character Assessment which should provide valuable data in the future.

Water Supply

The water supply infrastructure in the study area consists of regional networks and also local group water schemes. The Water Services Department of North Tipperary County Council record and hold data on water treatment, supply and consumption.

Transport

North Tipperary is an inland county located in the mid-west region. There are several transport methods: road, rail, air and water. Road transport is by far the predominant mode of transport. The principal reason attributed to this overdependence on road transport is that 67% of the population live in rural areas. Despite the dependence on road transport, the majority of the routes are secondary routes (105 km) and regional roads (357 km) as opposed to national primary routes (68 km). North Tipperary County Council have recognised several troublesome routes and according to criteria set out have deemed them severely restricted or restricted to development. Many of these routes are located within the study area. Comprehensive and up to date data is available for the transport systems in the study area. The majority of the data is available from North Tipperary County Council. These reports however, highlight the shortfalls in the transport system particularly public transport.

Visitor Amenities

North Tipperary possesses many of the features required for successful tourism development; 'it has an attractive and varied landscape, a rich cultural heritage' (CHL Consulting Company, 2004). Yet despite its appeal and natural assets, the county is not considered a tourism destination. One suggestion is that the county is overshadowed by its coastal neighbours; another is the county is not actively marketed. In 2004, North Tipperary received only 4.26% of overseas tourists visiting the Shannon region (Fáilte Ireland, 2004).

For the purpose of this study, an inventory of available visitor amenities is being carried out. Tourism numbers in North Tipperary are small yet the tourism industry is considered an important contributor to the county in terms of employment and service provision. The relatively undeveloped tourist industry makes the area all the more attractive for both visitors and locals.

Shannon Development is the regional agency leading tourism development in North Tipperary. Shannon Development works in close co-operation with local authorities and organisations however, this division of roles with regard to tourism activities lends to the core tourism product being somewhat diluted. Shannon Development and Waterways Ireland have recently secured funding of €2 million for the development of supplementary facilities in North Tipperary, however, it must be ensured that any future development is sustainable and compatible with the relative tranquillity and seclusion of the area.

Accommodation

Tourism accommodation within the study area is limited. The majority of registered accommodation can be sourced through regional and national websites. There are two hotels located in the study area, neither offering high-grade services. The majority of the accommodation in the study area is self-catering. Occupancy of

rented accommodation did increase from 6% in 2003 to 21% in 2004 reflecting a growing trend in self-catering accommodation.

It should be stated that several websites exist regarding tourism in the North Tipperary and the Shannon region, some offering accommodation others offering information but not necessarily promoting a comprehensive or unified message.

Economic Structure

This section refers to the destination's ability to absorb tourist functions whilst facilitating daily economic activities. The issue of seasonality is being examined and how it affects rates of employment and how tourist spend influence local economic prosperity.

Cost of Living

Economic prosperity has led to increased prices in Ireland and both tourists and local residents are experiencing these prices. The population in smaller rural areas within commuting distances of urban areas has increased significantly in recent years. Ballina in North Tipperary serves as an example of population and housing growth. It is thought that the cost of living along the shoreline of Lough Derg has become significantly more expensive.

Information has already been obtained from the Irish Social Science Data Archive. This information is analysed census data from 1981-2002 at small area population statistic level (SAPS) - according to the district electoral divisions. This data contains details on building types (private housing units, council units), unemployment levels by sex, age and industry sector, socio-economic groups, family cycles and levels of education. Price variations (for example land and house prices) over the years in the study area are being analysed through information received from local estate agents. It is difficult to access information pertaining to cost of living owing to the confidentiality of its nature.

Tourist Spend

According to, Fáilte Ireland (2005), North Tipperary only received 51,000 visitors in 2004. North Tipperary received considerably lower numbers of overseas tourists when compared to other counties in the region. Revenue accrued from overseas tourism in North Tipperary increased from €20 million in 2003 to €23 million in 2004.

At a local level, information relating to tourist spend will be generated from the visitor surveys which are being conducted as part of strand 2. At a national level, Fáilte Ireland is the principal source of data regarding tourism numbers and tourist spend throughout Ireland. Each year, Fáilte Ireland produce data detailing tourism statistics for the previous year. These data are available at regional level and detail statistics for each county. Thus, ample data is available to analyse tourist spend in North Tipperary from Fáilte Ireland.

Investment and Technology

Investment in tourism facilities, services and attractions is paramount to the success of a tourism destination. Investment must be ongoing in tourism products in the Lough Derg region. However, these investment projects must be sustainable and not endanger the natural environment which attracts visitors. Shannon Development is the agency charged with tourism product development thus, the principal source of information regarding tourism investment in North Tipperary.

Technology is an important factor to consider for the future development of the region especially in terms of carrying capacity as this dimension may lessen the impact of tourism. North Tipperary County Council, Tipperary North County Enterprise Board, Tipperary Leader Group and Tipperary Institute may provide additional information regarding the investment and technology dimensions of the carrying capacity web.

Labour

The tourism industry is considered an important employer in Ireland. According to Fáilte Ireland (2003) there were 231,716 people employed in Irish tourism. However, one of the difficulties with tourism employment is seasonality.

Sufficient information is available regarding labour and employment in the tourism sector from both Fáilte Ireland and the Irish Social Science Data Archive. However, it is imperative that data from previous years is examined in order to identify trends and changes. Fáilte Ireland carry out an annual business and employment survey which associates for changes in employment within the tourism and hospitality sector. This survey is conducted on a national basis therefore information specific to North Tipperary is unobtainable. Local area data pertaining to employment figures has been obtained from the Irish Social Science Data Archive. The SAPS information details the number of people at work including first time job seeker, unemployed, student, retired, and the categories of employment.

Table 1: Summary of Available Data and Possible Additional Information Required

Strand 1 Dimensions	Available Data [†]	Possible Additional Data Required
Ecological Systems		
Flora and Fauna (incl. Habitats)	-Descriptions of protected habitats -Annual counts for wetland bird species -Percentage of study area protected under conservation status -Fish counts for key rivers -Annual counts for returning salmon and trout	-Length of degraded lake shoreline habitat -Counts for summer bird species -Number of endangered species -Counts for sensitive mammal and flora species
Water	- Lake water trophic Status -Biological Pollution status of key rivers	-Shoreline inspection record -Number of recorded algal blooms -Hydrocarbon contamination from

[†] This Paper is only examining the specific dimensions set out in the Tourism Carrying Capacity Web (Figure 1). Other indicators have been identified and are outlined in the conclusion.

	-Key water quality parameters of both lakes and rivers	pleasure boats
Air	-Regional air quality parameters	-Ambient noise records at critical locations
Physical Structures		
Land Use and Landscape	-Land Use categories -Number of protected views -Percentage land use by sector	-Photographic record of key landscapes -Photographic record of protected views
Transport	-Description of road network, access, condition -Planning restrictions applicable to local road -Limited availability of plans for future road developments -Preliminary studies conducted in traffic congestion	-Limited study of amenity routes e.g. cycle paths, walkways -No counts of parking allocations -Basic study conducted assessing public transport
Visitor Amenities	-Poor information available	-Need to assess visitor amenities: count, availability, quality and access -Seasonality of usage -Signage to facilities
Accommodation	-Listing of accommodation available but no detail regarding price or quality	-Need for in-depth analysis of types, variety, distribution, choice and location -Issue of seasonality to be investigated -Prevalence of agri-tourism businesses
Economic Structure		
Cost of Living	-Wealth distribution statistics available -Housing development and pricing information available	-Study price variation during peak, off and shoulder seasons
Tourist Spend	-Tourism factcards detailing tourist spend per region/county available -Access to visitor surveys conducted in the study area	-Requirement to break down visitor spend per sector -Leakage of revenue from local area
Investment/ Technology	-Information available but confidential in nature	-Level of investment in tourism product versus other sectors
Labour	-Statistics available at local area level	-Study effect of seasonality -Labour stability -Gender balance

STATE OF RESEARCH AND FUTURE DIRECTION

Research on this project to date has shown that there is a wealth of data available on the various aspects of the study area within the remit of Strand 1. A variety of agencies are involved in recording and collecting this data. These agencies include

Local Authorities, non-governmental organisations, state appointed independent watchdogs, government departments and local development and business groups.

Although there is an abundance of data available, the research has also found that, in the context of the project aims, there are a number of fundamental problems associated with the data. These problems including those associated with the collection of data are listed below:

- The data is often disjointed and uncoordinated in nature.
- It is often not possible to link the data to the effects of tourism on the natural environment.
- There is a lack of a collaboration regarding the aims of gathering data. That is, each agency tends to keep within a specific remit and is not normally concerned with the benefits of coordinating data collection to environmental management.
- Data tends to be recorded for specific regions. It can therefore be difficult to interpolate data for a local area.
- For some particular aspects of Strand 1 there is a complete lack of data available.
- There can be difficulty in accessing the data even where it is technically available to the public.
- There can be difficulty contacting the holders of the data.
- Even for available data, it can be difficult to establish who, or what body holds the rights to the data and who can give permission for its use.
- There can be issues concerning confidentiality and conflict of interest regarding data.

The overriding aim of the project is to develop practical techniques to implement the carrying capacity concept in tourism management. One such technique being investigated is the identification of environmental indicators which can be used to assess carrying capacity. This technique will identify and monitor trends in the environment that occur as a direct or indirect consequence of tourism in the area.

In spite of the large quantity of information available, analysis of the data has shown that extensive gaps exist in the database when considering the applicability of the data to the carrying capacity indicator concept. That is, the data may be relevant to tourism in one sense, but as a potential indicator of the effects of tourism on the environment, it has little value. For example, information on water quality may be important to the tourism industry but, on the other hand, tourism is not considered a significant factor in water quality trends in Ireland. Notwithstanding the list of problems with the data highlighted above, a major finding of this project concerns the applicability of available data to the project aims. In this respect, it should be noted that when considering the applicability of particular data, criteria set out by the World Tourism Organisation on this subject have been consulted (WTO, 1996, 2004).

In line with the stated objectives and required outcomes of Strand 3, the future direction of the project will therefore need to focus on the identification and acquisition of data that can be used as tourism focused environmental indicators and ultimately applied to a carrying capacity based tourism management tool. It is imperative that this data is relevant and applicable but also must be practical and relatively inexpensive to attain. Thus, an emphasis will be placed on the collection of data that is cost effective and in a format that is applicable to GIS mapping software. One of the stated aims of the project is to develop tourism management techniques which are practical and effective. GIS is increasingly being used in environmental analysis due to the ability of the software to manipulate data and illustrate findings in

a practical manner. Therefore, the use of GIS has been identified as a key component in the future direction of the project.

With regard to the other problems of data availability listed above, it is considered that some of these exacerbate the problem of data applicability. For instance, the specific and uncoordinated nature of data collection means that particular data which is required to assess the effects of tourism are not included, or even considered, in the restricted remit of the agencies involved. This lack of coordination and tendency to ignore the bigger picture by such agencies is ultimately detrimental to the broader sphere of environmental management. A necessary observation here is that most agencies involved in the recording of data do so on the basis of legal requirements. Beyond such requirement agencies are reluctant to expand their data recording due to the financial restrictions that they operate under.

Although it is likely to prove feasible to fill some of the identified data gaps at a local level, it will ultimately be more of a challenge to encourage the routine recording of this type of data at a national level by agencies with restricted remits. Thus, a conclusion at this stage of the project is that the recording and collection of data by the various agencies will have to be adjusted in order to obtain data that is more applicable to tourism and carrying capacity. This will require collaboration, integration and a practical commitment to sustainable tourism by the agencies involved.

An area that will involve further research is the possible benefits of integrating the Drivers Pressure State Impact Responses (DPSIR) Indicator Framework with the Carrying Capacity Model. The DPSIR Framework is used extensively in Ireland by many government agencies and in particular the EPA. The integration of these two indicator models (DPSIR and Carrying Capacity Web) could facilitate the alteration of data collection to a national system which considers tourism and the effects of tourism on the environment as a critical issue.

BIBLIOGRAPHY

- Brady, Shipman and Martin (n.d.), *Shannon Tourism and Recreation Study.* (study prepared for) Bord Fáilte and the Office of Public Work, Dublin: Bord Fáilte Éireann.

- CHL Consulting Company Limited (2004) *A Tourism Development Strategy for North Tipperary.* ((prepared by), Dublin: Dun Laoghaire, CHL Consulting Company Limited,.

- Department of Environment (1997) *Sustainable Development: A Strategy for Ireland.* Dublin: Department of Environment and Local Government.

- Department of Environment (1999) *National Development Plan 2000-2006.* Dublin: Department of Environment and Local Government.

- Dooris, M. (1999) Healthy cities and Local Agenda 21: the UK experience, challenges for the new millennium. *Health Promotion International,* 14 (4), pp.365-375

- EPA (2000) *Ireland's Environment: A Millennium Report.* Wexford: Environmental Protection Agency.

- Fáilte Ireland (2004) *Tourism Factcard 2003- Shannon Region.* Dublin: Fáilte Ireland.

- Fáilte Ireland (2005) *Tourism Factcard 2004- Shannon Region.* Dublin: Fáilte Ireland.

- Flanagan, S. (1992) The role of tourism strategy planning with special reference to the Midlands-East Region. In Feehan, J. (ed.) *Environment and Development in Ireland,* Conference Proceedings, Environmental Institute, University College Dublin, Dublin

- Glasson, J., Godfrey, K. & Goodey, B. with Absalom, H. and Van der Borg, J. (1995) *Towards Visitor Impact Management- Visitor Impacts, Carrying Capacity & Management Responses in Europe's Historic Towns and Cities.* Aldershot: Ashgate Publishing Company.

- http://www.un.org/esa/sustdev/documents/agenda21/index.htm United Nations Conference on Environment and Development (UNCED), Agenda 21 [accessed august 2005]

- Jakeman, A. J., Beck, M.B. & McAleer, M.J. (1993) *Modelling Change in Environmental Systems.* Chichester: Wiley.

- Layde, M. (998) *Sustainable Development in Learning by Sustainability by Doing: Regional Integration by the Social Partners.* Dublin: Environmental Publications, 2-8.

- Redclift, M. (1987) *Sustainable Development: Exploring the Contradictions.* London: Routledge.

- Theobald, W.F. (2005) *Global Tourism.* Amsterdam: Elsevier Butterworth-Heinemann.

- Weaver, D. (2005) *Sustainable Tourism: Theory and Practice.* Oxford: Elesvier Butterworth-Heinemann.

- World Tourism Organisation (1996) *What Tourism Managers Need to Know: A Practical Guide to the Development and Use of Indicators of Sustainable Tourism*? Madrid: WTO.

- World Tourism Organisation (2004) *Indicators of Sustainable Development for Tourism Destinations: A Guidebook.* Madrid: WTO.