

The full title of the thesis

**Measuring and assessing the socio-cultural, environmental and economic impacts of hot
springs: Case study hot springs in regional Australia**

Marie Gaelle Genevieve HUGUES GREGOIRE JOSON

Master of business in Tourism and Destination Management
Victoria University

**Thesis submitted for the fulfilment of the requirements for the degree of Doctor of
Philosophy.**

**Victoria University, Australia
Institute for Sustainable and Liveable Cities**

March 2024

Abstract

The tourism industry has seen a significant increase in the wellness segment, which has become an area of interest for both academics and practitioners. Wellness is defined by the Global Wellness Institute (GWI) (2018) as ‘‘the active pursuit of activities, choices and lifestyles that lead to a state of holistic health’’. This trend is a response to the growing importance of well-being in our world. People are now more aware of the need to feel healthy and happy, and thus, the concept of well-being has gained significance. It is a state of being that emphasises improving one's physical and emotional life, including aspects such as happiness, financial stability, health, and spirituality.

The rapid growth of hot springs in the wellness tourism industry has prompted this research. With a number of hot springs developments in the pipeline in Australia and worldwide, the industry is set to grow significantly in the next decade. Despite this, little academic investigation has been conducted to explore the industry's impacts or its significance as a tourism phenomenon.

This research investigates the socio-cultural, environmental, and economic impacts of Hot Springs in regional destinations and identifies how these impacts can be measured. The study examined the emergence of the hot springs industry in Australia to create a set of indicators for assessing its impacts. Through case studies, the research evaluated the experiences of selected hot springs sites to elucidate common trends, best practices and unique challenges faced by different communities.

This thesis presents a methodology combining the Delphi technique with a visitor survey to comprehensively assess the impacts of hot springs in regional Australia. In Phase one, a panel of 33 international experts from 16 countries (Australia, England, Germany, Morocco, New Zealand, United States, Poland, China, Japan Italy, Vietnam, Switzerland and Austria) was consulted using the Delphi technique (Dalkey & Helmer 1963) to refine a universal set of indicators that could be applied to any hot springs site, resulting in 26 indicators after consensus was reached.

In Phase two, a visitor survey was conducted at four hot springs facilities in regional Australia, which were Peninsula Hot Springs, a well-established facility, Metung Hot Springs, a new opened hot spring facility, Cunnamulla Hot Springs, which opened in February 2024 and Phillip Island Hot springs, which is expected to open in 2025. By integrating the findings from the

Delphi technique and visitor survey, this thesis offers a holistic understanding of the impacts of hot springs in regional Australia.

A survey was conducted at Peninsula Hot Springs and Metung Hot Springs, resulting in over 3000 and 63 responses respectively. As Cunnamulla Hot Springs and Phillip Island Hot Springs were not yet open during this research, secondary data was prioritised. The primary and secondary data indicate that the development of hot springs has been beneficial to the economy, environment and well-being of the visitors and communities in the hot spring destinations.

By engaging stakeholders and monitoring impacts, this research aims to inform evidence-based decision-making processes to maximise positive effects while minimising negative consequences. The aim of this research was to provide a baseline for a future longitudinal measurement of hot springs operations in Australia and globally that would enable a collaborative best practice focused industry.

Declaration of Authenticity

I, Gaelle HUGUES GREGOIRE JOSON, declare that the PhD thesis entitled “Measuring and assessing the socio-cultural, environmental and economic impacts of hot springs: Case study hot springs in regional Australia” is no more than 80,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

I have conducted my research in alignment with the Australian Code for the Responsible Conduct of Research and Victoria University’s Higher Degree by Research Policy and Procedures.

Signature:

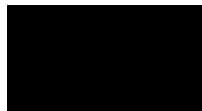


Date: 01/03/2024

Ethics Declaration

All research procedures reported in the thesis were approved by the Victoria University Ethics Committee - HRE21-010”

Signature:



Date: 01/03/2024

Acknowledgements

First and foremost, I would like to start by expressing my sincere gratitude to God for giving me strength, guidance and wisdom during my PhD journey. It has been a challenging yet rewarding experience, and I am extremely grateful to have had a supportive network around me throughout this journey. I have undergone tremendous growth over this period, both in my professional and personal life. Nonetheless, this project would not have been achievable without the support and help of the individuals listed below.

I am immensely thankful to the Australian Geothermal Association and Victoria University for their funding support, which made this research feasible.

Special appreciation goes to my supervisors for their invaluable support throughout this project. To my principal supervisor, Associate Prof. Joanne Pyke, thank you for your ongoing encouragement, constructive feedback and friendship. To my associate supervisor, Professor Terry Delacy, thank you for your guidance, support and connections to the industry, which were instrumental to the success of this project. To my associate supervisor, Adjunct Professor Charles Davidson, I extend my heartfelt gratitude for the time and passion you invested in this project, your endless connections within the international hot springs community, and for responding to my countless questions. To Professor Michael McGrath and Professor Stephen Gray, thank you for stepping in and for your support during challenging times. I am forever grateful for your support and trust.

Special thanks to all the people involved in the field research for this project, including the friendly staff of Peninsula Hot Springs, Metung Hot Springs, Paroo Shire Council and Destination Phillip Island. I am also grateful to all the members of the Delphi technique who participated in the first phase of the research.

I would like to also acknowledge Phillip Thomas from Editing and Proof-reading services for proof-reading and editing my thesis according to the principles and the standards of Australian Institute of Professional Editors (IPEd).

Last but not least, I would like to express my immense gratitude towards my husband, Burny. Thank you for your love, for always believing in me, and for supporting me every step of the way. To my amazing parents, in-laws, family and friends, thank you for your unconditional love, encouragement and understanding throughout this journey. Without your constant support, I would not have been able to reach my goal.

Conference Presentations

Hugues Gregoire Joson, G. (2020). Measuring and assessing the socio-cultural, environmental and economic impacts of hot springs on regional development in Australia. Proceeding for CAUTHE PhD Virtual Wednesday Workshops.

Hugues Gregoire Joson, G. (2022). Measuring and assessing the socio-cultural, environmental and economic impacts of hot springs: Case study of hot springs in regional Australia. Proceedings for Hot Springs Connection.

Hugues Gregoire Joson, G. (2023). Measuring and assessing the socio-cultural, environmental and economic impacts of hot springs: Case study of hot springs in regional Australia. Proceedings for Hot Springs Symposium, Australia Hot Springs Symposium.

Upcoming Presentation

Hugues Gregoire Joson, G. (2024). Measuring and assessing the socio-cultural, environmental and economic impacts of hot springs. Proceedings of Australian Geothermal Association webinar.

Upcoming publications

Hugues Gregoire Joson, G, Pyke, J, Delacy, T, and Davidson, C. (2024) ‘Wellness in the spa industry: an investigation of hot springs tourism in Australia’, in Sustainable Development and Resilience of Tourism: Wellbeing and Quality of Life Perspectives. Springer.

Table of Contents

| | |
|---|------|
| Abstract..... | ii |
| Declaration of Authenticity..... | iv |
| Acknowledgements..... | v |
| Conference Presentations..... | vi |
| Upcoming publications | vi |
| List of Figures..... | xii |
| List of Tables | xiv |
| List of Images | xvi |
| List of Abbreviations | xvii |
| Chapter 1 Introduction..... | 1 |
| 1.1 Introduction..... | 1 |
| 1.2 Background to the research..... | 2 |
| 1.2.1 Socio-cultural, environmental and economic indicators | 3 |
| 1.3 The research’s aims and objectives..... | 8 |
| 1.4 Methodology | 8 |
| 1.5 Contribution to knowledge..... | 9 |
| 1.6 Structure of the Thesis..... | 10 |
| Chapter 2 – The evolution of wellness tourism | 12 |
| 2.1 Introduction | 12 |
| 2.2 Tourism within the wellness industry | 12 |
| 2.2.1 Review of the evolution of the tourism industry | 12 |
| 2.2.2 Wellness Tourists | 14 |
| 2.2.3 How is wellness defined? | 15 |
| 2.2.4 Wellness Tourism – new tourism paradigm..... | 16 |
| 2.2.5 Spa tourism..... | 18 |
| 2.2.6 Regenerative Tourism..... | 19 |

| | |
|---|----|
| 2.2.7 Tourism in Regional Communities..... | 22 |
| 2.3 Hot and Mineral Springs in Tourism..... | 24 |
| 2.3.1 What are hot and mineral springs? | 26 |
| 2.3.2 The history of Hot springs in Australia | 26 |
| 2.3.3 What are the benefits of hot and mineral springs to their users and the community? | 28 |
| 2.3.4 Development of hot springs in regional destinations | 32 |
| 2.4 Chapter Summary..... | 33 |
| Chapter 3 – Indicators | 34 |
| 3.1 Introduction | 34 |
| 3.2 Indicators..... | 34 |
| 3.2.1 Indicators developed in the tourism industry and regional destinations. | 35 |
| 3.3 Socio-cultural indicators | 43 |
| 3.4 Environmental indicators | 45 |
| 3.5 Economic indicators..... | 47 |
| 3.6 Indicator Selection..... | 49 |
| 3.6.1 Reliability of Indicators | 49 |
| 3.7 Rationale for Developing Indicators specific to hot springs | 50 |
| 3.8 Conclusion..... | 52 |
| Chapter 4 Methodology | 53 |
| 4.1 Introduction | 53 |
| 4.2 Research Paradigm..... | 53 |
| 4.2.1 Ontology, epistemology and methodology for the research..... | 55 |
| 4.2.2 Methodology..... | 56 |
| 4.2.3 Approach used for this research | 57 |
| 4.3 Research Design..... | 58 |
| 4.3.1 Qualitative versus Quantitative study | 58 |
| 4.3.2 Mixed Methods Research (MMR)..... | 59 |

| | |
|---|----|
| 4.4 Data Collection..... | 60 |
| 4.5 Research Methods | 61 |
| 4.5.1 Phase 1: Developing the indicators using the Delphi technique | 61 |
| 4.5.2 Phase 2: Testing the indicators using case study analysis | 65 |
| 4.6 Data Analysis: Triangulation | 71 |
| 4.7 Chapter summary | 73 |
| Chapter 5 Australian Hot Springs | 74 |
| 5.1 Introduction | 74 |
| 5.2 What is a destination? | 74 |
| 5.3 Peninsula Hot Springs, Shire of Mornington Peninsula, Victoria..... | 77 |
| 5.3.1 Context of the destination: Shire of Mornington Peninsula | 77 |
| 5.3.2 Peninsula Hot Springs (PHS) | 79 |
| 5.4 Metung Hot Springs, Metung, Victoria..... | 81 |
| 5.4.1 Context of the destination: Metung | 81 |
| 5.4.2 Metung Hot Springs..... | 83 |
| 5.5 Phillip Island Hot Springs, Phillip Island, Victoria..... | 85 |
| 5.5.1 Context of the destination: Phillip Island | 85 |
| 5.5.2 Phillip Island Hot Springs..... | 87 |
| 5.6 Cunnamulla Hot Springs, Cunnamulla, Outback Queensland | 88 |
| 5.6.1 Context of the destination: Cunnamulla, Paroo Shire | 88 |
| 5.6.2 Cunnamulla Hot Springs | 90 |
| 5.7 Moree Artesian Spa, Moree Plains Shire, New South Wales | 91 |
| 5.7.1 Context of the destination: Moree Plains Shire | 91 |
| 5.7.2 Moree Artesian Aquatic Centre (MAAC) | 93 |
| 5.8 Comparison of the impacts of the chosen case studies | 94 |
| 5.9 Chapter Summary..... | 98 |
| Chapter 6 Phase 1 - Development of Indicators | 99 |
| 6.1 Introduction | 99 |

| | |
|---|-----|
| 6.2 Questionnaire development: Design and content..... | 99 |
| 6.3 Analysis and discussion: Round 1 questionnaire | 101 |
| 6.3.1 Experts' Profiles | 101 |
| 6.3.2 Type of hot spring businesses..... | 102 |
| 6.3.3 Hot Springs' contributions to the destination | 103 |
| 6.3.4 Potential impacts of hot springs..... | 106 |
| 6.4 Analysis and Discussion: Round 2..... | 122 |
| 6.4.1 Development and Content: Round 2 | 123 |
| 6.4.2 Economic Indicators | 124 |
| 6.4.3 Environmental Indicators | 129 |
| 6.4.4 Socio-cultural Impacts | 132 |
| 6.5 Potential Indicators Summary | 137 |
| 6.6 Chapter Summary..... | 141 |
| Chapter 7 - Testing the Indicators..... | 142 |
| 7.1 Introduction | 142 |
| 7.2 Overview of the Visitor Survey | 142 |
| 7.3 Descriptive Analysis | 143 |
| 7.3.1 Demographics..... | 143 |
| 7.3.2 Peninsula Hot Springs | 144 |
| 7.3.3 Metung Hot Springs..... | 150 |
| 7.4 Testing Indicators..... | 155 |
| 7.4.1 Testing Economic Indicators | 155 |
| 7.4.2 Testing Environmental Indicators | 174 |
| 7.4.3 Testing sociocultural indicators | 183 |
| 7.5 Discussion | 207 |
| 7.6 Chapter Summary..... | 210 |
| Chapter 8 - Discussion..... | 211 |
| 8.1 Introduction | 211 |

| | |
|---|-----|
| 8.2 Reliability and Validity of the Visitor Survey | 211 |
| 8.3 Economic impacts of Australian hot springs on the destination | 212 |
| 8.3.1 Direct Economic Impacts | 212 |
| 8.3.2 Indirect Economic Impacts | 213 |
| 8.4 Environmental impacts of Australian hot springs on the destination..... | 214 |
| 8.5 Socio-cultural impacts of Australian hot springs | 217 |
| 8.5.1 On their users/visitors..... | 217 |
| 8.5.2 On the community | 218 |
| 8.6 Regenerative impact of hot springs | 219 |
| 8.7 Recommendations for Hot Springs Indicator Tool | 220 |
| 8.8 Limitations of the study..... | 229 |
| 8.9 Chapter Summary..... | 230 |
| Chapter 9 Conclusion..... | 231 |
| 9.1 Introduction | 231 |
| 9.2 Review of the Research aim and objectives..... | 231 |
| 9.3 Summary of Key Findings | 232 |
| 9.3.1 Development of indicators using the Delphi technique..... | 232 |
| 9.3.2 Testing proposed indicators in Australian hot springs | 233 |
| 9.4 Contribution to Knowledge..... | 234 |
| 9.4.1 Theoretical contributions | 234 |
| 9.4.2 Practical contributions | 235 |
| 9.5 Recommendations for Future Research | 236 |
| 9.6 Chapter Summary..... | 238 |
| Reference List | 239 |
| Appendix A: Information to participants involved in Research | 269 |
| Appendix B: Consent Form for participants involved in Research | 272 |
| Appendix C: Round 1 – Delphi Technique..... | 275 |
| Appendix D: Round 2 – Delphi technique | 282 |

| | |
|----------------------------------|-----|
| Appendix E: Visitor Survey | 303 |
|----------------------------------|-----|

List of Figures

| | |
|--|-----|
| Figure 2.1 Percentage of international tourist arrivals in 2021 compared to 2019-20..... | 13 |
| Figure 2.2 The Great Artesian Basin, adapted from Erfurt (2021a). | 27 |
| Figure 5.1 -Map of Australia showing the locations of the five hot spring case studies. | 76 |
| Figure 5.2 Map of the Shire of Mornington Peninsula (Source: Mornington Peninsula Shire 2023.-b) | 77 |
| Figure 5.3 Peninsula Hot Springs before and after development of the site (Source: personal communication with Charles Davidson) | 79 |
| Figure 5.4 Map of Victoria showing the location of East Gippsland (Source: Regional Development Victoria 2023)..... | 81 |
| Figure 5.5 Metung Hot Springs (Source: personal communication with Charles Davidson) | 84 |
| Figure 5.6 Map of Phillip Island (Source: Google Maps)..... | 85 |
| Figure 5.7 Planned Phillip Island Hot Springs Development (Source: Bathing Australia 2023)..... | 87 |
| Figure 5.8 Map of showing Cunnamulla (Source: Cunnamulla Tourism 2023.-b) | 88 |
| Figure 5.9 Cunnamulla Hot Springs during development, projected and final outcome (Source: Cunnamulla Tourism 2023.-a)..... | 90 |
| Figure 5.10 Map of Moree Plains Shire. (Source: Moree Plains Shire Council (2021)) | 91 |
| Figure 6.1 - Type of hot springs..... | 103 |
| Figure 6.2 Word cloud generated by NVIVO on the theme of air quality..... | 116 |
| Figure 6.3 – Proposed economic indicators. | 124 |
| Figure 6.4 - Rating of proposed economic indicators of hot springs and their measurements | 125 |
| Figure 6.5 - Rating of proposed economic indicators of hot springs and their measurements. | 127 |

| | |
|---|-----|
| Figure 6.6 - Rating of the proposed environmental indicators and their measurements.... | 129 |
| Figure 6.7 - Rating of proposed socio-cultural indicators and their measurements..... | 133 |
| Figure 6.8 - Ranking of proposed socio-cultural indicators and their measurements..... | 135 |
| Figure 7.1 -Reasons for visiting the Shire of Mornington Peninsula..... | 156 |
| Figure 7.2 -Other reasons for visiting the Shire of Mornington Peninsula | 157 |
| Figure 7.3 Type of accommodation visitors to the Shire of Mornington Peninsula stayed in | 159 |
| Figure 7.4 -Reasons for visiting the town of Metung | 166 |
| Figure 7.5 - Length of stay in the town of Metung | 167 |
| Figure 7.6 - Types of accommodation visitors to Metung stayed in..... | 168 |
| Figure 7.7 - Monthly hot geothermal water usage | 177 |
| Figure 7.8 - Monthly cold groundwater usage | 177 |
| Figure 7.9 - Reasons for visiting PHS in percentage terms | 184 |
| Figure 7.10 - Other reasons for visiting PHS in percentage terms..... | 184 |
| Figure 7.11 -Stress levels before and after visiting PHS..... | 186 |
| Figure 7.12 – Net Promoter Score (NPS) of visitors to PHS and the Shire of Mornington Peninsula | 192 |
| Figure 7.13 - Reasons for visiting Metung Hot Springs | 196 |
| Figure 7.14 - Stress levels before and after visiting Metung Hot Springs | 198 |
| Figure 7.15 - Observable improvements felt by Metung Hot Springs visitors | 199 |
| Figure 7.16 - Net Promoter Score (NPS) for Metung | 201 |
| Figure 7.17 - Net Promoter Score (NPS) for Metung Hot Springs | 201 |
| Figure 8.1 Hot Springs Indicator Tool | 228 |
| Figure 9.1 Hot Springs Indicator Tool | 233 |

List of Tables

| | |
|--|-----|
| Table 1.1 - A review of indicator schemes..... | 5 |
| Table 3.1 A review of indicator schemes | 38 |
| Table 4.1 Methods of data collection used in this research..... | 61 |
| Table 4.2 Categories of visitor survey | 69 |
| Table 5.1 Metung Hot Springs Regeneration Model. | 84 |
| Table 5.2 Comparison of economic, socio-cultural and environmental aspects of the chosen destinations | 95 |
| Table 6.1 – Experts Profile – Country | 102 |
| Table 6.2 – Hot springs’ contributions to the destination..... | 104 |
| Table 6.3 - Number of times hot springs’ socio-cultural impacts on their users/visitors were cited by the panel of experts. | 107 |
| Table 6.4 - Proposed socio-cultural indicators for hot springs’ users/visitors. | 109 |
| Table 6.5 - Proposed socio-cultural indicators for hot springs’ users/visitors. | 110 |
| Table 6.6 - Panel of experts cited the number of times hot springs’ socio-cultural impacts help the destination. | 110 |
| Table 6.7 - Proposed socio-cultural indicators for the destination. | 113 |
| Table 6.8 - Proposed socio-cultural indicators for the destination. | 113 |
| Table 6.9 - Panel of experts cited the number of times the environmental impacts of hot springs. | 114 |
| Table 6.10 - Proposed environmental indicators. | 115 |
| Table 6.11 - Proposed environmental indicators. | 117 |
| Table 6.12 - Proposed environmental indicators. | 118 |
| Table 6.13 - Number of times the panel of experts cited hot springs’ economic impacts. | 119 |
| Table 6.14 - Proposed direct economic indicators. | 120 |
| Table 6.15 - Proposed indirect economic indicators. | 122 |
| Table 6.16 - Potential economic indicators and their measurements. | 126 |
| Table 6.17 - Potential economic indicators and their measurements. | 128 |

| | |
|--|-----|
| Table 6.18 - Potential environmental indicators and their measurements. | 131 |
| Table 6.19 - Potential socio-cultural indicators and their measurements. | 134 |
| Table 6.20 - Potential socio-cultural indicators and their measurements | 136 |
| Table 6.21 - Summary of the proposed economic, environmental and socio-cultural indicators..... | 141 |
| Table 7.1 - Data Collection of PHS and MHS visitor surveys..... | 143 |
| Table 7.2 -PHS demographics data..... | 146 |
| Table 7.3 -Metung demographics data..... | 152 |
| Table 7.4 - Average overnight stays in the Shire of Mornington Peninsula | 158 |
| Table 7.5 -Length of stay at the Shire of Mornington Peninsula..... | 158 |
| Table 7.6 -Average spend per visitor at PHS | 160 |
| Table 7.7 -Total amount spent per category in the Shire of Mornington Peninsula | 161 |
| Table 7.8 -Other reasons for visiting the town of Metung..... | 166 |
| Table 7.9 - Average spend per visitor at MHS | 169 |
| Table 7.10 -Total amount spent in the town of Metung by visitors..... | 170 |
| Table 7.11 -Activities, events or attractions attended by visitors in the town of Metung.. | 171 |
| Table 7.12 - Percentage of visitors who went to PHS to enhance their health and well-being | 185 |
| Table 7.13 -Observable improvements after visiting PHS | 188 |
| Table 7.14 -Other observable improvements after visiting PHS | 188 |
| Table 7.15 -Reasons for visiting the Shire of Mornington Peninsula | 189 |
| Table 7.16 -Number of visits to the Shire of Mornington Peninsula in 2021-2022 | 190 |
| Table 7.17 -Number of visits to PHS in 2021-2022..... | 191 |
| Table 7.18 -Percentage of visitors who live at the destination..... | 193 |
| Table 7.19 -Number of partnerships with local businesses | 195 |
| Table 7.20 -Number of visits to the town of Metung (2022 – 2023) | 200 |
| Table 7.21 -Number of visits to MHS (2022 – 2023) | 200 |

| | |
|---|-----|
| Table 7.22 -Percentage of visitors who live locally | 202 |
| Table 8.1 Average household income..... | 214 |
| Table 8.2 Validity of the Indicators | 221 |

List of Images

| | |
|---|-----|
| Image 7.1 -Industry Sector sourced by Mornington Peninsula Business Survey (2023)... | 162 |
| Image 7.2 - Word cloud of activities, events or attractions done by PHS visitors..... | 163 |
| Image 7.3 - Word cloud of events PHS visitors attended in the Shire..... | 164 |
| Image 7.4 - Wellness bathing culture of Metung Hot Springs..... | 203 |

List of Abbreviations

| | |
|---------------|---|
| ABS | Australian Bureau Statistics |
| EVC | Ecological Vegetation Class |
| GHG emissions | Greenhouse gas emissions |
| GWI | Global Wellness Institute |
| MHS | Metung Hot Springs |
| PHS | Peninsula Hot Springs |
| SPSS | Statistical Package for the Social Sciences |
| UNWTO | United Nations World Tourism Organisation |
| WHO | World Health Organisation |

Chapter 1 Introduction

1.1 Introduction

The wellness tourism industry has attracted the interest of researchers, students and professionals worldwide. The concept of wellness tourism has been researched by other names, for example 'health tourism', 'spa tourism', 'medical tourism', 'holistic tourism', and 'wellbeing tourism'. These terms are often used interchangeably but subtly refer to different concepts and practices (Smith & Puczko 2008; Voigt, Brown & Howat 2011; Voigt & Pforr 2013). At its most simple, the wellness paradigm has been described as relaxation as well as a proactive action towards attaining a healthy lifestyle (Smith & Puczko 2008). Discussions on the wellness paradigm in the tourism industry have generated interest due to its holistic approach, which aims to promote the health and well-being of individuals and communities more widely. In Australia, the potential of this industry is increasingly attracting interest as a niche market with potential for growth (Sykes 2019).

Hot springs are an important element of the wellness industry and have always been present in Australia. Most importantly, soaking in hot springs has been a well-established practice used by indigenous Australians who have valued and protected hot springs sites (Sykes 2019). Today, the industry is witnessing remarkable growth internationally, with 150 new thermal and mineral springs opening up from 2020 to 2022, and over 200 projects in the pipeline for future openings (Global Wellness Institute 2023, p. 76). Australia is among the countries that are heavily investing in new projects. Given substantial private and public investment, it is therefore timely to consider the associated impacts the industry has on the community, the environment and the economy.

The purpose of this thesis is to develop a set of indicators to measure and assess the socio-cultural, economic and environmental impacts of hot springs and test the developed indicators in four hot springs facilities in Australia as case studies. This study seeks to contribute to a better understanding of the hot springs industry and how it affects the community and its destinations. This thesis explores the various indicator schemes used in the tourism industry and proposes a set of meaningful indicators specific to the hot springs industry. This introduction chapter documents the background for the chosen research topic. The scope, questions and objectives are defined. Finally, a description of how this thesis is structured.

1.2 Background to the research

The philosophy of wellness has been defined by several authors as being a subset of having a healthy lifestyle (Smith & Puczko 2008). The overall sense of wellbeing consists of a person's body, mind and spirit holistically balanced with the social environment, culture and spirituality (Smith & Puczko 2008). It is also argued that a healthy lifestyle and having responsibility for one's health are paramount in the pursuit of happiness for a better quality of life (Smith & Puczko 2008). Hence, wellness has been explained as a state of bliss where it provides people with a feeling of being alive while achieving their ultimate potential (Cohen & Bodeker 2008). More simply, wellness is defined as a holistic and natural approach to health. A definition of wellness by the Global Wellness Institute (2018, p.iii) is "*the active pursuit of activities, choices and lifestyles that lead to as a state of holistic health*". The concept of wellbeing implies a state of being consistently content and satisfied. The sense of wellbeing can be subjective where there is instead, a focus on happiness rather than health or wellness (Bendegul & Heather 2022).

For thousands of years, water has been a reason for people to travel to seek rejuvenation and enjoy its curative powers (Bendegul & Heather 2022; Frosch 2007; Lund 2000). Hot baths became very popular due to their natural healing properties which were proven to be an innovative treatment and therapy (Erfurt-Cooper & Cooper 2009; Smith & Puczko 2008). As practices have evolved throughout the world, the bathing experience has been shaped by culture, social class and embedded within local practices. Many countries in the Asia-Pacific region and Europe, for example, have established strong bathing cultures. Bathing in hot tubs was believed to be a form of spiritual and physical purification by many Europeans, Africans, Americans, Middle Easterners and Asians (Paige, Soullière & Harrison 1988). Over time the bathing culture progressively evolved from being seen as purely medicinal to becoming an important form of relaxation and pleasure. The trend of bathing in a hot source of water coincided with the emergence of the spa travel trend (Erfurt-Cooper & Cooper 2009).

The growth of the spa industry has incorporated wellness as part of its core business (Cohen & Bodeker 2008) as most spas consist of some sort of water-based treatments. In many countries, thermal bathing facilities have long existed with a reputation for wellness treatments and spas, which use geothermal waters sourced from natural hot springs. A simple definition of hot springs is water coming from a spring at a higher temperature than the air where it is located (Erfurt-Cooper & Cooper 2009; Erfurt 2021; Mi, Chen, Cheng, Uwanyirigira & Lin 2019). In many communities, hot springs have played a significant role in attracting visitors which in

turn has highlighted the importance of the hot springs' economic value as a form of tourism (Erfurt-Cooper 2010; Erfurt 2021). Hence, the evolution of hot springs has changed over the years from being a hot steaming pool available to the community to a cultural and economic vehicle for leisure and wellness tourism. With growing numbers of hot springs now very evident in Australia, there is a need for further research on the impacts of hot springs on the community, the environment and the economy. The evolution and importance of the wellness industry, as well as the hot springs industry, and its growth in Australia will be further discussed in the literature review (Chapter 2).

1.2.1 Socio-cultural, environmental and economic indicators

Considering the unique characteristics of hot springs, it was important to review indicator frameworks that have been devised for the tourism industry. A review of indicators in the broader tourism sector shows no specific indicator frameworks have been developed or adapted to the hot springs industry. While some of the broader tourism economic and environmental indicators can in part be transferred to the hot springs industry, new socio-cultural indicators need to be created to measure the impact of hot springs for the following reasons.

First, existing indicator schemes have been developed in the tourism field involving community economic indicators, green economy indicators amongst others as reviewed in *Table 1.1* below. These indicator schemes were developed to measure and monitor the impact of tourism at a global, national and destination level often containing a relatively large number of indicators. None of the indicator systems reviewed, however, were specific for hot spring tourism. Hence, the aim of this research is to provide valid and reliable indicators to represent the socio-cultural, environmental and economic impacts associated with the hot springs.

Second, the uniqueness, popularity and growth of hot springs' destinations indicate that they have important socio-cultural impacts on local communities as well as providing health benefits to users. Hot springs facilities can wield a significant impact, either positive or negative, on the community and region in which they are located due to the substantial developments that often occur. Hence, to determine indicators applicable to hot springs' businesses and their impacts on regional development in Australia, a unique set of indicators is required. One of the main challenges of this research is to develop indicators suitable for the assessment of socio-cultural impacts of hot springs on local communities and visitors.

Third, as will be discussed in Chapter 2, hot springs facilities are growing at an exponential rate with the number of hot springs increasing. This trend highlights the rising popularity and interest in the therapeutic and recreational benefits of hot springs. Some facilities have also received government support so that they can contribute to the post-COVID-19 recovery of the visitor economy. It is timely, therefore, to develop a set of indicators and benchmarks that will help to generate an accurate picture of what the costs and benefits are to the region in which they are located. This data can then be used to inform strategic management of the facility itself, inform communications with regional stakeholders and to inform industry development priorities.

To fully understand and manage the complex interplay between environmental, socio-cultural and economic factors associated with hot springs, a comprehensive set of indicators need to be developed. This would ensure a structured approach towards the utilisation of these natural resources in a way that is harmonious with the surrounding environment and benefits the local community, while promoting sustainable practices. As well, it will provide a practical tool for developing benchmarks for sustainable industry practices.

Table 1.1 A review of indicator schemes

| <i>Indicator Schemes</i> | <i>Study setting</i> | <i>Number of indicators</i> | <i>How can the indicators be assessed?</i> | <i>Suitability for the study?</i> |
|--|-----------------------------------|-----------------------------|--|--|
| <i>United Nations Environment Programme (UNEP)</i> | General tourism destination | 25 SDGs indicators | <p>The United Nations Environment Programme (UNEP) is the leading environmental authority which has helped track major environmental issues over the years (Elkins, Gupta & Boileau 2019).</p> <p>The aim of this programme is to minimise the impact of climate change and to constantly review major environmental trends at the global and regional levels.</p> | <ul style="list-style-type: none"> ➤ One of the main challenges of using a universal indicator framework is that it may not be applicable to specific destinations. ➤ For example, hot springs destinations may have very different environmental circumstances which need to be assessed. |

| | | | | |
|--|-----------------------------|--|---|---|
| <i>Sustainable Development Goals (SDGs)</i> | General tourism destination | 17 goals with 169 targets and 247 indicators | The aim of this development agenda is a universal call for action to make the right choices to eradicate poverty, protect the planet and improve the quality of life in a sustainable way (United Nations 2020) | <ul style="list-style-type: none"> ➤ Not an indicator framework but a universal goal to achieve by 2030. ➤ Can be used as a guideline for developing indicators for hot springs destinations. |
|--|-----------------------------|--|---|---|



A roadmap to achieve sustainability together.

| | | | | |
|---|-----------------------------|-------------------------------------|--|--|
| <i>Green economy indicator framework</i> | General tourism destination | 119 indicators across 52 components | Developed for tourism destinations and referred to the global strategy framework surrounding Rio+20 (Law, De Lacy, Lipman & Jiang 2016; Law, DeLacy & McGrath 2017). | <ul style="list-style-type: none"> ➤ Green economy indicators may not be applicable to other destinations. ➤ It is recommended to use the full framework while |
|---|-----------------------------|-------------------------------------|--|--|

| | | | | |
|--|-----------------------------|---|---|--|
| | | | | assessing green growth in destinations. |
| | | | | ➤ The use of 119 indicators may be impractical and time-consuming for businesses/destinations to measure and assess each year. |
| <i>European Tourism Indicators System (ETIS) 2016</i> | General tourism destination | 43 core indicators with supplementary indicators. | ETIS was designed to assess and measure the impact of tourism on a destination (European Union 2016). | Mainly developed for European destinations and requires an advanced level of access to data. |

It is a management tool which promotes development.

Indicators are divided into four categories as follows:

- Destination management
- Economic value
- Social and cultural impact
- Environmental impact.

As shown in *Table 1.1*, there are multiple indicator frameworks which are designed to be applied to tourism destinations. While each one provides guidance, they have limited application for hot springs, which can be seen as a destination in themselves and are more meaningfully understood as an attraction within a larger destination. The following section discusses the specific aims, objectives and rationale for the study.

1.3 The research's aims and objectives

The aim of the research is to develop an indicator framework to assess the socio-cultural, economic and environmental impacts of Australian hot springs in regional communities. This will involve the development of a set of indicators which will be tested at four specific hot springs in the country. Accordingly, the research will explore and assess the following research question:

RQ: What are the socio-cultural, environmental and economic impacts of the Australian hot springs and how can they be measured and tested?

Explicit research objectives were developed to answer the question, and these are to:

1. Review the emergence of the Australian hot springs industry;
2. Develop an effective set of indicators as a tool to measure hot springs' socio-cultural, environmental and economic impacts and their potential regenerative impacts in communities; and
3. Apply the indicators to evaluate the economic, social and environmental impact of Australian hot springs in their local region and highlight ways in which they can contribute to the regenerative improvement in the quality of life.

1.4 Methodology

The research was conducted in two phases. Phase 1 implemented a qualitative strategy using the Delphi technique to develop a set of socio-cultural, environmental and economic indicators for assessing the impacts of hot springs. In Phase 2, both a qualitative and quantitative (mixed methodology) approach was chosen using a visitor survey as the primary data collection strategy to test the developed indicators for Australian hot springs in regional destinations.

Phase 1 of the research involved the development of a set of indicators to assess the impacts of hot springs on its community and destination (Chapter 6). This involved an extensive review of the indicator frameworks available for the tourism industry which is discussed in Chapter 3.

Phase 2 of the research utilised a case study approach which was done to test the developed indicators from Phase 1. The case studies specifically are Peninsula Hot Springs, Metung Hot Springs, Phillip Island Hot Springs and Cunnamulla Hot Springs. Moree Artesian Aquatic Centre was excluded due to unforeseen circumstances, preventing the collection of primary data from there. The use of case studies is further explained in Chapter 4 while the backgrounds of the four hot springs are thoroughly discussed in Chapter 5. The first component of this phase involved a visitor survey, and its purpose was to evaluate and assess the impact of hot springs on its visitors/users, its community and its destination. The survey yielded information regarding visitors' characteristics, travel habits, motivations, behaviours, and experiences as well as their overall impact on both individual and community levels. Additionally, it provided insights into the factors contributing to the destination's appeal. The second component of *Phase 2* was to determine the trustworthiness and validity of the results. Discussion and analysis of *Phase 2* is presented in Chapters 7 and 8, respectively.

1.5 Contribution to knowledge

Theoretical perspective

Presently, no study has to date reported on developing a set of indicators to measure the socio-cultural, economic and environmental impacts of hot springs. The main contribution of this research will be to address this gap in our knowledge. Further, the research will investigate the potential regenerative impacts of hot springs on communities and add to the literature on this burgeoning area of research.

Practical perspective

From a practical perspective, the research aim is to estimate the socio-cultural, environmental and economic impact of several Australian hot springs' development on their local region. Four hot springs in Australia were studied to acquire valid, accurate and reliable data on their effect. This will assist tourism planning in the four hot spring destinations and help inform industry development priorities at a time of exponential growth. The analysis of the data set will establish a comparative analysis between new emerging hot springs and well-established ones. This will also provide a practical tool that will enable the development of benchmarks for sustainable industry practice. This research project will underpin a proposed longitudinal study for Australian hot springs and their regional impacts and their contributions to regional

economic development. Overall, the research hopes to contribute to government policy and planning as the imperative for sustainable development growth.

1.6 Structure of the Thesis

This thesis is divided into 9 chapters. Chapter 1 introduces the key issues and concepts related to this research. Wellness as a tourism concept, hot springs tourism and indicators are reviewed. An overview of the research's aims and objectives is presented in this chapter. This chapter concludes with a brief description of the implications and methodology used.

Chapter 2 provides a detailed overview of tourism within the wellness industry and its evolution throughout the years. Spa tourism involving hot and mineral springs in tourism is discussed from both a medical and wellness perspective.

Chapter 3 reviews various indicator frameworks used in the tourism field. The chapter also assesses the rationale for developing specific indicators to measure the impacts of Australian hot springs in regional developments.

Chapter 4 assesses the research methodology used for this study and outlines the critical theoretical perspective, ontology, epistemology, and methodology supporting the thesis. An in-depth analysis of the qualitative, quantitative and mixed methods approach is documented, hence establishing the rationale for the chosen method. The research methods (Delphi technique, case study analysis and surveys), research participants, sampling procedures and data analysis methods are explained and justified.

A comprehensive overview of four hot springs is carried out in Chapter 5, providing a contextual background for each chosen hot spring and how it functions.

Chapter 6 provides a broad analysis of the questionnaire development and its design for the Delphi technique, as well as the selection of the expert panel. The first and second rounds of the questionnaire are analysed, and the developed indicators are discussed.

In Chapter 7 the developed socio-cultural, economic and environmental indicators from the Delphi technique are tested for the four chosen hot springs. A thorough analysis of the findings is also undertaken.

The objective of Chapter 8 is to discuss the validity and reliability of the developed indicators and identify the final list of indicators. The discussion draws on the literature review, a review of various indicator frameworks available, the data collected and analysed over the course of the research from the Delphi technique, case study analysis and visitor survey. It also identifies limitations and provides recommendations to Australian hot springs operators.

Chapter 9 concludes the thesis by presenting a summary of the research findings. The theoretical and practical contributions made by this study are recapped in this chapter. Lastly, future applications of the indicators are discussed and opportunities for future research are identified.

Chapter 2 – The evolution of wellness tourism

2.1 Introduction

Wellness tourism has received growing attention in the literature as a response to growing interest shown by people in wanting to be healthier and achieve a sense of wellbeing. Consequently, the industry has responded with a plethora of offerings, from yoga retreats to spa getaways, all designed to help travellers recharge and rejuvenate. This emerging form of travel has proven to be beneficial for both the destinations and communities they serve.

This chapter aims to provide an overview of past and recent literature on wellness as a new tourism phenomenon and how it is correlated with hot springs tourism. Additionally, this chapter will review the evolution of wellness tourism in the midst of the COVID-19 pandemic and the effects of hot springs on spa tourism. It will explore the impact of hot springs tourism on the community, environment and economy. Lastly, the concept of regenerative tourism will be investigated as a new phenomenon that potentially promotes sustainable tourism practices.

2.2 Tourism within the wellness industry

2.2.1 Review of the evolution of the tourism industry

Tourism has grown exponentially in the past decade, becoming an essential element of economic growth and its own industrial sector for many countries. Tourism is defined by the Organisation for Economic Cooperation and Development (OECD, 1974) (Leiper 1979, p. 390) as “*the theory and practice of touring, travelling for pleasure*”. The rising demand for mobility, leisure, discovery and experiences has led to a rapid expansion of the tourism industry throughout the world. While tourism is a complex and dynamic industry, it involves numerous activities that have social, economic and environmental impacts.

Up until 2019 there was a solid growth in international arrivals with an estimated 9.5 million international tourists setting foot that year in Australia (Australian Bureau of Statistics 2020; World Tourism Organization 2019). Growth forecasts projected a 3-4% increase worldwide, with a lot of demand focused on discovering exclusive destinations. However, in 2020, the industry suffered a huge decline due to the global spread of the COVID-19 disease as it reached pandemic proportions. Governments worldwide introduced immediate travel restrictions, lockdowns, shutdowns and border closures for much of 2020-21. Travel was virtually put on

hold permanently while the world attempted to contain the virus and recover. As infection rates increased, a drop in international arrivals was expected due to travel restrictions and a decrease in demand. *Figure 2.1* below illustrates the increase of 4% in international tourist arrivals worldwide in 2021 compared to 2020, but it remained 72% lower than the number of tourist arrivals worldwide in 2019 (UNWTO 2022). The Asia-Pacific region had the most closed destinations, hence the much worse performance of its countries compared to other destinations. While *Figure 2.1* illustrates a slight rise in international tourist arrivals in most parts of the world in 2021, the road to recovery remained fragile (UNWTO 2022).



Figure 2.1 Percentage of international tourist arrivals in 2021 compared to 2019-20.

According to *Figure 2.1*, recovery of international tourism worldwide indicated a return of international arrivals to pre-COVID levels, and in fact these numbers have already surpassed pre-pandemic levels (World Tourism Organization 2023). The Middle East performed best as a region, exceeding pre-COVID levels. Asia and the Pacific reached 54% pre-pandemic arrivals levels and are set to accelerate with most destinations reopened. However, the tourism industry still faces challenges, including high inflation, rising fuel prices and a higher cost of living. These circumstances will put pressure on tourists' purchasing power and lead to a trend of seeking value-for-money opportunities and travelling closer to home (World Tourism Organization 2023). Nonetheless with a well-planned tourism recovery strategy and an eye toward future challenges and how to overcome them, destinations may see this as an opportunity to promote domestic and wellness tourism.

2.2.2 Wellness Tourists

A tourist, in the simplest terms, is a person who travels to visit a destination where they do not reside for at least 24 hours (Hall, Voigt, Brown & Howat 2011; Voigt & Pforr 2013). The latter will engage in activities in the destination and surroundings. They are, consequently, also deemed to be visitors. However, these definitions fail to consider domestic travellers who travel to a destination on a short-term basis, such as day visits or excursions. Both types of visitors play a role in sustaining the tourism industry. Travel motivations have been widely discussed in the tourism literature, identifying intrinsic and extrinsic motivations and behaviours formed by tourists. To some, travel provides a sense of power, wonder and beauty; to others, it can provide a sense of freedom and relaxation (Lundberg 1972; Robinson, Heitmann & Dieke 2011). Motivation to travel varies from one individual to another based on their needs and wants. The reason for visiting places for some individuals could be physically motivated where the need for physical and health-related activities such as relaxation and resting are a priority while on holiday (Goeldner & Brent Ritchie 2009). Conversely, interpersonal motivators are critical, including visiting family, friends and relatives or meeting while on holiday. With international travel slowly recovering from the pandemic, it is predicted that new travel trends will emerge, leaning more toward nature-based holidays, domestic travel and wellness-oriented travel (Choudhary & Qadir 2021; Kusumaningrum & Wachyuni 2020).

Research on US spa visitors revealed that the two main motivations for them were to escape and indulge, and to improve their bodies and minds. An exploratory study on Hong Kong spa visitors identified five motives: “escape”, “relaxation and relief”, “self-reward and indulgence”, “health and beauty” and “friendship and kinship” (Mak, Wong & Chang 2009, p. 195). Voigt and Pforr (2013, p. 27) found that while wellness tourism shares some common motives with the general tourism industry, other factors are unique to the wellness context. The authors categorised wellness tourists into three groups: beauty spa visitors, lifestyle resort visitors and spiritual retreat visitors. Through escape and relaxation, all three groups of wellness tourists seek self-realisation or a form of self-transformation. The authors observed that just a minority of wellness tourists seek psychological transformation.

In wellness tourism, it is imperative to recognise and acknowledge wellness tourists’ motives to travel. Their motives can vary depending on age, gender and income. Wellness visitors are typically older people with high incomes motivated by a desire for relaxation, rejuvenation or escapism (Patterson & Balderas-Cejudo 2022). To better understand the wellness visitor, research showed that female visitors are more interested in the spa tourism industry than men

(Koh, Jung-Eun Yoo & Boger Jr 2010; McNeil & Ragins 2005; Smith & Puczko 2008). Reports have, however, shown that this trend is changing with more men and a younger generation interested in wellness services. Most wellness tourists have the opportunity to socialise and share their experiences with family and friends. Overall, wellness tourists travel to feel well (Kim, Chiang & Tang 2017).

2.2.3 How is wellness defined?

The terms ‘health’ and ‘wellness’ are often used interchangeably but they do have different meanings. Health is defined by the World Health Organization as *“a state of complete, physical, mental, and social well-being and not merely the absence of disease or infirmity”* (Bendegul & Heather 2022; Oliver, Baldwin & Datta 2018, p. 41; Smith & Kelly 2006, p. 1). While this definition highlights the absence of diseases or illnesses, Mueller and Kaufmann (2001) regard wellness as a subset of health. Wellness is a modern concept but has its origins in ancient civilisations as its doctrines can be traced back to Classical Greece and Rome, and the cultures that existed in Asia. These doctrines now influence the modern world (Global Spa Summit 2010).

With the intensification of the emphasis on the pursuit of wellness in the tourism industry, it was noted that wellness has various definitions. Opinions around its definition greatly vary. Wellness is multi-dimensional while for others it is a philosophical point of view (Steiner & Reisinger 2006). Elsewhere, it is all about self-development and the link between body, mind and spirit (Smith & Kelly 2006). The concept of ‘holistic wellness’ was introduced by Dr. Halbert Dunn in 1959 (Koncul 2012). This concept introduced a new idea of health that involved physical health, including the mind, body and spirit (Dunn 1959, p.787) or “high-level wellness”. The latter scholar observed that a poor lifestyle can lead to severe health problems. He emphasised a holistic wellness approach by harmonising one’s body, mind and spirit with the environment (Dunn 1959). As a result, wellness can be achieved through physical care, nutrition, education and relaxation (Mueller & Kaufmann 2001), embodying a state of feeling healthy and happy (Smith & Kelly 2006). Described as “positive health” by the World Health Organization, wellness contributes to the overall state of a person’s well-being. Well-being refers to as the absence of disease, while the term ‘wellness’ is described as a *“way of life oriented toward optimal health and well-being in which the body, mind, and spirit are integrated by the individual to live more fully within the human and natural community”* (Myers, Sweeney & Witmer 2000, p. 252). Meanwhile the Global Wellness Institute (2020, p. 4) defines wellness as *“the active pursuit of activities, choices and lifestyles that lead to a state*

of holistic health”. This definition accentuates wellness as a personal endeavour to achieve the best health and well-being. Furthermore, this definition is helpful for this research as it encompasses all the dimensions of wellness. As such, this definition will be used as a point of reference throughout the study.

2.2.4 Wellness Tourism – new tourism paradigm

The classification and definition of wellness tourism are broad and often lack consistency in the literature. Used interchangeably, the terms “wellness tourism”, “health tourism”, “medical tourism”, “well-being tourism” and “spa tourism” often have different definitions (Voigt & Pforr 2013, p. 17). This confusion is caused by the consistent misuse of these terminologies by either destinations, government organisations/agencies or businesses. Health tourism is often used to describe both medical and wellness tourism. Wellness has often been categorised as part of overall health, described as the active process of becoming aware and working towards achieving a healthier lifestyle. They, however, encounter opposite consumer needs and operate in entirely different markets. To better understand wellness tourism's origins, it is essential to define what health and medical tourism are.

Mueller and Kaufmann (2001) and Mihók & Marčeková (2022) identified “wellness tourism” as falling under the umbrella of the term “health tourism” . The World Tourism Organisation (WTO) defined health tourism as *“those types of tourism which have as a primary motivation, the contribution to physical, mental and spiritual health through medical and wellness-based activities which increase the capacity of individuals to satisfy their own needs and function better as individuals in their environment and society”* (World Tourism Organization; European Travel Commission 2018, p. 9). It encompasses medical and wellness tourism (Erfurt-Cooper & Cooper 2009). Hall (2012) outlined the principal motive for health tourists is to travel to improve health through activities that will help them look better, lose weight, slow the effect of age or manage stress (Stănculescu, Diaconescu & Diaconescu 2015). Health tourism is a term that has come to be widely used throughout the world and is synonymous with tourism.

Considered an unusual type of tourism, medical tourism is nonetheless a niche, competitive and lucrative market (Hall 2012; Majeed, Lu, Majeed & Shahid 2018). Medical tourism is best defined as individuals primarily travelling for medical purposes regardless of spending time and consuming tourism-related goods and services or products at the destination (Hall 2012; World Tourism Organization; European Travel Commission 2018). The medical paradigm is

often considered as a reactive measure to achieve better health, and in fact means treating medical conditions. Researchers examined the depth of medical tourism by exploring various dimensions, such as destinations and types of treatments sought, patient experiences, and impacts on health care systems (Bagga, Vishnoi, Jain & Sharma 2020; Virani, Wellstead & Howlett 2020; Wang, Feng & Wu 2020). While medical tourism is major phenomenon, little research has been explored on this topic compared to other areas of healthcare. A number of factors contribute to this discrepancy in our knowledge, including challenges in measuring and evaluating the volume, cost, and quality of medical tourism due to a lack of consistent definitions, reliable data sources and indicators (Lunt, Smith, Exworthy, Green, Horsfall & Mannion 2011).

Additionally, the industry's sheer heterogeneity, encompassing a wide and diverse range of treatments and medical destinations, require a multi-level approach to fully comprehend the dynamics, motivations and effects of medical tourism (Wang, Feng & Wu 2020). Finally, ethical and legal considerations must be taken into account when investigating this phenomenon, including issues related to informed consent, liability, and data protection for medical tourists and local communities, which can significantly vary from country to country (Béland & Zarzeczny 2018). However, the distinction between seeking treatment for a medical condition and achieving a better quality of life is blurry and complex. This led to medical tourism being frequently incorporated into the concept of health tourism (Majeed, Lu, Majeed & Shahid 2018).

As a subset of health tourism, wellness tourism promotes an individual's health and well-being through travelling (Majeed & Gon Kim 2023; Mueller & Kaufmann 2001; Voigt, Brown & Howat 2011). Wellness tourism can be considered a proactive measure to realise a healthy lifestyle (Smith & Puczko 2008; World Tourism Organization; European Travel Commission 2018). Defined by the Global Wellness Institute as "*travel associated with the pursuit of maintaining or enhancing one's personal wellbeing*" (Global Wellness Institute 2021, p. 71), the wellness tourism industry has an opportunity to uphold and improve people's holistic health (Global Wellness Institute 2023). Smith and Kelly (2006) also defined wellness tourism as the quest for well-being as a primary purpose of travel (Sthapit, Björk & Coudounaris 2023). Given the definition of wellness tourism, it is expected that the focus of wellness tourists is purposefully driven by the desire to feel psychologically, emotionally, spiritually or physically well (Smith & Kelly 2006). The dynamic relationship between wellness and health is vital and

works in tandem with each other. In simple terms, health is the end goal, while wellness is the route to achieve it (Dillette, Douglas & Andrzejewski 2021).

The wellness tourism industry forms part of two large industries: tourism and wellness. Within the broader tourism industry, wellness tourism is considered a niche market experiencing rapid growth globally (Dillette, Douglas & Andrzejewski 2021; Global Wellness Institute 2021). This trend introduces a new dimension to the tourism industry with an opportunity to encourage people to travel towards their desired state of holistic health purposefully. Part of wellness tourism is travelling to retreats, spas or resorts to enhance the overall well-being. Prior research (Erfurt-Cooper & Cooper 2009; Majeed & Gon Kim 2023; Smith & Kelly 2006; Thal & Hudson 2019) has suggested that hot springs and spas are essential destinations in wellness tourism.

Valued at \$5.6 trillion in 2022, amidst the disruptions caused by the COVID-19 pandemic, wellness tourism is the largest sector of the wellness industry (Global Wellness Institute 2023). In the post-pandemic era, the pursuit of wellness and a healthy lifestyle was predicted to intensify (Piatto Clerici, Murphy & Castanheira Almeida 2023; Sthapit, Björk & Coudounaris 2023), which has subsequently seen 819.4 million international and domestic wellness trips in 2022 (Global Wellness Institute 2023, p. 57). The wellness industry involves industries that allow consumers to integrate wellness activities into their daily lives, with a small cluster involving spa economy and thermal/mineral springs (Global Wellness Institute 2021). While the spa economy and thermal/mineral springs represent a small portion of the wellness economy, it is nonetheless expected to grow (Bodeker & Cohen 2008; Global Wellness Institute 2021). A consistent aspect of wellness tourism is travelling to retreats, spas or resorts to enhance overall well-being.

2.2.5 Spa tourism

The growth of the spa industry has embraced wellness as part of its core business (Bodeker & Cohen 2008), as most spas consist of water-based treatments. The surge of the wellness trend has sparked an increase in the popularity of spas (Kulkarni 2008), with people visiting them for rejuvenation and healing purposes. Springs and spas, respectively, accounted for \$46b and \$105b in 2022 (Global Wellness Institute 2023) illustrating these industries' economic impact on the global wellness economy.

Spa tourism has gained popularity because of activities involving balneotherapy or hydrotherapy and the intrinsic natural resources of mineral/hot thermal waters. The terms 'spa

tourism' and 'wellness tourism' are often used interchangeably to promote overall well-being. Defining the terms 'spa' and 'spa tourism' is essential if one is to understand spa tourism more fully (Mihók & Marčėková 2022). The Global Wellness Institute (2021, p. 77) defines spas as *“establishments that promote wellness by providing therapeutic and other professional services to renew the body, mind, and spirit”*. Others defined spa as “health through water” or “hydrotherapy” (Ramos & Untong 2016). Initially, the spa concept was linked to a location with natural thermal springs. It has now evolved to include water-based treatments and other treatments such as massages, facials, and body treatments concentrating on wellness (Ramos & Untong 2016). Smith and Puczkó (2015, p. 208) defined spa tourism as focusing *“on the relaxation, healing or beautifying of the body in spas using preventative wellness and/or curative medical techniques”* (Mihók & Marčėková 2022). The authors identified the categories of spas, including destination, medical, and mineral springs. With no recent definitions of spa tourism (Mihók & Marčėková 2022) and how the spa tourism industry has evolved, spa tourism can be defined as the participation of tourists or visitors in any related spa activities at the place of destination (Ramos & Untong 2016). The uniqueness of spa tourism is that it depends profoundly on its water resources (Pinos Navarrete & Shaw 2021). Balneotherapy is the most distinguished attribute of spa tourism and could be a competitive advantage for destinations (Torres-Pruñonosa, Raya, Crespo-Sogas & Mur-Gimeno 2022).

Research on spa tourism is currently still limited. Some studies are concerned with the economics of spa tourism (Bodeker & Cohen 2008; Cristian-Constantin, Radu-Daniel, Daniel, Georgiana & Igor 2015; Mihók & Marčėková 2022; Pinos Navarrete & Shaw 2021; Torres-Pruñonosa, Raya, Crespo-Sogas & Mur-Gimeno 2022; Vystoupil, Šauer & Bobková 2017). Others are interested in visitors' motives (Azman & Chan 2010; Koskinen 2019; Koskinen & Wilska 2019; Patterson & Balderas-Cejudo 2022; Vystoupil, Šauer & Bobková 2017). Other studies found spas were associated with hot and mineral springs or geothermal waters (Pessot, Spoladore, Zangiacomi & Sacco 2021). Some scholars investigated the role and importance of hot springs in tourism (Erfurt-Cooper 2010; Erfurt 2011), while others assessed the destination's competitiveness (Lee & King 2006, 2009). While these studies form the basis for future research, the focus of this research is hot springs tourism and its impact on the economy, the environment and its potential regenerative impacts on communities.

2.2.6 Regenerative Tourism

As noted previously, the COVID-19 pandemic was the cause of a sudden and catastrophic downturn in the tourism and travel industry. Besides the industry being put on hold for nearly

two years, the global pandemic provided a unique opportunity to reflect on the future of the tourism industry and the need to change once the COVID-19 crisis receded. With tourism facing and contributing to problems such as climate change-related emergencies, over-tourism, rising inequality, and landscape/environmental degradation, there are increasing calls for urgency with reference to create what is known as sustainable tourism development. The most cited definition of sustainable development and sustainable tourism is that conceived by the World Tourism Organization (UNWTO), which asserts that it is, “*Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities*” (World Tourism Organization 2023, p.12). Sustainable tourism is defined as an activity that meets “*the needs of present tourists and host regions while protecting and enhancing opportunities for the future*” (Saarinen 2021, p. 3; World Tourism Organization 2023).

Sustainability has many facets, but traditionally, the environmental aspect has received the most attention. It is widely accepted that sustainable practices are vital for reducing many industries’ and societies’ carbon footprints and improving energy efficiency (Pollock 2019). However, the success of the tourism industry over the years has led to growing inequality and exploitation and wastage of resources, and it is argued that these practices are simply not viable if the industry wants to expand. Strong criticism has been made of the United Nations’ sustainable development agenda, for failing to address that the inherent expansion of the industry has caused serious socio-ecological damage (Dwyer 2018; Higgins-Desbiolles 2018; Pollock 2019), and despite the growing recognition of stakeholders’ importance in adopting sustainable practices, the inequality seems to worsen. Tourism scholars are searching for ways to solve the serious effects of the industry’s constant growth and to make a more positive contribution to the environment and community (Dwyer 2018).

To achieve sustainable tourism, a continuous process is required to monitor and assess outcomes and simultaneously introduce preventive and corrective measures to protect the environment, raise the quality of life of residents and enhance the economic growth of the destination (Hunter 1997; Sharma 2019). It is, however, argued that sustaining tourism will ironically lead to unsustainability of the environment and society (Higgins-Desbiolles 2018). The recent example of Venice during the COVID-19 lockdowns serves as a stark reminder of this issue (Rosin & Gombault 2021). Despite the temporary relief brought by the absence of tourists, the city’s infrastructure and natural resources continue to face long-term threats from the constant influx of visitors. Strategies to slow tourism as a strategy towards sustainability

have been proposed, taking the form of slow tourism, conscious travellers or consumerism (Hussain 2021). An example is the “live like locals” strategy in Copenhagen and holidaying closer to home (Hall 2009; Higgins-Desbiolles 2010).

The industry's vulnerability has drawn researchers' attention to finding ways to make it able to get through tough economic circumstances (Hussain & Haley 2022). Hussain (2021) suggested “a holistic normal” approach to enable tourism recovery which involves destinations becoming more innovative and resilient to better cater to the wellbeing of tourists, while also encouraging them to be mindful when travelling. The pandemic raised awareness of mass tourism's effect on the community and the environment. Mass tourism's aftermath highlighted the importance of adopting a holistic approach beyond sustainability (Hussain 2021). This emerging holistic approach is called regenerative tourism.

The concept of ‘regenerative’ has recently emerged in tourism literature as promoting a meaningful and positive transformation of the planet and the tourism industry (Ateljevic 2020). It can relate to how hot springs can assist in this transformation (Ateljevic 2020; Cave & Dredge 2020; Pedersen Zari 2009). Pollock (2019, p. 7) defined regenerative tourism as “*a fresh understanding that the visitor economy in general and the destination in particular is not an industrial production line but a living, networked system embedded in a natural system called Nature and subject to Nature's operating rules and principles*”. Owen (2007) first applied the term to ecotourism facilities. She referred to regenerative tourism as critically engaging with place, having a positive relationship with community, and linking environmentalism with socio-political practices (Bellato, Frantzeskaki & Nygaard 2023; Owen 2007). Since a definition is yet to be adopted for regenerative tourism, the holistic perspective of both definitions relates to the study.

Amidst its growing popularity, regenerative tourism has come under scrutiny for its inherent challenges and contradictions. While advocates emphasise its potential to foster sustainability and community well-being, critics argue that regenerative tourism often falls short of its promises. They argue that regenerative tourism is being used as a guise for greenwashing (Coll-Barneto & Fusté-Forné 2023) and for exploiting local communities and resources in the name of sustainability (Dredge 2022). Critics point out various challenges and concerns regarding the implementation and practice of regenerative tourism, including resistance to change from stakeholders accustomed to the status quo, the need for substantial investments which can be a barrier for many destinations and operators, and the persistence of the same problems faced by

sustainable tourism development (Tham & Sharma 2023). Addressing these criticisms requires an approach that prioritises genuine community engagement, equitable distribution of benefits, environmental stewardship, and respect for local cultures and traditions. In conclusion, regenerative tourism is not a “one-size-fits-all” approach (Tham & Sharma 2023, p. 20). Given the unique attributes and specific needs of each community, destination and their stakeholders are required to collaborate and adapt to deliver the desired regenerative tourism goals.

Regenerative tourism started with the concept of sustainable development and can be seen by some researchers as the evolution of sustainable tourism and by others as going beyond sustainable tourism (Bellato, Frantzeskaki & Nygaard 2023; Hussain & Haley 2022). Regenerative tourism focuses on proactively delivering net positive benefits to the community, cultures, heritages, nature and places (Dredge 2022). It focuses on using tourism to enhance well-being, revitalisation and sustainability. The regenerative process involves fundamentally rethinking strategies to redevelop or recreate social and ecosystem capacity (Cave & Dredge 2020; Pedersen Zari 2009). This ongoing process requires understanding the uniqueness of a destination’s cultural, social, environmental and economic features to realise meaningful regenerative development and design (Pedersen Zari 2009; Sykes 2019). The connections between various components such as energy, ecosystems, buildings, people, water, and waste (Pedersen Zari 2009), are imperative if regenerative development is to remain viable. This research assumes that the development of hot springs in regional communities can mark a real shift from a transformative perspective to a much more regenerative one (Cave & Dredge 2020).

2.2.7 Tourism in Regional Communities

Tourism plays a crucial role in regional development. Regional development refers to several actions and processes undertaken within a geographical location to support economic, social and environmental progress (Dean, Novianti & Noor 2020). The literature addresses regional development as primarily creating employment, but it also helps create other benefits for industry and the local area (Calero & Turner 2020). Tourism development in regional areas has received increased interest with the need to revive rural communities (Alonso & Liu 2011; Potts 2010). Often, regional agencies and local governments strive to enhance the opportunity to increase tourists’ visitation and consumption of local goods and services. Regional destinations can attract visitors by portraying and selling a cultural, historical, ethnic and geographical connection with the region (Dimitrovski, Todorović & Valjarević 2012). One of the main challenges regional destinations face is finding ways to attract visitors to them.

Problems that are evident in doing this involve geographical location, lack of funds to invest in specific promotional campaigns and limited number of type of attractions to keep visitors interested in staying for an extended period at the destination (Alonso & Liu 2011). Furthermore, effectively managing overtourism in regional destinations is an important aspect that cannot be overlooked. This underscores the complex dual role of Destination Management Organisations and Destination Marketing Organisations (DMOs) in both marketing and managing destinations. It is important for DMOs to balance promoting tourism to attract visitors and ensure sustainable practices to preserve the destination's integrity and prevent degradation. In response to addressing overtourism, several experts have proposed considering sustainable degrowth and developing resilience in tourism as a viable long-term strategy for managing tourism growth (Cheung & Li 2019; Dwyer 2023).

Effectively managing the environmental impact of tourism poses a significant challenge. DMOs are tasked with adopting sustainable tourism practices to protect natural resources and ensure that tourism activities do not adversely affect the environment, which can be a major attraction for visitors. When well-informed, DMOs can greatly enhance destination competitiveness through sustainable tourism practices. For instance, several European destinations have successfully implemented ETIS demonstrating its effectiveness in enhancing destination competitiveness (Font, Torres-Delgado, Crabolu, Palomo Martinez, Kantenbacher & Miller 2023).

Keeping up with changing trends and preferences in the tourism industry requires constant adaptation. DMOs must be agile and responsive to new demands, such as the growing interest in wellness and sustainable tourism, to remain competitive. The role of DMOs is not only to attract visitors to the destination but also to manage resources in all stages of destination development (Kaurav, Baber, Chowdhary & Kapadia 2015; Negruşa & Coroş 2016).

Despite these challenges, tourism remains a critical economic driver for regional development. According to the Australian Trade and Investment Commission's (2023) *Thrive 2030 Strategy* document, the visitor expenditure target has been exceeded with the total visitor economy spend of \$191.4 billion, of which \$79.9 billion was spent in regional Australia. In 2021/22, 107,600 tourism-related businesses were reported to be operating in regional Australia. In Australia, 44% of tourism revenue flows to regional Australia (Deloitte Access Economics 2021), demonstrating how the country's tourism industry is a critical economic driver for regional development. There is also recognition that there are great opportunities for further

development through harnessing the value of cultural and natural assets. At present, Australia's visitor economy largely depends on domestic tourism, which accounted for 64% of the total visitor expenditure in 2019, to leverage and sustain regional economies. To enhance the visitor economy in regional destinations after the pandemic, governments are taking steps to attract and cater to the needs of high-value wellness travellers by investing in several developments to strengthen what is offered tourism-wise in regional places (Tourism Research Australia 2022, p. 47). For example, Metung Hot Springs is one of these developments, now welcoming visitors and generating jobs in regional Victoria (Tourism Research Australia 2022).

Health and wellness are top priorities for travellers, with a 21% increase in participation of wellness activities in 2021-2022 compared to the previous year (Global Wellness Institute 2021; The Australian Trade and Investment Commission 2023). With this number predicted to continue to increase until 2025 (Bendegul & Heather 2022), tourism organisations and governments must formulate a comprehensive strategy to maximise the number of tourists going to regional destinations. *Signature Experiences of Australia* is a strategy devised by Tourism Australia to promote unique wellness experiences and encourage regional dispersion (Tourism Australia 2023). This tourism organisation invites wellness travellers to explore destinations through wellness activities such as Aboriginal guided experiences, luxury lodges, and more. Furthermore, the *Future of Global Tourism Demand* report has identified wellness and wellbeing as megatrends post-pandemic, with hot springs ranking the highest in terms of wellness interest among global travellers (Tourism Australia 2022). Hot springs ranked 5th out of 89 in Australians' interest in tourism experiences, highlighting the significance of wellness tourism throughout the country (Tourism Australia 2022). The growth of the hot springs tourism and the wellness industry is anticipated to boost regional tourism in Australia, considering the number of hot springs projects that are currently in the pipeline (Global Wellness Institute 2021).

While tourism offers immense potential for regional development, it is important for DMOs to navigate the overlapping and sometimes conflicting responsibilities of destination marketing and management. Effective policy and planning must balance attracting tourists with sustainable practices to mitigate risks and ensure long-term benefits for regional communities.

2.3 Hot and Mineral Springs in Tourism

Due to a lack of comprehensive studies on hot springs tourism, a widely accepted definition of the term is yet to be established (Mi, Chen, Cheng, Uwanyirigira & Lin 2019). According to

the authors, hot springs tourism – as the term implies - refers to a leisure activity that takes place at hot springs locations away from one's residence (Mi, Chen, Cheng, Uwanyirigira & Lin 2019). The emerging trend of hot springs tourism offers a unique combination of health preservation, relaxation, cultural immersion, and entertainment. It presents an opportunity to engage with the environment and local community while indulging in activities that promote well-being.

Understanding the motivations behind hot springs tourism is critical for businesses and organisations that are seeking to attract visitors to their hot springs facilities and destination. By catering to the needs and desires of visitors seeking these experiences, businesses and destinations can ensure that their hot springs offerings are both attractive and appealing to potential visitors. Hot springs tourism attract consumers for different purposes (Lo, Wu & Tsai 2015). Research has demonstrated that hot springs visitors in Asia are primarily seeking escape (Mak, Wong & Chang 2009), inner peace, a soothing experience (Kamata & Misui 2015; Mak, Wong & Chang 2009) and tranquillity (Denizci Guillet & Kucukusta 2016). Conversely, visitors from Western countries who visit hot springs tend to prioritise the social aspects of the experience (Liu, Fu & Li 2019).

Academic research has documented a growing interest in the tourism potential of hot springs due to their perceived healing and medical properties. In-depth analyses have been conducted on the medical functions of hot spring locales and their resources, as well as their value. Other research focused on the motivations of visitors to travel (Denizci Guillet & Kucukusta 2016; Loureiro, Almeida & Rita 2013; Mak, Wong & Chang 2009; Nilsen 2013), including their evaluation of spa experiences (Choi, Kim, Lee & Hickerson 2015), and tourist characteristics (Deng 2007). Moreover, researchers discussed macro-level factors that influence hot springs tourism development, such as the regional economy and local ecology (Chen 2014; Kucukusta & Denizci Guillet 2016). For instance, some studies have noted the connection between hot springs and regional economic growth. Additionally, other research has explored the ecological implications of hot spring tourism, highlighting the need for sustainable development in this sector (Wang, Song, Chen & Su 2023). Other scholars studied the advantages and disadvantages of hot springs resorts wherein the focus has been on the services and activities available at such destinations (Chen, Chang & Wu 2013; Chen 2014). While these analyses have improved our understanding of hot springs' tourism potential, they fail to assess their impacts on the environment, users, and the community in which they are located. To gain a

comprehensive understanding of hot springs' growing popularity, it is important to define them, and this is taken up in section 2.3.1 below.

2.3.1 What are hot and mineral springs?

Hot springs and mineral springs differ in temperature, mineral content, and chemical composition (Erfurt-Cooper & Cooper 2009; Hinsdale 1913; Ranjit 2022). Mineral springs are characterised by high levels of dissolved minerals, while 'onsen', the Japanese term for hot springs (Handler & Kawaminami 2023), is characterised by water coming from a spring at a higher temperature than the air of the region in which it is located (Erfurt-Cooper & Cooper 2009; Mi, Chen, Cheng, Uwanyirigira & Lin 2019). A brief explanation on how hot springs are formed is necessary to help formulate the research and be more precise in terms of hot springs' impacts on the economy, environment and the community. Hot springs generally are found in regions where there is volcanic activity due to the interaction of groundwater¹ and molten rock (Erfurt-Cooper 2011; Erfurt-Cooper & Cooper 2009; Erfurt 2021). Volcanic and geothermal activities have attracted visitors for their unique features. Looking at this type of hot spring leads to acknowledging the health and safety aspects, which is essential for the community and visitors (Erfurt-Cooper 2011). However, not all hot springs are related to volcanic activity. Some hot springs are found in areas with large groundwater aquifers² that derive heat from convection, such as the Great Artesian Basin (GAB) in Australia (Erfurt 2021; Lambert & Jenni 2011) amongst others. In section 2.3.2 below the history of hot springs in Australia will be investigated in more detail.

2.3.2 The history of Hot springs in Australia

The history of geothermal spas and hot springs worldwide dates back to early civilisations. It is worth noting that Australia currently has fewer historical records of all hot springs destinations, particularly compared to Europe and Japan (Clark-Kennedy & Cohen 2017; Ranjit 2022). The Great Artesian Basin, discovered in 1878, is a vital source of hot water for Australian hot springs, considering the absence of active volcanoes in the region (Brake 2020; Powell, Silcock & Fensham 2015). This natural feature has piqued the interest of researchers, who continue studying it to understand the country's geological history better. Erfurt (2021a) and Lambert and Jenni (2011) have contributed to our understanding of these facts. The

¹ Groundwater is water obtained from an aquifer or occurring in an aquifer.

² Aquifer is referred to as a geological structure or formation permeated or capable of being permeated permanently or intermittently with water.

Australian Great Artesian Basin (GAB) is one of the largest artesian basins in the world, with eleven artesian basins (Erfurt-Cooper & Cooper 2009) that occupy a quarter of the continent (Erfurt 2021; Lambert & Jenni 2011). GAB covers parts of Queensland, New South Wales, Northern Territory and South Australia (Beardsmore, Davidson, Ricard, Pujol, Larking & Bendall 2020) as illustrated in *Figure 2.2* by Erfurt (2021a, p. 155). The heat from the Earth's molten core or artesian basins, heats groundwater that rises under pressure from an aquifer to the surface through wells or bores (Erfurt 2021, p. 22).



Figure 2.2 The Great Artesian Basin, adapted from Erfurt (2021a).

Despite the discovery of the GAB, only a few thermal locales have been utilised for hot spring bathing, and even fewer for geothermal energy production. However, with the establishment several years ago of the Australian Geothermal Association (AGA) in 2016, Australia's geothermal industry is expected to change significantly. The AGA aims to be the central point in the country for information and discussion about anything related to geothermal energy (Beardsmore, Davidson, Ricard, Pujol, Larking & Bendall 2020).

Geothermal springs found across the globe share comparable characteristics, each of which lends itself to specific utilisation. These unique natural resources provide opportunities to explore their distinct healing properties. Australia's ancient indigenous culture has a long tradition of hot springs bathing, and to this day this activity offers a unique and authentic experience (Sykes 2019). Water is not just a basic necessity for First Nations people; it holds a sacred and cultural significance passed down from generation to generation (Chee 1995; Powell, Silcock & Fensham 2015; Waterwise Queensland 2021). It is deeply rooted in their traditions and has always been a vital part of their lives. Waterways play a significant role in defining linguistic boundaries. Many ceremonial sites that use water are also used for healing and as a source of sustenance (Erfurt 2021; Waterwise Queensland 2021). The profound significance of water sources to one of the oldest societies on earth has been captured in Dreamtime stories. These cultural stories refer to how Aboriginal beliefs seek to explain the formation of the world. They believed that the water from hot and mineral springs had curative properties to make “the sick strong and the strong stronger” (Griggs 2013, p. 159). This led researchers to investigate hot springs' curative and therapeutic benefits (Erfurt 2021b), which will be discussed in the following section.

2.3.3 What are the benefits of hot and mineral springs to their users and the community?

Bathing in geothermal waters has been a well-known ancient wellness practice that garnered significant attention for its healing attributes (Erfurt-Cooper 2010). They are now being investigated more closely by researchers worldwide. Hot springs have long been regarded as natural remedies for various medical and psychological conditions and providing opportunities for recreational activities (Erfurt 2021). For example, the hot springs industry in France and Germany has always been supported by medical professionals that officially recognise the benefits of using hot and mineral springs. The multifaceted benefits of hot springs present a promising alternative approach to conventional treatments for various health or medical conditions. These benefits will be discussed in more detail in sub-sections 2.3.3.1 and 2.3.3.2.

2.3.3.1 Physical benefits of hot springs to their users

Research on the medical benefits of hot springs indicates that patients with cardiovascular diseases, coronary heart disease (Klemenkov, Davydova, Klemenkova & Makushkin 1995), hypertension (Cacciapuoti, Luciano, Megna, Annunziata, Napolitano, Patruno, Scala, Colicchio, Pagliuca & Salvatore 2020; Ekmekcioglu, Strauss-Blasche, Feyertag, Klammer & Marktl 2000), arrhythmia (Klemenkov, Davydova, Klemenkova & Makushkin 1995), and varicose veins (Mancini Jr, Piccinetti, Nappi, Mancini, Caniato & Coccheri 2003) have shown

significant improvement (Wang, Song, Chen & Su 2023). Wang, Song, Chen and Su (2023) recently documented the cardiovascular benefits of hot spring baths, but also raised concerns about the best bathing methods for older adults during seasonal changes in Japan. The study suggests that bathing in hot springs during summer is not recommended because it can significantly increase cardiac stress, while bathing in winter can cause a dangerous drop in blood pressure (Ojima & Ohishi 2023).

Research was carried out in the southern part of Ethiopia to assess the effectiveness of balneotherapy in treating skin conditions like eczema, dermatitis and psoriasis (Gebretsadik 2023). The specific chemical composition and temperature of the mineral springs played a central role in improving the skin conditions of patients, by reducing inflammation, boosting circulation and consequently, improving their overall quality of life (Cacciapuoti, Luciano, Megna, Annunziata, Napolitano, Patruno, Scala, Colicchio, Pagliuca & Salvatore 2020). Patients suffering from psoriasis experienced a marked improvement after 30 days of taking a bath at the hot springs (Gebretsadik 2023; Parish & Witkowski 1994).

According to Zajac (2021), hot springs offer medical benefits for respiratory diseases. There is extensive evidence supporting the use of heat to treat respiratory diseases or viruses. Balneotherapy and aquatic therapy were proven to restore respiratory function and help prevent and treat respiratory diseases (Cohen, Marc 2020; Passali, Gabelli, Passali, Mösges & Bellussi 2017). In their discussions, Shofner and Rogers (1963) stated that the minerals present in natural hot spring water have positive effects on colds or flu-like symptoms, amongst others. Many individuals experiencing chronic musculoskeletal pain often seek alternative therapies such as visiting hot springs. Research has shown that hot spring therapy can help alleviate chronic pain (Clark-Kennedy & Cohen 2017; Ranjit 2022). Individuals with rheumatic diseases can also benefit from hot spring therapy in combination with specific treatments. The mineral composition of hot springs plays a fundamental role in their healing benefits for rheumatism (Vaidya & Nakarmi 2020). While the therapeutic properties of hot springs have long been established in the medical field with evidence-based physical benefits, it also offers psychological benefits to their users, which are discussed below.

2.3.3.2 Psychological benefits of hot springs to their users

Comparatively little attention has been paid to the psychological benefits of hot springs for both users and the community, as opposed to the medical benefits. Research evidence supports the efficacy of hot springs in alleviating stress, anxiety, and depression (Mooventhan &

Nivethitha 2014), and in promoting relaxation, improved digestion (Mooventhan & Nivethitha 2014; Ranjit 2022; Tiwari 2022), better sleep (Tiwari 2022) and overall wellbeing (Cohen, Marc 2020; Lin 2014). Toda, Makino, Kobayashi and Morimoto (2006, 2008) tested cortisol levels as a stress marker and discovered that prolonged stays at hot springs spas or resorts can yield benefits that vary based on individual lifestyles. The healing power of hot springs is attributed to the presence of minerals and other natural substances in the water, which have a profound impact on the body and mind. A recent study done in Japan revealed that individuals with hot spa bathing habits will have better mental health and this was positively correlated to satisfaction (Takeda, Nakamura, Otsu, Mimori, Maeda & Managi 2023). A study conducted in Taiwan examined the correlation between the experience of hot springs tourists, quality of friendship and happiness (Chen & Li 2020). The study concluded that tourists with stronger friendships experience higher levels of happiness. It is, however, imperative to note that the potential psychological advantages of hot springs warrant further investigation.

2.3.3.3 Benefits of hot springs to the community

Hot springs are known to exert a positive impact not only on bathers but also on the communities that surround them. These locales offer a wide range of benefits, including therapeutic and recreational opportunities, which attract visitors from all over the world. For this reason, it is essential to recognise the value of these natural resources and to support sustainable development for the benefit of all stakeholders.

In the realm of hot springs tourism, the involvement of the local community is of paramount importance. Collaboration between businesses and local communities is vital for ensuring the sustainability and success of tourism initiatives. Community participation provides a platform for local voices to be heard, enabling them to play an active role in shaping tourism practices that align with their unique cultural and economic needs. Active participation by the community can help ensure that the hot springs are managed in a responsible and sustainable way, while also benefiting the local economy (Lee & King 2008). It is highly advantageous to integrate local communities into the decision-making processes so that the community is empowered and has a say in what is proposed (Bai, Nugroho, Darmadji & Julitasari 2021; Hiwasaki 2006). Furthermore, engaging with the local community can enhance residents' quality of life and contribute to their well-being and the well-being of their culture and environment (Asker, Boronyak, Carrard & Paddon 2010). The active participation of the local community in biodiversity conservation strategies is critical to environmental management of the destination (Lee & King 2008; Tumbaga, Hipolito & Gabriel 2021). Additionally, hot

springs can offer a chance to cultivate strong and resilient communities (Cohen, M. 2020). By engaging with local communities, tourism stakeholders can foster a sense of inclusivity, respect, and trust, which are essential ingredients in building long-lasting relationships and promoting sustainable tourism practices (Wells, Lehigh & Vidmar 2020; Wondirad & Ewnetu 2019).

The economic and social impact of hot springs on the communities in which they are located cannot be overstated (Cohen 2020; Erfurt 2021; Lee & King 2008). They create employment opportunities, generate revenue, and raise property values, thus contributing to the overall growth and development of the region (Erfurt 2021). These benefits extend beyond the immediate vicinity of the hot springs and can have a ripple effect on the entire local economy. The development of hot springs as part of the wellness tourism industry should prioritise the enhancement of local community health and wellness, thereby promoting an improved quality of life. One critical challenge is to prove the benefits of hot springs on the health and well-being of its visitors and communities which will be discussed in the following sub-sections.

2.3.3.4 Impact of Hot Springs on Communities

The presence of hot springs can be a significant factor to greatly enhance the attractiveness of a tourist destination. However, it is important to recognise that such features may also result in certain downsides that need to be carefully assessed. While these natural features can certainly bring about many positive changes for smaller communities, it is also possible that they could seriously undermine the quality of life and well-being of local residents. In particular, if residents are excluded from benefiting from these developments, this can create a sense of inequality and disquiet in the community (Soltani, Moradi Kashkooli, Souri, Rafiei, Jabarifar, Gharali & Nathwani 2021; Stevens, Azara & Michopoulou 2018). Issues such as noise pollution, increased traffic, overcrowding, littering, and damage to the physical and historical environment can lead to resentment among local residents towards tourists (Hoole 2000). This, in turn, could result in a decline in tourism and overall visitor attractions in the area. Therefore, it is important for hot springs businesses to take proactive measures to ensure that any negative impacts that put the local community at risk, are mitigated as much as possible.

2.3.3.5 Impact of Hot Springs on Visitors

While hot springs can offer a pleasant experience, it is crucial to consider their sensitivity to human activity and potential for contamination. Preserving the quality of these natural wonders is paramount to ensuring the safety and well-being of visitors (Erfurt 2021). Various factors

such as overcrowding, impure water, unfavourable temperature, and excessive chlorination can detract from the enjoyment of hot springs (Clark-Kennedy & Cohen 2017). While most studies highlight the positive effects of hot springs on visitors and communities, it is equally important to acknowledge the potential dangers. Later on, the discussion will focus on how developing indicators can assist in identifying issues related to hot springs.

2.3.4 Development of hot springs in regional destinations

Can tourism centered around thermal or hot springs serve as a catalyst for regional development? Hot springs possess unique attributes that can function as a powerful catalyst for regional development. In most cases, hot springs are situated in protected or secluded areas, thereby enhancing their appeal as well as their destinations (Lee & King 2009). Hot springs developments are said to stimulate regional development leading to destination competitiveness. They offer a range of benefits to the location in which they are situated such as job creation, development of infrastructure, increased income, visitor numbers, and sustainable development (Clark-Kennedy & Cohen 2017; Erfurt-Cooper & Cooper 2009; Peris-Ortiz & Álvarez-García 2014; Wang & Lin 2021). Additionally, hot springs are known for their therapeutic properties (see section 2.3.3), which can be beneficial to the community's physical and mental health (Global Wellness Institute 2018).

Cultural development, diversity, and inclusion initiatives can also be fostered by the presence of hot springs. Moreover, hot springs can wield a positive impact on the environment by promoting conservation and preservation of natural resources. This can be achieved through sustainable management practices, such as the use of renewable energy sources. Hot springs can provide visitors with a unique and authentic experience of a region's cultural and natural heritage. This, in turn, can enhance the overall competitiveness of a destination and attract more visitors, resulting in increased economic benefits for the region. Due to the uniqueness of hot springs attributes, destination management strategies are critical to achieve environmental and economic sustainability (Lee & King 2009).

Consequently, the development of hot springs should be carefully planned and executed, considering the needs and interests of local communities and stakeholders, as well as the region's environmental and cultural sensitivities. The emergence of health-conscious travellers has elevated the potential for hot springs to bring about socio-cultural changes to a tourism destination. However, despite speculation that hot springs generate a competitive advantage as far as regional destination development is concerned, research on how and to what extent these

benefits accrue is limited (Erfurt 2021). Additionally, compared to other countries, the impacts of hot springs development in regional Australia have not been extensively studied. Given this situation, the aim of this thesis is to investigate this phenomenon in further detail.

2.4 Chapter Summary

Chapter 2 provided a literature review that begins by defining wellness and introducing the concept of tourism in the wellness industry. This is followed by an overview of the wellness tourism industry as a relatively new phenomenon. As well, the chapter explored the significance and evolution of spa tourism and regenerative tourism. Furthermore, the impact of tourism in regional communities is identified, with a particular emphasis on the wellness tourism industry leading to the introduction of hot and minerals springs in tourism. The chapter defined hot and mineral springs highlighting their importance and their role in a destination. This sheds light on the history of hot springs in Australia, revealing a lack of research on hot springs tourism.

As elaborated in this chapter, hot springs hold tremendous potential for regeneration. The thermal water that emanates from these naturally occurring springs is rich in minerals that can rejuvenate and revitalize the body. This makes hot springs an attractive option for those seeking to improve their health and well-being. The effects of hot springs on their users and the community was reviewed here, leading to a discussion on the development of indicators to measure and assess these impacts.

The importance of sustainability in the tourism industry has led to the development of indicators that are crucial for monitoring strategies and assessing progress towards attaining sustainability. A thorough review of the indicators schemes used in the tourism industry and its issues was outlined. The importance of developing indicators that are specific, measurable and easy to understand to stakeholders was also highlighted. An apparent lack of indicators to measure and assess the impacts of hot springs on the community, environment and economy was identified. Finally, the rationale for developing indicators specific to the hot springs industry was outlined. Overall, the potential of hot springs as a regenerative therapy is immense, and further research in this area could lead to significant advances in the field of wellness tourism. The following chapter will describe the methods and approach chosen to investigate the aims and objectives of this thesis as outlined in Chapter 1.

Chapter 3 – Indicators

3.1 Introduction

The tourism industry has experienced significant growth in recent years, but it has also introduced several problems and threats to sustainability. Scholars have addressed this issue in many studies, highlighting the need to develop tools or strategies to measure these impacts for effective management and policy development. In light of the adverse effects that tourism can actually create, indicators of sustainability become important management tools. Given the crucial role of tourism in many countries' economies, a proactive approach in implementing effective strategies to minimise challenges while promoting growth and development is important.

This chapter aims to demonstrate the importance of indicators and review indicator schemes devised for the tourism industry. Socio-cultural, environmental, and economic indicators are individually discussed, as well as how each can be measured. Given that wellness and hot springs tourism represent a relatively new phenomenon, the available indicator schemes were not appropriate for use. Hot springs offer a variety of benefits related to health, wellness, recreation and culture. They also have the ability to attract visitors to remote destinations to showcase their geodiversity and geoheritage, providing a multi-dimensional experience that combines natural, cultural and spiritual elements. However, they also encounter challenges such as environmental degradation and the damage wrought by climate change, which require sustainable management policies and procedures to be in place. Given these unique attributes and challenges, hot springs distinguish themselves from other types of tourism and must be evaluated using appropriate measures to assess their impact on the economy, environment and community. Finally, this chapter reviews the importance of validity and reliability in data collection.

3.2 Indicators

Indicators are a tool for measuring progress and change to achieve specific outcomes in the tourism industry (World Tourism Organization 2004, p. 8). They are also defined by Farrell and Hart (1998, p. 7) as "something that provides useful information about a physical, social or economic system usually in numerical terms". Their fundamental purpose is to provide destinations and businesses with an understanding of their current position, direction, and progress towards their desired objective (Farrell & Hart 1998; Hart 1997; Miller 2001). Indicators are instrumental in producing quantifiable outputs, thus enabling destinations and

businesses to measure their progress in achieving their goals (Miller 2001). The development of indicators relies heavily on progress, yet identifying meaningful and measurable indicators can present a challenge that may inhibit progress.

In the pursuit of sustainable tourism development, indicators have been increasingly utilised to quantify sustainability for destinations and businesses (Gasparini & Mariotti 2023; Hunter 1997; Ivars-Baidal, Vera-Rebollo, Perles-Ribes, Femenia-Serra & Celdrán-Bernabeu 2023; Rasoolimanesh, Ramakrishna, Hall, Esfandiar & Seyfi 2023). Indicators help to: firstly, simplify and structure large amounts of information (Gudmundsson 2003); and secondly, enable decisions to be made based on scientific knowledge (Holman 2009). However, the process of refining such indicators is both complex and contentious, owing to the involvement of various stakeholders in the relationship between tourism and sustainability and this requires careful navigation (Ivars-Baidal, Vera-Rebollo, Perles-Ribes, Femenia-Serra & Celdrán-Bernabeu 2023). In order to retain the essence of the term 'sustainable' and effectively evaluate the impact of tourism, it is imperative to utilise appropriate indicators, as suggested by Butler (1999) and Tanguay, Rajaonson and Therrien (2013).

The proliferation of sustainable indicators has been the subject of much criticism, mainly due to the overwhelming quantity of indicators in circulation. The World Tourism Organization (2004) recommended that the ideal number of indicators should fall between 12 and 24. It was argued by Sors (2001) that between 20 to 50 indicators are appropriate. Using less than the recommended number of indicators is unrealistic because it fails to encompass all relevant aspects, whereas exceeding 100 is impractical (Agyeiwaah, McKercher & Suntikul 2017). With the lack of consensus among scholars on an appropriate number of indicators, it is necessary to focus on a small yet meaningful list of indicators. Additionally, well-developed indicators help detect sustainability issues besetting a destination, in order to ensure informed decisions are made so that sustainable tourism development at the destinations is viable (Asmelash & Kumar 2019).

3.2.1 Indicators developed in the tourism industry and regional destinations.

Several distinguished agencies have actively participated in formulating sustainable development indicators (Miller 2001). Among these important organisations are the United Nations Environment Programme (UNEP), United Nations Development Programme (UNDP), The World Bank, Institution of Sustainable Development (IISD), World Tourism Organisation (WTO), and The European Environment Agency (EEA), among others. Some sustainable

indicators developed by the above-listed organisations are of paramount importance in identifying and measuring the impact of tourism at a global, national, and destination level. These include Sustainable Tourism Indicators (STIs), Green Economy Indicators, and the European Tourism Indicators Scheme (ETIS) (European Union 2016; Law, DeLacy & McGrath 2017; World Tourism Organization 1996). *Table 3.1* summarises multiple indicator schemes that have been developed in the tourism field. These encompass social, economic and environmental indicators.

Sustainable tourism indicators are an increasingly important tool for assessing and managing the impacts of tourism on local economies, environments, and communities. The indicator reference is extensive, allowing destination managers to select issues most pertinent to their destination and apply them. Developing sustainable tourism indicators involves various approaches, including scientific, academic and policy-maker approaches. The scientific approach requires technical assessment methods, while the policy-maker approach requires stakeholder consensus and is understood by locals (Rasoolimanesh, Ramakrishna, Hall, Esfandiar & Seyfi 2023). Measuring and assessing the impacts of tourism requires a scientific or academic approach, which has led to the emergence of various sets of indicators attempting to quantify sustainability, especially at a destination level (Rasoolimanesh, Ramakrishna, Hall, Esfandiar & Seyfi 2023; Tanguay, Rajaonson & Therrien 2013).

The United Nations Environment Programme (UNEP) is an information tool to help monitor the progress of the Sustainable Development Goals (SDGs) related to environmental matters. Some of the topics this scheme covers are climate change, resource efficiency, ecosystems management and chemical and waste management (United Nations Environment Programme 2022b). The goal of UNEP is to help stakeholders measure and report their environmental performance, identify areas of opportunities and risks and align their practices with the SDGs. While the SDGs seek to address global challenges and create a better world for all, there are some challenges associated with using UNEP indicators to monitor progress (United Nations Environment Programme 2022a). Nonetheless, some indicators require complex data collection, analysis and interpretation, making it challenging for developing countries and non-expert audiences to understand.

The green economy indicator framework aims to promote sustainable production processes and consumption practices by implementing green economy policies. As the global concern for sustainability and environmental issues continues to grow, the tourism industry has faced

increased scrutiny regarding its environmental impact. To address this, green economy indicators have been devised to assess the degree to which tourism activities are "greened" (Law, DeLacy & McGrath 2017, p. 1436). These indicators consider various factors such as energy and water consumption, waste management, and carbon emissions to measure the sustainability of tourism activities. By using these indicators, policymakers and businesses can gain insights into the environmental impacts of their tourism-related activities and take proactive steps to reduce their environmental footprint. However, evaluating the 119 indicators across 52 components can be demanding and time-consuming, given the extended value chain and dynamic nature of tourism flows. Nevertheless, this approach provides a comprehensive understanding of the industry's challenges and can guide efforts to promote sustainable tourism practices and achieve environmental sustainability.

ETIS, which is an acronym for "European Tourism Indicator System", is a tool for what is known as sustainable destination management. With its 43 indicators and several supplementary indicators, ETIS offers a framework for reflecting on the impact of tourism on the local economy, environment, and community at a destination level (European Union 2016; Gasparini & Mariotti 2023). While this indicator scheme is mostly suitable for most destinations and not businesses, it is not a 'one size fits all' solution. Collecting and analysing the data required by this scheme can be time-consuming and expensive, especially for destinations with limited resources and capacities. Additionally, adapting the indicators to fit the specific context and needs of each destination can pose a challenge. This is because each destination has its unique set of sustainability issues and governance policies requiring a personalised approach (Rasoolimanesh, Ramakrishna, Hall, Esfandiar & Seyfi 2023). Therefore, having a valid, reliable, and unique set of indicators is necessary for attaining sustainability goals in the tourism industry.

Table 3.1 A review of indicator schemes

| <i>Indicator Schemes</i> | <i>Study setting</i> | <i>Number of indicators</i> | <i>How can the indicators be assessed?</i> | <i>Suitability for the study?</i> |
|--|-----------------------------|-----------------------------|--|--|
| <i>United Nations Environment Programme (UNEP)</i> | General tourism destination | 25 SDGs indicators | <p>The United Nations Environment Programme (UNEP) is the leading environmental authority which has helped track major environmental issues over the years (Elkins, Gupta & Boileau 2019).</p> <p>The aim of this programme is to minimise the impact of climate change and to constantly review major environmental trends at the global and regional levels.</p> | <ul style="list-style-type: none"> ➤ One of the main challenges of using a universal indicator framework is that it may not be applicable to specific destinations. ➤ For example, hot springs destinations may have very different environmental circumstances which need to be assessed. |

Sustainable Development Goals (SDGs)

General tourism destination

17 goals with 169 targets and 247 indicators

The aim of this development agenda is a universal call for action to make the right choices to eradicate poverty, protect the planet and improve the quality of life in a sustainable way (United Nations 2020)

- Not an indicator framework but a universal goal to achieve by 2030.
- Can be used as a guideline for developing indicators for hot springs destinations.



A roadmap to achieve sustainability together.

| | | | | |
|---|-----------------------------|-------------------------------------|--|--|
| <i>Green economy indicator framework</i> | General tourism destination | 119 indicators across 52 components | Developed for tourism destinations and referred to the global strategy framework surrounding Rio+20 (Law, De Lacy, Lipman & Jiang 2016; Law, DeLacy & McGrath 2017). | <ul style="list-style-type: none"> ➤ Green economy indicators may not be applicable to other destinations. ➤ It is recommended to use the full framework while assessing green growth in destinations. ➤ The use of 119 indicators may be impractical and time-consuming for businesses/destinations to measure and assess each year. |
|---|-----------------------------|-------------------------------------|--|--|

| | | | | |
|---|-----------------------------|---|---|--|
| <i>European Tourism Indicators System (ETIS) 2016</i> | General tourism destination | 43 core indicators with supplementary indicators. | ETIS was designed to assess and measure the impact of tourism on a destination (European Union 2016). | Mainly developed for European destinations and requires an advanced level of access to data. |
|---|-----------------------------|---|---|--|

It is a management tool which promotes development.

Indicators are divided into four categories as follows:

- Destination management
- Economic value
- Social and cultural impact
- Environmental impact.

The various indicator schemes presented in *Table 3.1* provide a comprehensive framework to measure and monitor socio-cultural, environmental and economic dimensions of sustainable development. Yet, they also encounter several challenges that limit their effectiveness and usefulness in the context of hot springs tourism and development. In the following section, a discussion of guiding principles for establishing a reliable framework for measuring performance will be delivered.

Current tourism performance measures tend to focus solely on the industry's economic benefits, disregarding its wider impact on society and the environment. However, adopting a sustainable approach is important, especially from a green economy perspective that considers the sustainability pillars of 'people, planet, and profit'. Australia's Visitor Economy has established a performance measurement framework incorporating economic, environmental, and socio-cultural indicators (Whittlesea, Becken, Jago & Pham 2019). Incorporating indicators that evaluate past performance with reference to a strategy and offer guidance on future trends and expectations is vital. Furthermore, stakeholder engagement plays a key role in developing and designing an indicator framework, since it provides valuable insights into the issues and opportunities faced by the tourism industry.

Whittlesea, Becken, Jago and Pham (2019) employed guiding principles to assist with the selection of a new indicator framework and these are: *relevant, repeatable and timely, reliable, credible and well-defined* and *understandable*. The authors acknowledged the importance of the visitor economy as a significant contributor to the Australian economy, for example by creating jobs through investment and growth in communities. These developed indicators were made easy to use and for government and industry partners to understand. To provide an effective policy tool, the design and choice of indicators the authors developed were to define, measure and improve performance as well as to encourage accountability (Whittlesea, Becken, Jago & Pham 2019).

It should be noted that amidst the criticism that sustainable indicators have attracted, it is important to recognise that these metrics continue to be implemented (Agyeiwaah, McKercher & Suntikul 2017). The implementation of these benchmarks underscores a dedication to nurturing a tourism sector that is environmentally sustainable, socially and culturally responsible, and economically robust. With this in mind, at present, there are no indicators to evaluate the socio-cultural, environmental and economic impacts of hot springs on its community and destination. Hot springs offer distinct advantages for tourism and can benefit

local communities, particularly those in remote and rural areas, by promoting health, wellness, culture and recreation. They can also attract visitors to remote regions, highlighting their geodiversity and geoheritage, and offering a rich, multi-dimensional experience that blends natural, cultural and spiritual elements (Erfurt 2021b). Nonetheless, hot springs are not without their challenges, such as environmental degradation and the impact of climate change. Therefore, sustainable management and development are important. While *Table 3.1* provides valuable guidance for indicator frameworks, given hot springs' unique properties and challenges, it is worth noting that there is a need for a specific set of metrics to measure hot springs' effect on the local community and destination as a whole. The following sections discuss the socio-cultural, environmental and economic indicators.

3.3 Socio-cultural indicators

Compared to environmental and economic aspects, the socio-cultural aspect of sustainability is often disregarded in debates on tourism issues (Asmelash & Kumar 2019; Dauti, Dauti, Krasniqi & Nishiqi 2021). This represents a worrying gap in our knowledge given that the tourism industry wields significant influence on the socio-cultural fabric of a destination. The presence of tourists and visitors can bring about several changes that affect the residents' quality of life and the host community's culture (Hashimoto 2002; Öznalbant & Alvarez 2020; Zhuang, Yao & Li 2019). Such changes may include alterations in traditional values, norms, and identities, which can profoundly impact the local population (Hashimoto 2002; Swarbrooke 1999). It is critical to acknowledge that this dimension of tourism sustainability requires greater attention as it has significant implications for local communities' welfare and cultural heritage.

Socio-cultural indicators comprise a complex and multifaceted domain that necessitates a location-specific analysis, particularly if measuring cultural aspects of economic development. In some cases, cultural indicators are not easily transferable because they reflect the unique context and values of each society. These indicators shed light on the numerous issues a destination confronts and provide insights into diverse aspects of the quality of life for residents and visitors. Hence, it is necessary to recognise the inherent heterogeneity of socio-cultural indicators while formulating effective strategies for tourism development.

Developing socio-cultural indicators poses a challenge due to four unique issues specific to this domain (Smith 1978). These indicators measure the social and cultural aspects of human development, such as identity, diversity, participation, values, norms, and traditions, and are critical in understanding the quality of life, well-being, and sustainability of different

communities. Firstly, the development of a universal framework for socio-cultural indicators is a challenging process given that socio-cultural conditions are context-dependent. For example, the socio-cultural conditions of the hot springs community in Australia may be different from those in the United States due to their unique history, culture and social structure. On the other hand, community involvement is often an important component of socio-cultural sustainability and may aid in the development of socio-cultural indicators (Roberts & Tribe 2008).

Secondly, socio-cultural indicators are multidimensional, requiring a comprehensive approach that takes into account various aspects of human development. It is important for these indicators to capture the social and cultural impacts of tourism, encompassing the perspectives and beliefs of both local communities and tourists, the community engagement and empowerment in tourism strategy, decision-making, the protection and enhancement of local culture and heritage, and the well-being of inhabitants. The challenge is to ensure that these indicators are accurately measured.

Thirdly, defining and measuring culture as a dynamic and holistic system that interacts with other systems can be challenging (Roberts & Tribe 2008; Smith 1978). Culture is a complex and multifaceted phenomenon requiring a different approach to understand and measure its impact accurately. Fourthly, socio-cultural indicators are dynamic, requiring ongoing monitoring and evaluation if they are to remain relevant and practical. As culture evolves or changes over time, what may be considered relevant and useful today may no longer be applicable tomorrow (Land 1971; Roberts & Tribe 2008). Nonetheless, socio-cultural indicators may present a challenge for policymakers as they may not always provide clear and direct implications for actions. Furthermore, they may challenge established views and stakeholders' interests, leading to potential resistance to their adoption.

The development of socio-cultural indicators demands a multidisciplinary, systemic, and critical approach (Smith 1978). Such an approach can help accurately reflect the richness and diversity of human cultures and societies. By taking a comprehensive approach, socio-cultural indicators can be more inclusive and representative of the communities in question. This approach will be beneficial in a business or academic setting, providing a more accurate understanding of socio-cultural impacts.

Extensive literature has documented both the positive and negative socio-cultural impacts of tourism. For example, Zhuang, Yao and Li (2019) and Dauti, Dauti, Krasniqi and Nishiqi

(2021) have identified some of the positive impacts in the world's different countries and regions, which include improved infrastructure, faster transportation, increased employment opportunities, a better environment, enhancement of the region's image, promotion and preservation of local culture and cultural heritage, more events for local people to attend, an improvement in residents' quality of life and sense of pride felt for the region (Öznlbant & Alvarez 2020).

At the same time, tourism development can exert negative socio-cultural impacts on local communities, threatening the quality of life for residents. These circumstances may include an increase in unlawful acts, traffic congestion, changes to the local culture, and concerns about the sustainability of development in the region (Dauti, Dauti, Krasniqi & Nishiqi 2021; Zhuang, Yao & Li 2019). While assessing the socio-cultural impact of tourism, it was noted that relatively little attention was given to the spa and hot springs tourism industry despite its potential for generating socio-cultural benefits.

3.4 Environmental indicators

The concept of environmental sustainability was defined by Goodland (1995, p. 10) as "the maintenance of natural capital", which seeks to improve human welfare by controlling consumerism, waste, population growth and putting an emphasis on using renewable sources. While growth is inevitable and indeed is what is ultimately measured, it gives an urgency to ensuring that sustainability of an industry is retained (Moldan, Janoušková & Hák 2012). Over the years, concerns have spread globally on the reporting of environmental issues, and this has proliferated due to international and national regulations (Bockstaller & Girardin 2003). It has in turn led to an increasing number of environmental assessment reports and initiatives to counter the effects of tourism on the destination and host community (Niemeijer & De Groot 2008). Environmental protection and critical environmental issues are top priority global issues for most organisations. For example the UNEP Conference made a global call for action in 1992, followed by essential initiatives to realise environmental sustainability (Lemos & Giacomucci 2002).

Environmental indicators are an important tool to evaluate the evolving state of the environment and policies designed to promote or save it (Smeets & Weterings 1999). They measure human activities' effects on the environment, ecosystems and other related components. Setting environmental targets drives action, offering valuable insights to

policymakers to guide their decision-making processes and monitor and evaluate their policies in meaningful ways. Most environmental indicators are commonly classified using the causality chain consisting of three possible approaches: environmental stress, state of the environment or societal responses (Bakkes 1994; Niemeijer & De Groot 2008; Smeets & Weterings 1999). Environmental stress involves direct and indirect pressures on the environment. It is caused by social and economic practices that are very damaging, such as continual emissions of pollutants and carbon, and the creation of much waste as direct pressures; meanwhile population growth and economic development function as indirect pressures (Hughes 2002; Smeets & Weterings 1999). Climate change and adequate conditions for biodiversity and resource availability are examples of the environment changing due to the huge stresses put on it (Smeets & Weterings 1999). Some examples of indicators are greenhouse gas emissions and the amount of resources consumed each day (Gatersleben & Griffin 2017).

The state of the environment refers to its quality and the impacts of certain factors on it. Some indicators that can be used to measure them include the quality of air, water, and biodiversity. Actions are often taken to prevent, mitigate or adapt to environmental problems once the quality of the environment has been identified. Hence, societal responses should take the form of valid policies and practices. Impacts on human health and ecosystems are a driving force that elicit societal responses through adaptation, preventive and curative actions (Smeets & Weterings 1999). For instance, hot springs possess unique properties that significantly influence the local environment. They require proactive monitoring due to their sensitivity to changes in temperature, precipitation, and land-use in tracking the effects of climate change and human activity on the environment. As well, they offer opportunities for renewable energy generation and can generate important insights into natural ecosystems. Hence, when developing environmental indicators, it is key to consider these three possible approaches.

There is increasing interest in sustainable tourism which can be reflected through various environmental indicators. These measures include climate change mitigation, pollution reduction, use of renewables, waste disposal, water consumption, sustainable practices (Lee, Jan & Liu 2021; Streimikiene, Svagzdiene, Jasinskas & Simanavicius 2021; World Tourism Organization 2004), biodiversity conservation, percentage of forest cover and degradation of natural resources such as parks (Rasoolimanesh, Ramakrishna, Hall, Esfandiar & Seyfi 2023). Many themes are covered by these indicators: energy, solid waste, water usage, emissions, contractors, and suppliers. Agyeiwaah, McKercher and Suntikul (2017) suggested adding

energy conservation as a theme, as it was identified as a minor issue in previous studies. Notably, many of these measures seek to reduce consumption, as highlighted by Lemos and Giacomucci (2002).

Although some authors may argue that the challenge of environmental monitoring is determining the most effective indicators (Mayer 2008; Niemeijer & De Groot 2008), the real challenge lies in selecting and applying indicators in a way that is relevant, accurate, timely, clear and comparable. Historical practices, regulatory requirements, and expert opinions have been the primary drivers in determining and validating the most appropriate indicators (Bockstaller & Girardin 2003; Bossel 2002). While these methods have proven to be valuable, it is important that the selected indicators accurately represent the status of the environment and contribute to the overall understanding of environmental conditions.

Most importantly, it is a priority to effectively communicate the scientific concepts underlying environmental indicators, as this validates their application in the industry whose stakeholders may lack the relevant scientific expertise (Dale & Beyeler 2001). These stakeholders can efficiently monitor, evaluate, and improve their environmental performance by clearly conveying the fundamental concepts and metrics associated with environmental indicators. Such strategies would ensure that these indicators are widely implemented to promote sustainable practices, reduce damage being done to the environment, but at the same time improve overall profitability in the tourism sector.

3.5 Economic indicators

The rapid growth of the tourism industry has made a significant contribution to the economic development of both individual destinations and to the GDP of regions and countries. Unsurprisingly, the dominant motive for tourism development in a destination is to make economic progress (Sinclair 1998; UNWTO 2013). With the influx of visitors and significant infrastructure investments, tourism can greatly improve the economy, the community and the environment if it is managed in the right way. It is worth noting, however, that economic indicators are often prioritised over all others and are more readily quantifiable than environmental and socio-cultural indicators.

Economic indicators are fundamental in managing tourism growth while maximising benefits without seriously damaging the natural, cultural and social environments. Economic indicators measure tourism's contribution to the economy by assessing the direct and indirect influence generated by the production of goods and services as a result of what tourists demand

(Burghelea, Uzlău & Ene 2016). Some conventional indicators deployed to measure tourism's contribution to the economy include the number of tourist arrivals, average length of stay, tourist expenditure, tourism revenue, tourism employment, and tourism's contribution to the GDP (Agyeiwaah, McKercher & Suntikul 2017; Asmelash & Kumar 2019; Miller 2001; World Tourism Organization 2004). Additionally, at a regional level, household income is a crucial driver of the financial security of the community (Turvey, Knight & Wosnitza 2009). It indicates the general well-being and material wealth of residents living in a regional/tourism destination.

Tourist expenditure is the money tourists spend during their visit to a destination. It includes spending on accommodation, food and drink, transportation, and other goods and services. The measurement of tourist expenditure became a critical economic driver used by stakeholders in the industry (Aguiló, Rosselló & Vila 2017). Tourism revenue refers to the total receipts accumulated from tourism activities, including domestic and international holidays. Tourism's contribution to GDP refers to the percentage of GDP generated by tourism activities. Moreover, improved economic performance, life expectancy, and population growth are important factors that can help to assess a destination's economic viability and sustainability.

Tourism employment refers to the number of jobs created by tourism activities, both directly and indirectly. Agyeiwaah, McKercher and Suntikul (2017) reviewed several studies that have proposed indicator themes to provide a benchmark for businesses. The authors identified the importance of assessing job creation as an economic indicator regarding the number of jobs created and the quality of jobs. Miller (2001) and Asmelash and Kumar (2019) suggested that job creation should also prioritise job opportunities for locals. With these issues in mind, measuring economic indicators is crucial for understanding tourism's economic benefits and developing policies promoting sustainable tourism development. Economic indicators are also helpful in comparing the economic impact of tourism across different destinations and monitoring changes in the tourism industry over time.

The tourism industry has been extensively researched, resulting in much literature on economic indicators (Rasoolimanesh, Ramakrishna, Hall, Esfandiar & Seyfi 2023). Nevertheless, concerns have arisen regarding the applicability and relevance of these indicators to industry organisations and destinations. This underscores the importance of critically evaluating economic indicators at regional and organisational levels within the industry (Agyeiwaah, McKercher & Suntikul 2017; Rasoolimanesh, Ramakrishna, Hall, Esfandiar & Seyfi 2023).

When assessing the extensive list of economic indicators in the tourism industry, it is essential to focus on specific, meaningful and enterprise-specific indicators to suit the hot spring tourism industry (Agyeiwaah, McKercher & Suntikul 2017). Such an evaluation would ensure that the selected indicators are appropriate for measuring the economic performance of the hot spring tourism industry and stakeholders can easily use them to make informed decisions.

3.6 Indicator Selection

To ensure a well-informed selection process, it is necessary to have a comprehensive understanding of: firstly, the destination's natural and cultural environment; secondly, the magnitude of the tourism industry's effect on the destination; and thirdly, the measures taken to mitigate its consequences (UNWTO 2013). Once indicators are chosen, they can also serve as a benchmark to define tolerable limits, making it easier to monitor progress and assess the effectiveness of the indicators.

Several scholars and institutions propose various indicator selection criteria. Tanguay, Rajaonson and Therrien (2013) identified the applicability of indicators to specific destinations as a criterion, which included the validation of indicators by stakeholders. Other scholars proposed additional criteria such as time perspective, policy relevance (Miller 2001), geographical location, ease of understanding, limited number, and stakeholders' participation (Asmelash & Kumar 2019). While it seems paradoxical for indicators to rely on policy relevance when the aim of developing indicators is to make the policy, its function is to measure the discrepancy between the current and desired position (Miller 2001). Having the support of stakeholders to identify and select indicators has been highly recommended by prior research (Gasparini & Mariotti 2023; Miller 2001; Rasoolimanesh, Ramakrishna, Hall, Esfandiar & Seyfi 2023; World Tourism Organization 2004), as it makes informed decision-making possible and monitors industry progress in achieving goals. Doing so will create awareness and encourage stakeholders to take a more active role in implementing these indicators (Spencer & Sargeant 2022). However, as noted in section 2.4, selecting too many indicators may be impractical, while selecting too few may be unrealistic (Asmelash & Kumar 2019; World Tourism Organization 2004). Effective indicator selection ensures that the chosen indicators provide meaningful insights into the tourism industry's performance and impact.

3.6.1 Reliability of Indicators

The reliability and accuracy of indicators is an important consideration in indicator selection (Miller 2001). In fact, the credibility of these indicators is paramount in gaining public support.

To attain this objective the data must be reliable, valid and consistent. Determining the reliability of indicators involves assessing the consistency of results obtained from repeated administration of the same instrument at the same site over time (Spencer & Sargeant 2022). Given the variability in techniques employed in research to create and gauge indicators, the approaches utilised to evaluate reliability may also differ. One approach to improving the reliability of qualitative indicators is to involve more experts in the process, as expert judgment can enhance their validity. Nevertheless, limited evidence exists to support a positive correlation between the number of experts involved and the reliability and validity of indicators (Fallah & Ocampo 2021; Powell 2003). Moreover, the expertise of professionals in the field of research can also serve to assess the reliability of indicators, which will be further explored in Chapter 4.

3.6.1.2 Validity of Indicators

Validation is a further step in the development of reliable indicators, but how validity is determined is subject to debate. Types of validity identified in quantitative research are face validity, content validity and construct validity (Spencer & Sargeant 2022; Vu 2021). Face validity allows stakeholders to assess the significance of individual indicators on a scale and identify any missing ones. Content validity determines whether the indicators cover the most important aspect of what needs to be measured. Finally, construct validity can be assessed by testing the indicators in a region that is being studied (Spencer & Sargeant 2022).

In tourism research, construct validity can be evaluated in various ways, such as testing the indicators against other measures of the same or different constructs, or by seeking feedback from experts or stakeholders in the field of research on the validity and relevance of the measurement instrument. In contrast, qualitative researchers adopt a more flexible approach to assess validity, such as trustworthiness or credibility, which is determined by methodological triangulation or by soliciting feedback from experts (Vu 2021). Both methods can enhance the validity of indicators through feedback from respondents or peer review, which will be investigated further in Chapter 4.

3.7 Rationale for Developing Indicators specific to hot springs

A review of indicators in the broader tourism sector, as documented in *Table 3.1*, shows that no specific indicator frameworks have been devised or adapted to the hot springs industry. The creation of numerous indicators within designed schemes has confused stakeholders, making it difficult to assess the long-term impacts. While some of the broader economic and

environmental indicators of tourism can, in part, be transferred to the hot springs industry, new socio-cultural indicators must be developed to measure their impacts accurately. It is important to recognise that despite similarities in core indicators, each destination may have distinct sustainability concerns and policies that necessitate a tailored and precise approach (Rasoolimanesh, Ramakrishna, Hall, Esfandiar & Seyfi 2023). In their recent work, Miller and Torres-Delgado (2023, p. 1493) pointed out that most of the indicators developed by the UNWTO and European Commission are not 'one size fits all', stressing the importance of evaluating their relevance before application. This comprehensive review identified a significant gap in the literature that effectively captures the impacts of hot springs on the community, its visitors and the destination. Emphasised here is the need to create indicators tailored to the hot springs industry.

The uniqueness of hot spring destinations strongly suggests that they will have important socio-cultural impacts on local communities and provide users with health benefits. Hot springs hold significant cultural and historical value for their surrounding communities and are deeply rooted in traditions, beliefs and values. As a result, it is important to evaluate the potential threats and opportunities that hot spring tourism may have on the quality of life, well-being and identity of the host and guest communities. As such, the wellbeing and health of both visitors and the host community are unique aspects to consider when developing socio-cultural indicators. Additionally, the role of culture as a key socio-cultural component specific to hot springs cannot be overlooked (Erfurt 2021b).

Hot springs greatly depend on the quality of groundwater and its availability, rendering them vulnerable to pollution, overuse and the effects of climate change. As such, it is paramount that conservation efforts directed at hot springs remain in force and are not compromised (Erfurt 2021a). The ecosystem surrounding hot springs is home to an array of fauna and flora that must be protected at all times. To achieve this, tools must be developed that measure water usage and the preservation of natural habitats and biodiversity. These tools must also be user friendly and easy to implement by stakeholders at both destination and business levels. Prior research has already assessed tourism's environmental impact at a destination level. It is, however, important to identify pertinent indicators to avoid an exhaustive list of irrelevant indicators that do not apply to the industry's current state.

Hot springs generate income, employment for local communities and have the potential to attract visitors to remote areas. While reviewing their economic impacts, it was determined that

most indicators developed in the tourism field could be readily applied to hot springs. Nonetheless, it is important to establish a set of indicators that the industry could conveniently employ and evaluate. For instance, monitoring the frequency of visits is an important economic aspect of hot springs that requires measurement (Wang & Lin 2021).

Overall, hot springs offer unique attributes that can act as a catalyst for regional development and destination competitiveness. Hence, a unique set of indicators is required to determine indicators applicable to hot spring businesses and how they guide regional development in Australia. Doing so will ensure that the hot springs industry and its destinations will be better equipped to understand and manage the impacts of their activities on the surrounding communities and environments. One of the main challenges of this research is to develop indicators suitable for assessing the socio-cultural impacts of hot springs on local communities and visitors. Another challenge is to put together a comprehensive and easy-to-use set of indicators for hot springs businesses to measure and assess how well they perform in the long-term.

As discussed throughout this chapter, hot springs exhibit unique attributes that have the potential to evolve from a sustainable to a regenerative industry as referred to in Chapter 2. Consequently, it becomes imperative to devise a precise, trustworthy and targeted range of indicators for the hot springs industry to achieve its objectives. These indicators could serve as a benchmark for monitoring the global impact of hot springs. Moreover, further research could delve into the long-term effects of hot springs on the environment and the industry.

3.8 Conclusion

This chapter reviewed different indicator schemes developed for the tourism industry and regional destinations. However, no indicators have been explicitly developed for the hot springs industry. While some indicators developed in the tourism industry can be adapted for the hot springs sector, others could not. This chapter investigated socio-cultural, environmental and economic indicators and how they can be measured. Finally, the rationale for developing indicators was identified. Taken together, Chapters 2 and 3 provide a detailed literature review exploring wellness as a new tourism segment and the rationale for developing indicators specific to the hot springs industry. Chapter 4 then describes the methodology chosen to investigate the aim and objectives of the research outlined in Chapter 1.

Chapter 4 Methodology

4.1 Introduction

As explained in Chapter One, the aim of this research is to explore the socio-cultural, economic and environmental impacts of Australian hot springs in regional destinations. As discussed, the objectives include: 1) to develop a set of indicators to measure the socio-cultural, economic and environmental impact of hot springs on the community and in its destination and 2) to assess the developed indicators' application to five hot springs in regional Australia.

The research was conducted in two phases. In phase 1, a qualitative approach was chosen to develop a set of socio-cultural, environmental and economic indicators. In Phase 2, a qualitative and quantitative strategy was pursued to test the developed indicators in Australian hot springs in regional destinations as part of a case study analysis. Each phase will be discussed separately. The purpose of this chapter is to provide a detailed explanation of the theoretical assumptions applied in this research, including the ontology, epistemology and methodology. This is followed by an explanation of the applied qualitative and quantitative research methodologies, sampling design and data analysis methods.

4.2 Research Paradigm

This section explains the research paradigm that guides this thesis. Paradigms are known as patterns or worldviews and can be defined as “a set of basic beliefs that deals with ultimates or first principles” (Guba & Lincoln 1994, p. 107). In simple terms, a paradigm encompasses how the world's perceived reality is understood and communicated (Fossey, Harvey, McDermott & Davidson 2002). While starting a research task or project, certain assumptions are made about how and what will be learned during their inquiry, which can be referred to as paradigms (Creswell & Creswell 1994). Creswell and Creswell (1994) explain that it is typical for researchers to make claims about:

1. **Ontology:** What do they know?
2. **Epistemology:** How do they know it?
3. **Methodology:** How do they obtain new knowledge?

The choice of paradigm shapes the research design and methods. The most commonly applied paradigm in tourism research is positivism, although interpretive and critical theory paradigms have challenged this approach (Jennings 2001). The relevance of pragmatism as a research paradigm will also be discussed in this chapter.

Under the umbrella of positivism, which is often referred to as naïve realism (Cupchik 2001), it is assumed that there is a single tangible reality (Park, Konge & Artino 2020). It embraces the view that universal laws and rules can explain the behaviour of a phenomenon through causal relationships (Smith 2010). From a positivist perspective, the researcher's aim is to discover the factual nature of reality and how it works (Pernecky 2007; Scotland 2012). In contrast, the interpretive (constructivism) paradigm understands 'reality' as being inherently subjective and defined by the assumptions made by the researcher. It stands in contrast to the positivist style which uses a deductive approach starting with theory followed by theory testing (Smith 2010). A quantitative methodology is often associated with a positivist paradigm while a qualitative methodology is associated with a constructivist/interpretative paradigm. A detailed explanation of both quantitative and qualitative methodologies will be addressed in Section 4.3.1.

Critical theory extends from an interpretive/constructivist paradigm. Critical theory understands the world as complex and comprised of unequal power relationships. Through the critical theory lens, the aim of research is to reveal the nature of power relationships, their implications, and how social change might be realised (Guba & Lincoln 1994). There are some synergies between an interpretive perspective and critical theory, which differ from the positivism paradigm. Both paradigms view people as thinking and acting individuals rather than simply following a set of rules. Critical theory also encompasses a normative purpose of research and that the role of the researcher is to instigate social change in the interests of human wellbeing (Smith 2010). Although in the social sciences critical theory is widely described as being complex, it challenges the status quo and seeks to inspire social change (Crotty 1998; Guba & Lincoln 1994). While qualitative methods generally flow from critical theory, quantitative methods are also applied. Methods used would include participant observation, focus groups and Delphic panels (Smith 2010, p. 42). In tourism studies, the use of critical theory is to open up or improve tourism opportunities, experiences and services for the greater good and bring about a transformational change that benefits minorities.

Pragmatism in research is a flexible and dynamic approach with the aim to find out "what works" (Kaushik & Walsh 2019, p. 9; Plath 2006). The American pragmatist, Charles Peirce, defines pragmatism as supporting action and recognising that there can be multiple realities (Borges & Revez 2019). The research question and problem is important for pragmatists. Depending on the nature of the study, pragmatism can combine both objective or subjective perspectives, deductive or inductive approaches, qualitative or quantitative methods within the

same study. This paradigm is concerned about knowledge and action and seeks to empower communities so that they can bring about social change. While pragmatism focuses on practical understandings of real-world issues, it emphasises the exploration and understanding of the connection between knowledge and action (Kelly & Cordeiro 2020). The philosophy of pragmatism is commonly used in mixed methods research (Maarouf 2019; Morgan 2014). It claims that both methods can be combined effectively to answer the research questions. This paradigm allows the scholar to answer the research questions by using the type of methods most appropriate and feasible in practice. This paradigm aligns with the nature of this study since pragmatism is based on using methods that work. It justifies the mixed methods strategy used throughout the case study approach. The process of developing a set of socio-cultural, economic and environmental indicators for the hot springs industry in regional Australia further justifies the use of this paradigm. The process of developing indicators will be guided by a panel of experts using the Delphi technique. This technique will be discussed in section 4.5.1. It is noted that different paradigms have their own ontological, epistemological and methodological assumptions. Both ontology and epistemology assumptions and theoretical factors are significant when choosing research methods.

4.2.1 Ontology, epistemology and methodology for the research

Research paradigms are built on ontological and epistemological assumptions. Derived from the Greek word ‘onto’, ontology means ‘being’ (Smith 2010, p. 18). In philosophy, ontology is known as the “science of being” (Aliyu, Singhry, Adamu & AbuBakar 2015, p. 14; Jacquette 2014). Grix (2004, p. 57) defines ontology and epistemology as “what ‘footings’ are to a house: they form the foundations of the whole edifice”. Put more simply, ontological assumptions are claims that researchers believe constitute reality.

The ontological position of a positivist assumes that reality is independent of humans (Pernecky 2007). The researcher is an objective observer who does not affect or disturb what is being studied. The role of the researcher is to explain behaviours and relationships in social worlds that can explain the theory or reality (Smith 2010). Alternatively, the ontological position of an interpretivist is that there is no single truth or reality in the world (Gillani 2021). Instead, reality is subjective and can be interpreted in multiple ways. Crotty (1998) argues that different people may construct different meanings of the same occurrence. The author also argues that “meaning is not discovered but constructed” (Crotty 1998, p. 9). For instance, a \$100 note means different things to different people depending on their socioeconomic status, age and circumstances.

“Epistemology” stems from the Greek words ‘episteme’ which means knowledge and ‘logos’ which connotes reason (Smith 2010, p. 18; Steup & Neta 2005). It is defined as how reality will be known by the researcher and how knowledge will be uncovered (Alharahsheh & Pius 2020, p. 40). Similar to ontology, the pursuit of knowledge can be guided by a range of different epistemological assumptions. Those assumptions are reflected in the theory, methodology and methods of the research study. A theoretical stance is required to explain how the researcher will tackle the issue or phenomenon and to justify the actions taken (Hiller 2016).

Crotty (1998) defines objectivist epistemology as the knowledge, perceptions and values which are objectively portrayed by the researcher, and if the rules of the natural sciences are applied, the objective truth can be discovered. Consequently, other researchers should be able to duplicate the same research and obtain the same findings (Smith 2010). In contrast, in constructivist (interpretivist) epistemology the relationship between the researcher and its participants is subjective rather than objective. With this understanding, it is necessary for the researcher to be immersed in the social context in order to understand the language and meanings through which the participants construct their actions (Smith 2010).

4.2.2 Methodology

Methodology is described as a ‘plan of action’ (Crotty 1998, p. 7) and ‘a set of guidelines for conducting research’ (Smith 2010, p. 34). The research methodology is a strategy that shapes the researcher’s choice and use of particular methods linking them to the preferred outcomes (Crotty 1998). It is important to distinguish between methodology and the methods used in this research. Methodology is a rationale for conducting research and hence is likened to a strategy, while methods are tools and procedures to collect and analyse data. Guba and Lincoln (1994) identified that for each specific research program an appropriate research methodology is required. Answers to the methodological question are constrained by the answers already given to the ontological and epistemological questions. The methodology cannot be restrained to what tools will be used for data collection (methods) (Guba & Lincoln 1994; Smith 2010).

Given that positivism is premised on the idea of there being an ‘objective’ reality that can be observed as separate from the research, methods borrowed from the natural sciences are applied. It involves experiments that can be controllable and repeatable, achieving the same results every time it is conducted (Smith 2010). By using a deductive approach, the researcher is detached from the subjects and usually employs quantitative methods such as questionnaires, observation, documentary analysis and experiments (Smith 2010, p. 36). Qualitative

methodology serves to understand the social context and meanings of reality that exist in relation to the phenomenon being investigated. The methods of data collection include participant observation, in-depth interviews, case studies and focus groups. The main purpose of interpretive methodologies is to understand the meaning of human experiences and actions (Fossey, Harvey, McDermott & Davidson 2002).

4.2.3 Approach used for this research

This research applies a mixed methods approach (Creswell & Creswell 1994), involving the use of the Delphi technique to develop a set of indicators. These in turn will be validated through a set of case studies involving both qualitative and quantitative analyses of archived secondary data. To clarify the approach taken in this research, the elements (ontological, epistemological and methodological assumptions) are summarised below:

1. Reality is understood as a social construction and can be interpreted in different ways. Hence the ontological assumptions, referring to the nature of reality and current knowledge available on wellness and hot springs tourism, used a constructivism approach.
2. The research is based on an interpretive approach that builds on the concept that there is a subjective relationship between the researcher and the research (epistemological assumption). The Delphi technique is used to gather and interpret data to develop indicators using qualitative questionnaires.
3. The research uses a case study approach to test the developed indicators in hot springs sites in regional Australia. This will include a mix of qualitative and quantitative data of visitor surveys.

To better understand the rationale for the methodological assumptions, the section below describes the qualitative, quantitative and mixed methods techniques.

4.3 Research Design

To further clarify the reasoning for this methodology, the following discussion explores the debate around qualitative versus quantitative methods in social science and the use of mixed methods research.

4.3.1 Qualitative versus Quantitative study

With the expansion and growth of the tourism industry, the application of quantitative methods has become prominent in tourism research studies as a means to gather evidence and prove a theory or test a hypothesis. Results from quantitative studies have been influential on policy-making (Dwyer, Gill & Seetaram 2012). Usage of the quantitative research method can also be referred as a statistical, numbers-based or empirical approach which enables the researcher to quantify and analyse his or her findings in order to get results. Using a quantitative method helps to answer questions about ‘what’ a social phenomenon is like (Williams 2007). Quantitative approaches emphasise the need for ‘objectivity’ and the collection of data independent of the researcher (Leedy & Ormrod 2012). It involves a precise process of ‘hypothesis formulation, data analysis and the acceptance or rejection of the hypothesis’ (Melkert & Vos 2010, p. 34). Often known as objectivists and positivists, quantitative researchers believe that valid knowledge of a phenomenon is acquired through experience (Xin, Tribe & Chambers 2013) where facts can be verified and survive attempts at falsification (Alharahsheh & Pius 2020; Tribe 2008). Methods are designed to reveal objective facts (Melkert & Vos 2010; Richards & Munsters 2010) and data are represented numerically (Jennings 2001).

In contrast, qualitative studies provide an in-depth and rich description of diverse viewpoints with an emphasis on exploring the ‘why’ and ‘how’ of tourism-related phenomena. Denzin and Lincoln (1995, p. 5) define qualitative research as “a complex, interconnected family of terms, concepts and assumptions” which consists of “a set of interpretive, material practices that make the world visible”. Qualitative approaches emphasise the subjectivity of the researcher along with his or her ‘empathy’ and interpretive skills. Qualitative research is distinguished for its emic approach to research compared to quantitative research which closely linked with the etic approach to research. Emic research is best described as subjective and heterogeneous (Dwyer, Gill & Seetaram 2012; Markee 2013). It is referred to as research done from within the social group where in some cases, the researcher is embedded in the research process and based his

or her analysis on background experiences. Etic research is instead best described as objective and homogeneous (Dwyer, Gill & Seetaram 2012; Markee 2013). It is often framed as research conducted in an objective way and from a neutral position. While there is ongoing debate over the value of emic versus etic approaches in research, it is increasingly recognised that both avenues can have value. When used together, greater scope and depth of knowledge about a particular phenomenon can be gained (Punnett, Ford, Galperin & Lituchy 2017). Both ‘what’ and ‘why’ questions can be explored.

4.3.2 Mixed Methods Research (MMR)

It has been argued that a positivist and an interpretivist approach could work together, as each research method uses competing paradigms and gives each approach an equal position and merit (Creswell & Creswell 1994). However, some critiques may argue that quantitative analysis has more weight than the qualitative approach, from a pragmatic point of view, while others justify that both methods contributed to the development of mixed methods research (Baškarada & Koronios 2018). In simple terms, quantitative data describes what is happening and qualitative data captures why it is happening (Newman 2000; Soiferman 2010). In response, mixed methods research has been increasingly adopted and refined. While it is an ongoing debate in the research community about which method to use, combining both qualitative and quantitative methods have proven to make possible a richer understanding of what, how and why a particular phenomenon occurs (Migiro & Magangi 2011). Hence, this research, employs a mixed methods approach. In addition, the use of MMR in this research provides an opportunity to systematically observe events, collect and analyse data and report the findings over a long period of time (Stidham, Olsen, Toman, Frederick, McCaffrey & Shindler 2014). in the form of a longitudinal study.

This thesis employs a qualitative research methodology in *Phase 1* which is justified by the need to:

- a) investigate an under-researched and complex phenomenon,
- b) explore the ‘how’ and ‘why’ contexts, and
- c) aim to develop indicators not yet identified in this particular field.

In *Phase 2*, both quantitative and qualitative methods are deployed. Both methods are justified by the need to test the developed indicators from *Phase 1* using visitor surveys in 5 hot springs in regional Australia as case studies. The methods used in data collection will be explained in detail in the following sections.

4.4 Data Collection

To address the research question on assessing the socio cultural, economic and environmental impacts of hot springs on the community and its local tourism destination, a qualitative methodology was applied in *Phase 1* and a mixed methods technique was applied in *Phase 2*.

As shown in *Table 4.1*, the Delphi technique was used in *Phase 1* as an explorative and descriptive type of data collection. After developing a set of indicators, a number of methods was used to populate these indicators in *Phase 2* as part of a case study analysis. A mix of methods was used to generate explorative, descriptive and comparative types of data. Methods included a visitor survey, analysis of energy consumption and analysis of water consumption for primary data collection.

In *Phase 2*, secondary data such a statistical information was sourced from government reports and tabulated statistics, while reports from hot springs operators and academic studies were used to populate the indicators. Key data sources included: the Australian Bureau of Statistics, Tourism Research Australia, local city council websites and hot springs' websites. The secondary data used in this research originate from reliable sources and they exhibit strong validity.

| Phase 1 | | |
|---|---------------------|--|
| Research Objectives | Type of data | Method of Data Collection |
| Develop a set of socio-cultural, economic and environmental indicators | Explorative | Qualitative: Delphi technique Technique: expert opinion |
| | Descriptive | |
| Phase 2 | | |
| Research Objectives | Type of data | Method of Data Collection |
| Test the socio-cultural, economic and environmental indicators to evaluate the impacts of Australian hot springs at the tourist destination | Explorative | Mixed Methods: Visitor Survey and secondary data collection from government reports, hot springs operators and academic studies. |
| | Descriptive | |
| | Comparative | |

Table 4.1 Methods of data collection used in this research

4.5 Research Methods

As explained earlier, the Delphi technique was the primary method applied in this thesis. In this section, the Delphi technique, research participants, sampling method, case study analysis and survey development are discussed.

4.5.1 Phase 1: Developing the indicators using the Delphi technique

Originally developed at the RAND Corporation by Norman Dalkey and Olaf Helmer in the 1950s, the Delphi technique has been used to obtain a reliable opinion from a panel of experts. This technique is achieved through a series of in-depth questionnaires sent to a group of experts with an effective and controlled opinion feedback (Dalkey & Helmer 1963). It was designed to involve repeated questioning where the group of selected individuals will not have direct contact with other members of the panel (Dalkey & Helmer 1963). This method attempted to minimise peer pressure as well as the risk of creating bias that may arise due to the status of the experts on the panel (Dalkey & Helmer 1963; Linstone & Turoff 1975).

A series of structured questionnaires are administered in consecutive rounds to the experts. This enables a remote dispersed group of people to complete with no time pressure, so they are allowed to deeply reflect on the questions (Garrod & Fyall 2005; Linstone & Turoff 1975; Ritchie, Burns & Palmer 2005). The responses from the questionnaires can both be interpreted and analysed qualitatively and quantitatively (Garrod & Fyall 2005). Between rounds, responses are communicated to help formulate questionnaires for the next round. There can be as many as 4 rounds depending on the number of responses received and until consensus is met (Hsu & Sandford 2007). However, depending on the amount of time available, the type of questions asked, and the level of consensus needed, the number of rounds can change (Hasson, Keeney & McKenna 2000).

There are 2 main characteristics for the success of the Delphi technique which are:

1. the size of the panel, and
2. the expertise and experience of the panel (Fallah & Ocampo 2021).

It was important to have a panel of experts who were willing and able to make a valid contribution to the research. Some researchers have recommended that members of the panel

of experts have different perspectives on the problem, with different expertise and qualifications to generate higher quality for the benefit of the research (Gustafson, Delbecq & Van de Ven 1986; Murphy, Black, Lamping, McKee, Sanderson, Askham & Marteau 1998; Rowe & Wright 1999). This will ensure a broader knowledge base and will challenge other people's viewpoints. In some particular circumstances, experts on the topic are most suitable as they know it very well and bring their expert advice and experience on the matter (Jones & Hunter 1995).

There are no strict guidelines for the size of the expert panel. However, it is recommended that the number of experts is not less than seven and no more than 1000 (Hasson, Keeney & McKenna 2000). However, the literature recommends between 10 to 18 experts for a Delphi panel (Okoli & Pawlowski 2004). Depending on the resources available such as time and money and the extent of the problem, it is up to the researcher to decide the size of the panel. The more experts there are on the panel, the more reliable the results will be (Fallah & Ocampo 2021).

The main goal of this method was to gather information on a central problem and explore the reasoning of the respondents. This method encourages independent thought from the experts. However, there are some disadvantages of using the Delphi technique. These are related to reliability, validity and credibility. The approach is time-consuming and expensive. Issues around the expertise of the participants, number of rounds, questionnaire development and analysis and achievement of consensus need to be addressed to maximise the credibility of the study (Mathur & Shekhawat 2017).

The Delphi technique has not been extensively used in tourism research as a tool to develop a set of indicators (Hsu & Sandford 2007; Miller 2001) but have been used to examine diverse tourism topics (Moreira & Santos 2020). However, it has been widely applied in the tourism and hospitality industry to forecast future developments (Kaynak, Bloom & Leibold 1994; Miller 2001). Using this method, environmental impacts of tourism and sustainable tourism indicators have been developed (Asmelash & Kumar 2019; Miller 2001). The goal is to derive a set of indicators which will assess the economic, socio-cultural and environmental impacts of the Australian hot springs on regional development. Overall, the Delphi technique has been proven to be a useful tool to gather trustworthy information and to build a framework for this specific study.

Research participants and sampling

Purposive sampling is widely used in qualitative research as a method to select “information-rich cases” for an in-depth analysis (Palinkas, Horwitz, Green, Wisdom, Duan & Hoagwood 2015; Patton 2014, p. 264). The purpose of this specific sampling method was chosen to provide a valuable, reliable and credible perspective to the research (Palinkas, Horwitz, Green, Wisdom, Duan & Hoagwood 2015). The identification and selection of potential participants is based on their knowledge and level of expertise on the topic (Jennings 2001; Patton 2014). It is underlined that respondents will need to be willing to take part and provide their informed consent. Availability is important as most of the participants will need to take time to effectively respond to the questions which also involves the ability to provide a critical opinion on the matter and to share experiences (Palinkas, Horwitz, Green, Wisdom, Duan & Hoagwood 2015). The aim of purposive selected sample is to increase the depth of understanding.

The sample chosen for this research involves tourism experts from across the world. The experts willing to participate came from different backgrounds with a knowledge of hot springs and their potential socio-cultural, economic and environmental benefits for regional development. Participants were from the local government, hot springs businesses or shareholders and tourism destination companies around the world, from Australia, England, Germany, Morocco, New Zealand, USA, Poland China, Japan, Italy Vietnam, Switzerland , , and Austria. Suitable experts were identified through industry networks and in particular, through the Global Wellness Institute (GWI). This process was facilitated by an industry supervisor, Adjunct Professor Charles Davidson, who is both a hot springs operator and chair and member of the Global Wellness Institute and Hot Springs Initiative.

Thirty-three experts were purposefully chosen for the first phase of the research. With a qualitative approach being adopted in *Phase 1*, the sample size was determined by quality over quantity (Moreira & Santos 2020), with the primary consideration being the experts' level of expertise and experience. In qualitative research, the sample size depends on several factors such as the resources available to the researcher and what the aims of the analysis are. The suitability of the sample size for the Delphi technique can range between 7 and 30 (Hsu & Sandford 2019). It is essential to take into consideration the homogeneity of the panel's size selection and the response rate. Hence, to yield sufficient data, thirty-two experts is considered to be a good sample size to ensure validity. Therefore, it was possible to conduct an in-depth

analysis that provided a valuable and accurate set of data. For the purpose of this study, the sample size is considered suitable for achieving the objectives.

Questionnaire development

Questionnaires are often used in tourism research to: firstly predict future trends; secondly, establish a strategic plan; and thirdly, address the validity of a new theoretical framework (Veal 2017). Planning and framing the questionnaire are key components for the first stage of the research (Veal 2017). The questionnaires were designed to contain elements assessing the three main components which are economic, socio-cultural and environmental. Questionnaires were administered in two rounds to the selected panel of experts.

The first round of questionnaires consisted of open-ended questions as shown in *Appendix C*. The questionnaire consisted of seven questions and was organised into four sections: 1) importance of hot springs, 2) a) socio-cultural impacts of hot springs on their users/visitors and b) on the destination, 3) environmental impacts of hot springs on the destination, and 4) economic impacts of hot springs on the destination. Round 1 of the Delphi technique was designed to: firstly, gain an understanding of the importance of hot springs in its regional destination; and secondly, identify key indicators in each category.

The second round of questionnaires consisted of closed questions with a comments section under each potential indicator as shown in *Appendix D*. They were grouped under three sections:

- 1) Potential economic indicators,
- 2) Potential environmental indicators, and
- 3) Potential socio-cultural indicators.

The questionnaires consisted of 31 potential indicators to be rated on a 5-point Likert scale, ranging from not at all important, low importance, neutral, slightly important, to extremely important. Round 2 was based on the results gathered from the first round of questionnaires. Round 2 of the Delphi technique was designed to achieve consensus on key indicators in each category.

Specific information on the development and content of the Delphi study and a discussion of the results is reported in Chapter 6. The Delphi technique questionnaires can also be found in *Appendices C and D*.

Ethical Considerations

The ethical issues that may arise during the first phase of this research are anonymity, privacy and confidentiality. Anonymity is a potential ethical issue while using the Delphi technique to collect data. The term ‘quasi-anonymity’ can be used to advise that the respondents will be known by the researcher and vice versa but the information received will remain strictly confidential (Hasson, Keeney & McKenna 2000). This also entails that the researcher is not to disclose the respondents’ identity. While preserving anonymity, it is easier to explore issues less popular which may also be regarded as sensitive. To tackle the potential issue of confidentiality and anonymity while using this technique, the researcher will respect the non-respondents’ motive and willingness to withdraw from the research at any stage (National Health and Medical Research Council 2023).

Respondents were fully informed about the research project and what their participation entailed. Prior to data collection, written information was sent out about the project’s aim, what is expected from the potential participants, time commitment, risks, privacy and confidentiality concerns to acquire their informed consent. It will be made clear that the participants’ involvement in the research is entirely voluntary as shown in *Appendices A and B*.

4.5.2 Phase 2: Testing the indicators using case study analysis

The use of case studies as a research method has been the subject of much critique, particularly as some researchers claim it is ineffective and lacks scientific rigour (Ritchie, Burns & Palmer 2005; Rowley 2002). The definition of a case study in social research is quite ambiguous and is often criticised and misunderstood. It is, however, recognised that the use of case studies can provide powerful insights on social phenomena.

Creswell and Poth (2016) define case study research as the exploration and study of an issue through one or more cases within a context. Yin (2003) also defines the need to use a case study approach when a phenomenon must be examined in its real-life context and when the boundaries between the phenomenon and real-life context are not clearly differentiated. Multiple sources of evidence can be obtained from mainly an inductive and partially deductive

approach. Case studies can be useful at early stages of any research to generate a theory or theories. However, criticism on the best or most effective use of case studies in social sciences generated discussions on how this research tool can be objective, reliable and present valid data. From a positivist perspective, some limitations of using a case study approach are that it cannot test a theory and can be limited or insufficient to alter a theory. One misconception of case studies is that it is assumed that the case study approach uses predominantly qualitative methods which is not always the case. For example, the conduct of a survey is commonly undertaken in case study research. Another misunderstanding is that case studies can be biased and are seen as less rigorous than quantitative methods. For instance, certain principles and criteria need to be followed to increase the validity of case study analysis. These principles include multiple sources of evidence to provide a comprehensive analysis as well as reporting the findings in a transparent and systematic way. This can lead to a more rigorous process compared to quantitative methods.

Often used in an exploratory stage of research, case studies are well suited for new research areas where theory seems to be lacking. It offers an opportunity to explore any phenomenon such as an event, a business, communities, a country. It can include one or more cases and consists of a mix of both qualitative and quantitative approaches in order to answer the research questions (Yin 2003). Qualitative case studies are discussed as being explanatory, exploratory and descriptive (Creswell & Poth 2016; Yin 2003). Hence, they focus on answering the ‘how’ and ‘why’ questions about a set of events which the investigator has no control over. While this method is viewed as lacking rigour and objectivity, the use of case studies can offer an in-depth insight into a real-life context on issues as well as reporting, if any, preconceived views, conceptions and hypotheses were wrong (Flyvbjerg 2011), that could not be achieved using other approaches.

Case studies are a valuable way of looking at the world from a different angle. It can involve a single case or multiple cases. There are several types of case studies approaches such as the single, collective/multiple and intrinsic variants (Creswell & Poth 2016). In a single case study, one locale is selected to focus on and illustrate one issue. In a multiple case study approach, one issue is illustrated using multiple scenarios. For example, the researcher can select several sites to demonstrate different perspectives about a designated problem. The rationale behind multiple case studies is that the researcher is able to analyse the data within each case and across cases (Yin 2003). In this way the differences and similarities between cases can be understood. This method similarly allows the researcher to explore a phenomenon using the

replication strategy (Gustafsson 2017). The replication logic attempts to duplicate the exact conditions of the original research or might alter some unimportant conditions. Therefore each case must be carefully selected to: 1) predict the same results or, 2) predict contrasting results (Yin 2003, p. 388).

While multiple case studies create a robust and reliable set of evidence, it requires extensive resources to implement and is time-consuming (Yin 2003). The greater the number of cases chosen that show the same results, the greater the rigour with which a theory is proven (Rowley 2002). Thorough documentation of the procedures and the appropriate recording of data are therefore essential to ensure reliability and validity (Rowley 2002; Yin 2003). Finally, the intrinsic case study focuses on one unique situation (Creswell & Poth 2016). A narrative study is done of this particular scenario which entails a detailed description of it. Cases are strategically selected according to the research questions to be answered and the purpose of the study (Flyvbjerg 2011).

Why choose a case study approach?

The choice of five hot springs provides a relatively large population of hot springs, hence adding value to the research with a set of indicators that would measure impacts across all types and sizes of hot springs. There are considerable constraints while using case studies which are: whether the data will be easily accessible for the purposes of analysis; whether there will be enough resources to fund travel that makes collection of the data viable; and, time which is critically important in any research project (Rowley 2002). Time is critically important in this research because the scope – selection of five hot springs in regional Australia - will provide strong corroborative evidence of the validity of the developed indicators in *Phase 1*. The 5 hot springs selected for this research are:

- **Queensland:** Cunnamulla Hot Springs
- **NSW:** Moree Artesian Aquatic Centre
- **Victoria:** Peninsula Hot Springs, Phillip Island Hot Springs & Metung Hot Springs.

The hot springs' businesses differ in size, two are relatively large, two are small and one is emerging. Moree Artesian Aquatic Centre and Peninsula Hot Springs are well-established, Metung Hot Springs is a relatively small hot springs and Cunnamulla Hot Springs opened in February 2024 and Phillip Island Hot Springs is planned to open in 2025.

Indicators developed in *Phase 1* are measured and tested for the five hot springs' sites in regional Australia. To test the validity of the developed indicators, secondary data will be primarily sourced followed by primary data which is collected as needed. The primary data was sourced from visitor surveys and a descriptive statistics was undertaken to analyse data using SPSS (Burns & Burns 2008). The aim of the testing phase is to refine a universal set of indicators valid for any hot springs' sites by providing a benchmark for performance measurement. The testing phase, development and administration of the visitor survey and case studies analysis of the five hot springs' site will be further discussed in Chapters 5, 6, 7, and 8.

Survey Development

The purpose of the visitor survey was to populate the indicators developed in Chapter 6 and assess the viability and reliability of the indicators as a measure of regional impacts. The survey instrument was developed in accordance with the selected indicators and to gather data not accessible through secondary data sources.

Data generated in Phase 2 was collected using an online survey platform named Qualtrics. Due to the pandemic and financial constraints, conducting interviewer completion surveys and face-to-face interviews were not feasible. Hence, implementing an online survey was the preferred option. Furthermore, given the funding for this research and the relationship developed with hot springs stakeholders, it was an opportunity to administer a self-complete survey to visitors at each facility. While this distribution method has its limitations, the visitor survey proved to be cost-effective as Peninsula Hot Springs and Metung Hot Springs offered to administer it to their customers.

The visitor survey focused mainly on the impacts of hot springs' economic and socio-cultural features on their users and the local community. Therefore, the survey investigated hot springs visitors' experience, travel patterns, behaviours, and expenditure at the destination and at the hot spring facility. In this way any future trends could be detected. The visitor survey primarily comprised quantitative questions, but open-ended questions were also included in order to understand better what the hot spring visitors did (Ahmad, Wasim, Irfan, Gogoi, Srivastava & Farheen 2019). The purpose of adding qualitative questions to the visitor survey was to extract information from the respondents that are not easily quantifiable such as feelings, behaviours and motivations. Please see *Appendix E* for the actual survey instrument while Table 4.2 below describes the type of information gathered.

| Categories of Visitor Research | The visitor survey gathered the following information: |
|---|--|
| Demographic | Gender, age group, postcodes and languages spoken at home. |
| Motivations | Visitors' motivation includes reasons for visiting hot springs, the hot spring's location, and any planned activities at the destination. |
| Travel patterns | Sizes of parties or groups travelling to a destination and hot springs. |
| Visitors use patterns and behaviour | Visitors spend in the destination and at the hot springs facility, the number of visits to the hot springs facility by residents and non-residents, types of accommodation, length of stay, and whether they were day trips or longer stays. |
| Visitor experience | Emotions as a result of visiting hot springs and the destination, willingness to recommend the destination and hot springs, appreciation of nature. |
| Visitor impacts as a result of visitation | Social impacts of the visitation on hot springs visitors include stress levels before and after visiting the hot springs, and observable improvements in health after visiting the hot springs. |

Table 4.2 Categories of visitor survey

Survey design

Self-completion questionnaires were chosen for this research where the presence of a facilitator was not necessary. While this questionnaire type is cost- and time-efficient, it was important to utilise clear and succinct language to guarantee that participants could comprehend the questions and provide comprehensive and relevant answers. Ball (2019) states that self-administered questionnaires must enable questions to be presented in uncomplicated and captivating ways. To ensure a clear understanding of the questions and provide detailed responses, clear and concise language was used. It is noteworthy that the absence of a researcher or facilitator in self-administered questionnaires may lead to incomplete responses and low response rates due to the respondent's inability to seek clarification.

The visitor survey was divided into four sections. The first section was designed to gather information on participants' status as either residents or second homeowners at the destination. The second and third sections delved into their psychographics, visitor patterns and behaviours, experiences and travel patterns at the destination and the hot spring facility, respectively. The third section included questions on the impact of hot springs on visitors' experience due to their visit to the hot spring facility. The fourth section investigated the demographic data of hot springs' visitors.

The survey layout and some questions were based on current survey approaches used by the Tasmanian Visitor Survey (Tourism Tasmania 2023) and the 2021 census methodology (Tourism Research Australia 2022). They were re-configured to the destination and hot springs facility. The wording and content of the visitor survey were meticulously formulated to assess the indicators developed in Chapter 7 and provide insights into the socio-cultural, environmental, and economic impacts of the chosen Australian hot springs.

The survey was divided into several categories of questions, with the behavioural ones designed to elicit information on visitors' spending patterns at the destination and hot springs facility, the frequency of visits by residents and non-residents, the size of their travel party, the types of accommodation used, length of stays, and whether they stayed overnight or spent the day. Motivational questions aimed to identify the reasons behind visitors' hot springs visit, the location, and the planned activities. The visitor experience questions sought to ascertain visitors' feelings after visiting the hot springs and the destination overall, as well as their willingness to recommend the destination and hot springs to others. Demographic questions were also included to gather information on visitors' age, gender, postcodes, languages spoken at home, and whether they were residents or second homeowners at the locale. These questions were adapted from the National Visitor Survey data and the 2022 census data from the ABS, with necessary modifications to suit our study's context and objectives. To sum up, the self-administered questionnaire was deemed the most suitable method for this research, given the prevailing COVID-19 pandemic. The survey questions were carefully formulated, taking into consideration the study's context and objectives, to obtain relevant and useful data for answering the research question.

Research participants and sampling

Due to time and resource constraints, it was not practical or feasible to survey all hot springs' visitors, so only a sample of the population was selected. Given the relationship developed with

the chosen hot springs' operators throughout Australia and the opportunity to administer surveys to a captive audience, the choice of self-completion questionnaires was self-evident. The hot springs' operators offered to administer the visitor surveys using their customer database, and this proved to be a cost-effective, convenient and targeted approach. The aim of the visitor survey was to gather information about the demographics and characteristics of hot springs' users and visitors, their mode of travel, type of accommodation they stayed in, their spending at the destination, the purpose of their visit to the hot springs facility and its surrounding area, and their sense of wellbeing before and after visiting the hot springs facility. This approach ensured that only users/visitors of hot springs were surveyed.

Pilot Test

Before the surveys were sent out, a pilot test was conducted to check for any issues of coherence, logic of wording, ambiguity, etc. (Van Teijlingen & Hundley 2001). The preliminary visitor survey was shared with colleagues at Victoria University, Melbourne to review the wording and sequence of questions. This allowed the researcher to assess how long it takes to answer the survey and whether the research procedure is realistic and achievable (Hassan, Schattner & Mazza 2006; Van Teijlingen & Hundley 2001). Suggestions were made on using the 7-Likert scale to measure stress levels before and after visiting the hot springs.

Once initial feedback was received, the visitor survey was tested on seven experts in the field of the study and one economist. This pilot test aimed to seek feedback on the survey's structure and clarity. The following suggestions from the pilot study were addressed, which proved to be helpful:

- Highlight the destination and the hot springs facility in each question, and
- Add 'glamping' in types of accommodation (question 6).

To further validate the data for this research, the following section will discuss the importance of triangulation and why and how it was used.

4.6 Data Analysis: Triangulation

To ensure validity and credibility and help remove any bias from the research findings, triangulation was used. Triangulation is based on a triangle analogy where a single point is believable based on three different perspectives or sources (Decrop 1999). Debates from quantitative methodologists on measuring validity led to the idea of triangulation (Seale 1999).

In qualitative research, triangulation is a way to ground the acceptance, credibility and validity of qualitative findings. It is done by using different sources of information or different types of data collection (Koc & Boz 2014). While in the 1970s triangulation arguments were entirely within the qualitative paradigm, more recently it was extended by combining qualitative and quantitative methods (Creswell & Poth 2016). Criticism of combining the quantitative and qualitative approaches was based on the assumption that their very different paradigms could not be combined. It was, however, challenged by those who believed that triangulation was a way of combining multiple methods to study the same phenomenon. Denzin (2006), Decrop (1999), Denzin (2010), Flick (1992) and Jennings (2001) identified four types of triangulation:

- Data triangulation: Various sources of data are used in the research process.
- Investigator triangulation: Several researchers are involved in the experiment.
- Theory triangulation: Several theories/perspectives are used to analyse data.
- Methodological triangulation: Several methods are used to gather data.

For the purpose of this study, methodological triangulation will be discussed in detail. The use of different methods can refer to different qualitative methods or a mix of qualitative and quantitative methods (Decrop 1999; Flick 1992). Methodological triangulation can be beneficial for confirming the findings, providing a comprehensive set of data, boosting the validity of the research findings and understanding the investigated phenomenon better (Bekhet & Zauszniewski 2012). Utilising several research methods strengthens the outcome of the research and increases the chance of creating validity and credibility. However, the use of multiple methods can be a limitation to methodological triangulation as it will generate a enormous amount of data which has to be appropriately selected in relation to the objective of the study (Koc & Boz 2014).

Since this study is based on a mixed methods approach, with a mix of the Delphi technique, visitor surveys and case study analysis, the use of methodological triangulation is appropriate. In this case, a visitor survey and a case study analysis were used to follow up on the findings from Phase 1 using the Delphi Technique.

Ethical considerations

Before administering the visitor survey, it was essential to consider any potential ethical issues. At the start of the survey, an explanation of the research and its potential risks were stated to avoid any risks (*Appendix E*). After reading the introduction, respondents had the choice to give their consent by clicking on the arrow to continue the survey or the option of quitting the survey at any time. Hence, in this way the survey was completed with no pressure on those participating.

4.7 Chapter summary

This chapter presented a comprehensive review of the research aims, paradigms, methodologies, and research methods employed in this study. The chapter commenced with a recapitulation of the research aims, followed by an elucidation of the paradigms that underpin the study. The ontological, epistemological, and methodological standpoints of the researcher were expanded on, and a comparison of the advantages and disadvantages of qualitative, quantitative, and mixed methods research was provided.

The chapter further discussed the research methods employed in this study, including a detailed overview of the Delphi technique, its relevance, and the development of questionnaires for the Delphi technique. The analysis of case studies and the rationale for utilising this approach were also explained, along with the development of the visitor survey and the importance of using pilot tests to check for any errors. Additionally, the chapter highlighted the significance of triangulation as a means of assessing validity and reliability in research and how it was conducted for this thesis. Ethical considerations are also addressed for both phases of the study.

The subsequent chapters, specifically Chapters 6 and 7, will provide an in-depth assessment of the questionnaires developed using the Delphi technique (Phase 1) and the findings, as well as an analysis of the data set from the visitor survey (Phase 2). Before proceeding with the analysis, the next chapter will introduce the definition of a destination, region and Local Government Area, followed by a contextual background of the hot springs' destination and its hot springs facilities chosen as case studies.

Chapter 5 Australian Hot Springs

5.1 Introduction

With the growing popularity of hot springs and the wellness industry in Australia, it is anticipated that hot springs can be an economic, environmental and socio-cultural driver for regional destinations and their future developments. As discussed in Chapters 2 and 3, the arguments supporting hot springs development in regions are based on their potential to generate direct and indirect benefits. Direct benefits take the form of job creation for the local community, increased visitor numbers to the destination, increased income and spending, and infrastructure developments. Indirect benefits are enhanced well-being, economic development, environmental conservation and social change (Wang and Lin, 2021, Erfurt-Cooper and Cooper, 2009, Clark-Kennedy and Cohen, 2017). Research on how these benefits are accrued at a regional level is limited despite assumptions that hot springs provide a competitive advantage to regional development (Erfurt, 2021).

The aim of this chapter is to discuss the study's contextual background and define the parameters of a destination, region and local government areas (LGAs). The chapter includes a description and background of the five hot spring case studies: Peninsula Hot Springs, Metung Hot Springs, Phillip Island Hot Springs, Cunnamulla Hot Springs and the Moree Artesian Spa.

5.2 What is a destination?

Destinations have been studied from different perspectives in the context of tourism studies. A common definition applied is that tourism destinations or attractions could be addressed based on ideographic, organisational and/or cognition-based features (Saraniemi and Kylänen, 2011, Lew, 1987). Ideographically, destinations are characterised by natural and human-made attributes that make them appealing to tourists (Lew, 1987). From an organisational standpoint, tourism attractions are defined by their scale and scope, which refers to their spatial development and carrying capacity (Lew, 1987). On the other hand, the cognitive features of a destination encompass tourists' feelings, perceptions and experiences during their visit (Saraniemi and Kylänen, 2011). However, the definition of a tourism destination by Lew (1987) fails to consider the tourists' experience before and after their visit and the various dimensions of tourism products from the tourists' perspective. Instead, the author limits the tourists' experience to the time spent at the destination, thus limiting the scope of understanding of the overall tourism experience.

However, tourism destinations are most commonly seen as a unit of space where different stakeholders interact and have the opportunity to co-create activities and experiences. A destination is defined as a place where people will plan a trip to visit it (Richardson and Fluker, 2008). It is an amalgam of products and services made available for tourists/visitors (Mutuku, 2013). WTO defines a destination as “the main place visited that is central to the initial decision of the taking the trip” (World Tourism Organization, 2023). A destination is a place with some form of geographic boundary whether it is actual or perceived boundary. The geographic area can be split into destination areas which may be groups of local government regions (Richardson and Fluker, 2008). Tourism destinations can be a country, a world region, a town, a village, or an area that is significantly dependent on tourism.

We must also consider the meaning of the word “region” while discussing destinations. Regions may refer to a group of countries or a common geographic area (Richardson and Fluker, 2008). It can also be an area within a country that is considered as a tourism destination area. In Australia, the word “region” has a specific meaning because of the different states and territories within the country (Richardson and Fluker, 2008). The Australian Bureau of Statistics (ABS) defines a local government area as one covering parts of a state or territory in which local government has responsibility (Australian Bureau of Statistics, 2021a). Example of local government areas (LGAs) in regional Australia include Mornington Peninsula, Metung and Phillip Island in Victoria, Moree in New South Wales and Cunnamulla in Queensland. LGAs can cover both urban/suburban regions and rural regions. For the purpose of this study, LGAs provide the regional boundaries.

This research focuses on five hot springs that have been chosen for assessment, as shown in *Figure 5.1*. The rationale to test the developed indicators in these five locations is based on their diversity and accessibility to the supervisory team. The subsequent section will provide context on the hot springs case studies and destinations that are the primary focus of this study.



Figure 5.1 -Map of Australia showing the locations of the five hot spring case studies.

5.3 Peninsula Hot Springs, Shire of Mornington Peninsula, Victoria

5.3.1 Context of the destination: Shire of Mornington Peninsula

The Shire of Mornington Peninsula is an LGA, located southeast of the Melbourne city centre, and features a diverse range of economic, environmental and socio-cultural aspects that contribute to its appeal as a tourist destination. *Figure 5.2* presents a map of the Shire of Mornington Peninsula. It covers an area of 723 km² with 42 towns and villages throughout the peninsula (Mornington Peninsula Shire, 2023 , Mornington Peninsula Shire, 2021a).



Figure 5.2 Map of the Shire of Mornington Peninsula (Source: Mornington Peninsula Shire 2023.-b)

Socio-cultural aspects

The Shire has an estimated population of 308,226 people (Australian Bureau of Statistics, 2021d), of which 1% is Aboriginal and/or Torres Strait Islander. It is interesting to note that a large proportion of Mornington Peninsula’s residents are females (51.4%), speak only English at home (86.7%) and have a median age of 44 years (Australian Bureau of Statistics, 2021d). 3.9% of the population was reported to be unemployed.

The region offers a range of cultural experiences and attractions that showcase the area’s heritage and creativity. These include art galleries, museums, historic sites and festivals. Community engagement is an important part of the Shire’s commitment in promoting and preserving local traditions, arts and events (Mornington Peninsula Shire, 2021a). With 11.7% of the Shire’s population suffering from arthritis, 9.8% from mental health conditions including

anxiety or depression and 8.9% from asthma, the Shire works towards improving the community's health and wellbeing through education, accessible services and transport and local employment opportunities (Mornington Peninsula Shire, 2021a). Some interesting facts on the residents of the Shire are that 62.4% participate in at least one activity per month and that 78% agreed that people in the neighbourhood are willing to help each other (Mornington Peninsula Shire, 2021b). This indicates a high level of community engagement.

Economic aspects

The tourism industry makes a significant contribution to the local economy. It attracted a total of 1,742,000 domestic visitors for the year ending March 2023 (Mornington Peninsula Regional Tourism Board, 2022). Of those domestic visitors, 6.42 million were 'day tripper' visitors, while 1.8 million chose to stay overnight (2023). In 2021, the visitor economy generated \$1.1 billion in visitor expenditure (Mornington Peninsula Regional Tourism, 2023). The region is a popular destination making it accessible for day-trippers from Melbourne and also attracts visitors from intrastate. The visitors are attracted to the region's beaches, wineries, olive groves, and outdoor activities. The destination boasts a diverse number of attractions and activities, making it ideal to plan a visit during warmer and cosy seasons. Although it may be assumed that Peninsula Hot Springs experiences an influx of visitors during the colder months, it actually features an array of wellness programs and activities that attract guests year-round.

In 2021, the tourism industry generated employment for over 13,000 people in the Shire (Business Victoria, 2021, Mornington Peninsula Regional Tourism Board, 2023). The average weekly income earned by the residents of the Shire is \$1,555 compared to \$1,759 for Victoria and \$1746 for Australia (Australian Bureau of Statistics, 2021d).

Environmental aspects

The Shire is known for its natural environment, that is, the landscapes, national parks and wildlife reserves, which are crucial to its diverse ecosystem. Efforts are made to conserve and protect the region's biodiversity, which can further contribute to the overall appeal of the destination to visitors. The Mornington Peninsula Shire council recognises the need to address environmental issues such as climate change, biodiversity and water usage (Mornington Peninsula Shire, 2023). The high influx of visitors can put increased pressure on the ecosystems and wildlife habitats. Hence, the council is committed to sustainable tourism practices that minimises environmental impacts and preserve natural assets for future generations reflected in policy, planning and strategic actions.

5.3.2 Peninsula Hot Springs (PHS)

Peninsula Hot Springs, located in the Shire of Mornington Peninsula, is a geothermal hot springs facility that was established in 1997 by Charles and Richard Davidson (Peninsula Hot Springs, 2023-a). Inspired by global bathing, the facility started with 42 acres of land and now spans more than 78 acres as seen in *Figure 5.3*. The facility includes more than 70 bathing and wellness experiences. The facility offers various activities, including glamping accommodation, a fire and ice workshop, a body clay ritual, and a food bowl discovery tour. Their aim is to help people “*connect with your pure nature*” and “*create experiences where people relax in nature and connect with the deep well of their being*” (Peninsula Hot Springs, 2023-c).



Figure 5.3 Peninsula Hot Springs before and after development of the site (Source: personal communication with Charles Davidson)

Peninsula Hot Springs drew 509,590 visitors during the 2018-2019 season. With a team of 331 people for the same period, the business places a priority on community outreach, teamwork and environmental stewardship (A. Kay, personal communication, 9 August, 2023). Peninsula Hot Springs is committed to making a positive impact on its community and the environment through partnerships with organisations like Mental Health Australia, Mentis Assist, and Musculoskeletal Australia (Peninsula Hot Springs, 2023-b).

Additionally, the business has invested in a team of 20 skilled professionals to manage biodiversity conservation and to educate guests through informative signs. Since their inception, the team has planted over 300,000 species, including 5,000 new plants in the fiscal year 2021/22 (S. Williams, personal communication, 13 September 2022). Peninsula Hot Springs' core mission centres around promoting health and balance, while also fostering community engagement through music, arts, and culture (Peninsula Hot Springs, 2023-a).

5.4 Metung Hot Springs, Metung, Victoria

5.4.1 Context of the destination: Metung

The village of Metung is located on the shore of Gippsland lakes in East Gippsland as shown in *Figure 5.4*. The socio-cultural, economic and environmental aspects of Metung as a tourist destination are discussed in more detail below.

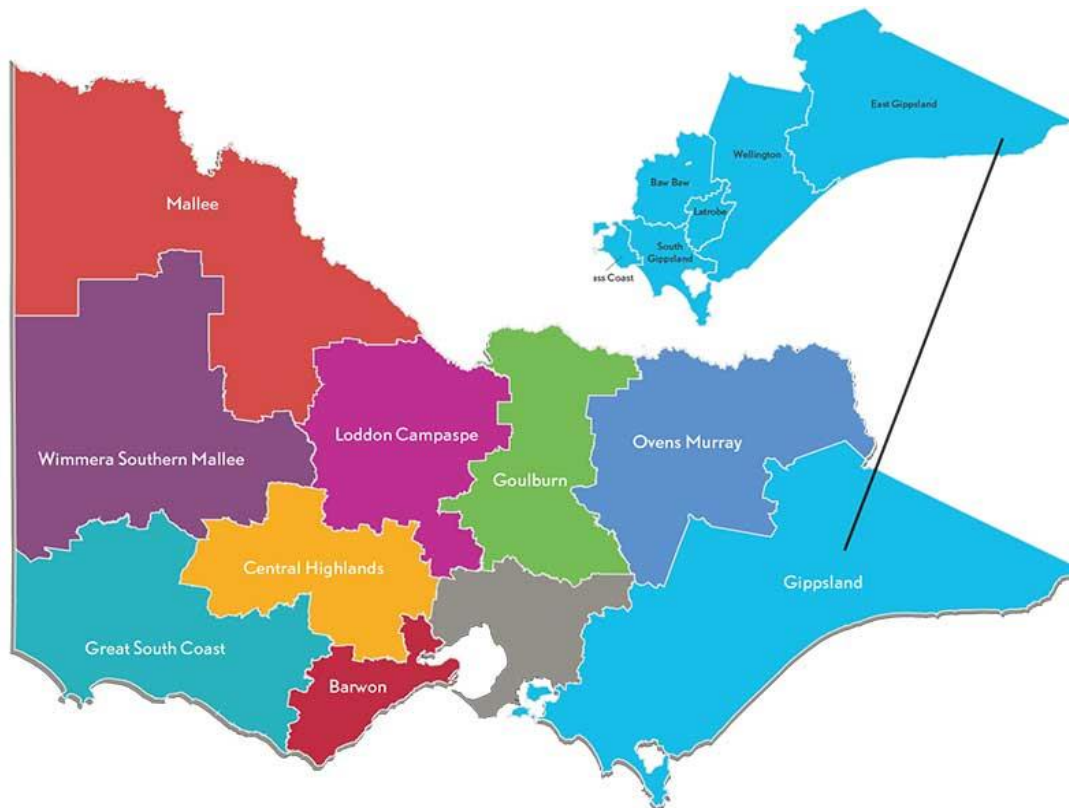


Figure 5.4 Map of Victoria showing the location of East Gippsland (Source: (Regional Development Victoria 2023))

Socio-cultural aspects

Metung is a tranquil village that provides a blend of cultural experiences, waterfront activities, and laid-back lifestyle to both visitors and residents. The sense of community prevails in Metung where the residents actively participate in various events and initiatives organised in the village (East Gippsland Shire Council, 2021).

The LGA of East Gippsland is a major tourist destination with an estimated population of 48,715 in 2021 (Australian Bureau of Statistics, 2022a). However, the town of Metung had a smaller estimated population of 1,605 in 2021 (Australian Bureau of Statistics, 2022b), with an equal proportion of men and women, of which 1.2% of the population is Aboriginal and/or

Torres Strait Islander. Notably, the median age of Metung's residents is 60 years, and 90.8% of the population speaks only English at home. However, the states of health of the residents of Metung have raised concerns, with a significant proportion of the population diagnosed with arthritis (14%), mental health conditions including depression or anxiety (9%), asthma (7.3%) and heart diseases (7%). The rate of mental health conditions is particularly alarming, exceeding the national and Victoria averages of 8.8% (Australian Bureau of Statistics, 2022b).

A considerable proportion of East Gippsland's population is grappling with anxiety and depression with a diagnosis rate of 33.8% (East Gippsland Shire Council, 2021). Moreover, the region of East Gippsland has a suicide death rate of 22.6% per 100,000 population, emphasising the need to prioritise looking after the health of the community and curtailing the death rate (East Gippsland Shire Council, 2021). As a result, East Gippsland's 2040 vision plan came into being to address this problem. With the emergence of Metung Hot Springs as a new wellness business in the region, it is expected to be a major drawcard for East Gippsland, which has the potential to boost the local economy as well as the health of its residents (Costa, 2021).

Economic aspects

Metung has a range of options for accommodation, retail and dining which provide economic opportunities to local businesses and residents. In 2023, East Gippsland reported a total of 5,891,000 total domestic visitors. Of those, 3,505,000 were day trippers, while 2,386,000 opted to stay overnight (Tourism and Events - Information for Victoria's tourism industry, 2023). The tourism sector in the LGA is a significant contributor to employment, comprising 6.7% of all jobs (East Gippsland Shire Council, 2022). While there is limited data on tourism figures for the town of Metung, specifically, it is reasonable to assume that these numbers are included in the overall visitation count for the LGA. Compared to Victoria (5%) and Australia (5.1%), Metung's unemployment rate is relatively low at 1.4%, with 45.5% of the population in the workforce. The average weekly household income of Metung's residents is \$1,240 compared to \$1,759 for Victoria and \$1,746 for Australia (Australian Bureau of Statistics, 2022b).

Environmental aspects

Surrounded by landscapes such as Gippsland Lakes, Metung offers opportunities for outdoor recreation. As an integral part of the East Gippsland region, Metung is committed to the shared environmental goals of the area. Given that the majority of the land in East Gippsland is publicly owned, preserving the natural environment and promoting biodiversity are important (East Gippsland Shire Council, 2023). Additionally, the region aspires to implement

sustainable management plans for natural resources, including the efficient use of water, energy, and fuel. The active involvement of the community is important in driving change within the region.

5.4.2 Metung Hot Springs

Within the strategy for Metung Hot Springs, the promise and purpose are to “*connect with your pure nature*” and “*Create experiences where people relax in nature and connect with the deep well of their being*” (Peninsula Hot Springs, 2023-c). Metung Hot Springs is located in the town of Metung in East Gippsland overlooking the Gippsland Lakes. Operated by local tourism operators Adrian and Rachel Bromage (Metung Hot Springs, 2023-a), the facility officially opened in January 2023 (see *Figure 5.5*). Metung Hot Springs received 25,871 visitors from November 2022 to June 2023 and 935 bookings for glamping. The facility currently has 75 employees, and it is expected to grow as visitations increase (S. Smith, personal communication, 31 August, 2023).

As a new facility, Metung Hot Springs offers bathing and wellness experiences as well as glamping accommodation for their guests. As a new business, Metung Hot Springs understands the importance of creating positive benefits for the local community, the environment and their stakeholders across East Gippsland (Metung Hot Springs, 2023-b). To achieve this objective, the facility has developed a regeneration model that prioritises social and environmental goals and focuses on improving quality of life. This model is based on the Five Capitals model developed by Regeneration Projects. The model encompasses five key pillars that are all interconnected: “ecosystem restoration, community well-being, diversity, inclusion & first nations partnerships, circular economy & climate action and environmental awareness & career pathways” (Sykes, 2022, p.5). The pillars are explained briefly in *Table 5.1*.

Metung Hot Springs Regeneration Model

| | |
|---|--|
| Ecosystem restoration | Creating more habitat for local wildlife. |
| Community well-being | Creating experiences to help the well-being and mental health of community visiting the hot springs to relax in nature. |
| Diversity, inclusion & First Nations partnerships | Focus on building meaningful relationships with stakeholders and local Gunaikurnai Peoples. |
| Circular economy & climate action | Aim to become net carbon positive by 2030. |
| Environmental awareness & career pathways | Fostering environmental awareness in its stakeholders, attracting visitors from around the world and creating pathways for locals. |

Table 5.1 Metung Hot Springs Regeneration Model.



Figure 5.5 Metung Hot Springs (Source: personal communication with Charles Davidson)

5.5 Phillip Island Hot Springs, Phillip Island, Victoria

5.5.1 Context of the destination: Phillip Island

Phillip Island, located within the Bass Coast Shire region, is a much sought-after tourist destination outside the city of Melbourne as shown in *Figure 5.6*. Key socio-cultural, economic and environmental aspects of Phillip Island as a tourist destination are discussed below.

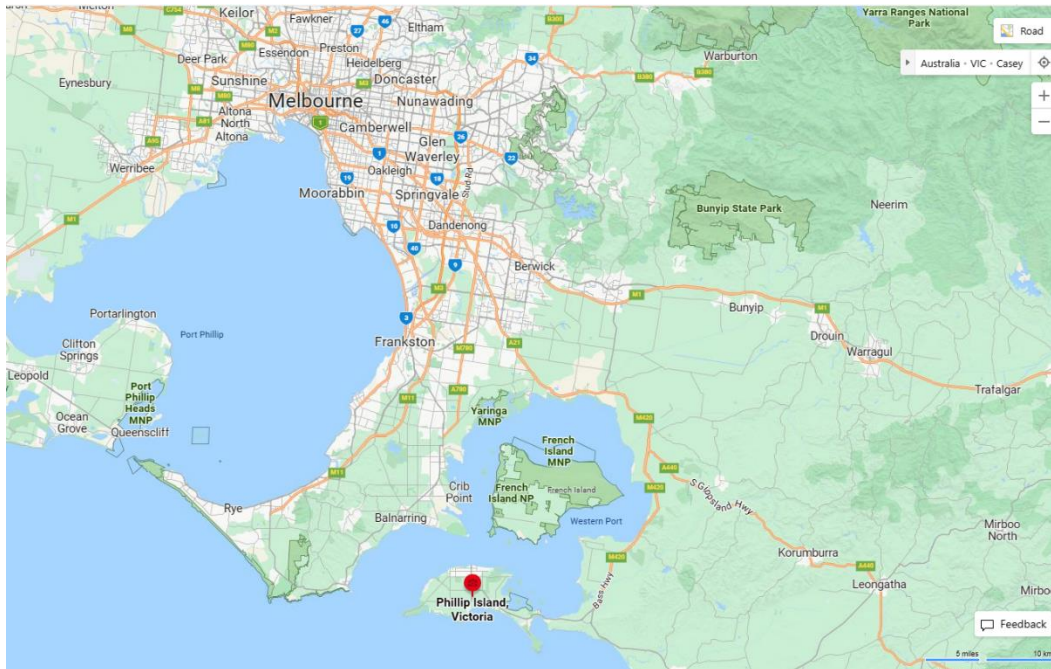


Figure 5.6 Map of Phillip Island (Source: Google Maps)

Socio-cultural aspects

Phillip Island is a popular tourist destination known for its array of attractions, activities and events. These include the penguin parade, seal watching, Koala Conservation Centre (Visit Phillip Island, 2023). Additionally, the island hosts major sporting events such as the Australian Motorcycle Grand Prix and the Superbike World Championship, catering to visitors of all kinds. The island is home to approximately 13,799 residents (Australian Bureau of Statistics, 2021f), of which 1% of the population identified as Aboriginal and/or Torres Strait Islander. Some interesting facts on the residents is that the median age of the island's population is 52 years and 86.2% of the population speaks only English at home.

As part of Bass Coast Shire, Phillip Island is expected to share the same healthy communities annual action plan. This initiative aims to improve the community's physical and mental

wellbeing throughout Bass Coast and South Gippsland (Bass Coast Shire, 2021). In 2022, a significant number of Phillip Island residents were diagnosed with arthritis (13.2%), mental health conditions such as anxiety or depression (10.1%) and asthma (9%) (Australian Bureau of Statistics, 2021f). The Shire's initiative is to work towards creating a safe and supportive environment.

Economic aspects

. Recent statistics show that in 2023, the island attracted 2,329,000 domestic day trip and overnight visitors (Tourism and Events - Information for Victoria's tourism industry, 2023). As of March 2023, the island welcomed 1,425,000 day trippers visitors and 1,193,000 overnight visitors (2023). In 2018-2019, tourism accounted for 43.9% of the destination's economy, generating 5,900 jobs in the process across various industries such as accommodation, supermarket and grocery stores and cafes and restaurants (Australian Bureau of Statistics, 2021f). These figures further solidify the island's reputation as a tourist destination. The total domestic tourism spend for the year ending December 2022 amounted to \$753 million which was ahead of pre-pandemic levels by 36% compared to December 2019, and marking a 42% rise from the previous year ending December 2021 (Destination Phillip Island, 2023). These figures which also include Bass Coast Shire area, highlight the potential of the domestic market in driving regional economic development and growth. The unemployment rate of the destination is quite low (3.5%) compared to national averages (5.1%). The median average income of the residents is \$1,175 per week compared to \$1,759 for Victoria and \$1,746 for Australia (Australian Bureau of Statistics, 2021f).

Environmental aspects

The island's commitment to preserving its natural environment lies at the core of Bass Coast Shire's natural environment strategy (Bass Coast Shire Council, 2016). Despite the influx of visitors and tourists to the destination, the focus remains on finding sustainable ways to balance economic growth and environmental conservation. The biggest challenges the Shire faces are sustainability, climate change, biodiversity, and land use. An emerging hot springs development, Phillip Island Hot Springs, is set to open in 2025 on the island (Bathing Australia, 2023). Adding to an already diverse range of tourism products, this wellness experience will further enhance the destination's competitiveness and could present an opportunity to be branded as a wellness destination. With the number of accommodations and attractions available, the hot springs are anticipated to appeal to both day trippers and overnight guests.

Furthermore, collaborations between the hot springs facility, local businesses, and attractions are expected to enhance the overall visitor experience.

5.5.2 Phillip Island Hot Springs

Phillip Island Hot Springs is an upcoming hot springs project set to open in 2025, potentially establishing itself as a signature wellness experience in the region. The first stage of the 30-acre hot spring's development (*Figure 5.7*) will feature large pools with different experiences including reflexology walk and family-friendly areas (Bathing Australia, 2023). As the project progresses, visitors can look forward to cultural spaces, a spa centre, and a Thalassotherapy³ facility (Gomes et al., 2021). In an effort to promote regeneration, 100,000 indigenous trees and plants were planted within its landscape. This project is expected to attract around 310,000 visitors to the island and create over 210 jobs once it is completed, while also injecting \$24 million into the local economy in the first year (personal communication with Charles Davidson).



Figure 5.7 Planned Phillip Island Hot Springs Development (Source: (Bathing Australia 2023)

³ Thalassotherapy is a practice that involves the use of seawater to promote health and wellbeing.

5.6 Cunnamulla Hot Springs, Cunnamulla, Outback Queensland

5.6.1 Context of the destination: Cunnamulla, Paroo Shire

Paroo Shire is located in Outback Queensland (*Figure 5.8*) where it can be accessed by a variety of transportation options, including flights, trains, railbus, coach, bus or car (Cunnamulla Tourism, 2023.-b). To get further insights into Cunnamulla and Paroo Shire as tourist destinations, the socio-cultural, economic and environmental aspects that make this region attractive will be discussed.



Figure 5.8 Map of showing Cunnamulla (Source (Cunnamulla Tourism 2023.-b)

Socio-cultural aspects

According to the Australian Bureau of Statistics (2021e), the population of Paroo Shire is 1679 people, with 35.9% identifying as Aboriginal and/or Torres Strait Islander. The shire encompasses the towns of Cunnamulla, Eulo, Wyandra and Yowah (Paroo Shire Council, 2022), with Cunnamulla being one of the largest towns in the area, with a population of 1,233 residents (Australian Bureau of Statistics 2021a). Of those people, 44.4% identify as Aboriginal and/or Torres Strait Islander. It is interesting to note that the majority of the residents speak

only English at home (91.9%), and the average age is 40 years, with a majority of female residents (53.3%). Health statistics indicate that 13.2% of the population suffers from asthma, 10.1% from arthritis, 8.5% from diabetes, and 7.1% from mental health conditions. Statistics reveal that 13.2% of Cunnamulla's population suffered from asthma, 10.1% from arthritis, 8.5% from diabetes, and 7.1% from mental health conditions.

The tourism image of the Paroo Shire is renowned for its outback experience. Visitors can experience the Indigenous heritage through cultural tours, art exhibitions, festivals, and storytelling sessions (Cunnamulla Tourism, 2023.-c). Cunnamulla hosts various community events providing opportunities for visitors to interact with locals and experience the community engagement of the town.

Economic aspects

In comparison to the state and national averages, Cunnamulla's average weekly household income is relatively low at \$994. The unemployment rate in Cunnamulla for 2021 was 6%, whereas the rates for Paroo Shire, Queensland, and Australia were 7%, 5.4%, and 5.1%, respectively. According to the Paroo Shire Council's annual report for 2021-2022, the Cunnamulla visitor centre received 17,036 visitors (Paroo Shire Council, 2022). In addition, as of 2023, Cunnamulla had 12 accommodation businesses and 6 tourism businesses. The town hosts a diverse range of activities and events including Outback River Lights Festival, Music in the Mulga and Cunnamulla Fella Roundup, which gathered crowds of 300, 2000 and between 750 to 1000 people, respectively. This information was obtained through email communications with the visitor centre of Paroo Shire. However, information on overnight stays and expenditures is lacking, which could be a threat to potential developments. With the upcoming opening of Cunnamulla Hot Springs in February 2024, there is an opportunity for the town to increase tourism and economic growth.

Environmental aspects

Cunnamulla and its surrounding regions are susceptible to climate variability and extreme weather events such as drought, floods, and heatwaves (Morris, 2018). The challenging weather conditions emphasise the significance of sustainable measures and environmental stewardship in preserving resources. Water is an essential element for the survival of both local ecosystems and communities. Therefore, strategies to build resilience against climate change, like water conservation and adaptation planning are important to mitigate the effects of these phenomena. However, there appears to be a lack of information on these strategies.

5.6.2 Cunnamulla Hot Springs

Cunnamulla Hot Springs is a new addition to Paroo Shire’s tourism attraction, opened its doors in February 2024 (Cunnamulla Tourism, 2023.-a). Its primary objective is to boost tourism by inviting visitors to stay longer and experience the region. This development will also provide community members with new spaces to host events and engage in health and wellness activities. *Figure 5.9* shows the hot spring’s construction phase and the projected outcome.



Figure 5.9 Cunnamulla Hot Springs during development, projected and final outcome (Source: (Cunnamulla Tourism 2023.-a)

5.7 Moree Artesian Spa, Moree Plains Shire, New South Wales

5.7.1 Context of the destination: Moree Plains Shire

Located in New South Wales and near the border of Queensland (*Figure 5.10*), Moree Plains is a popular tourist destination. The Shire occupies a strategic location over the Great Artesian Basin, and this resulted in the national recognition as the “Australia’s Artesian Spa Capital” and is marketed as ‘Artesian Water Country’ (Tourism Moree, 2019) due to its access to artesian and sub-artesian underground water sources. The Shire has a diverse range of economic, environmental and socio-cultural aspects which will be explored further.

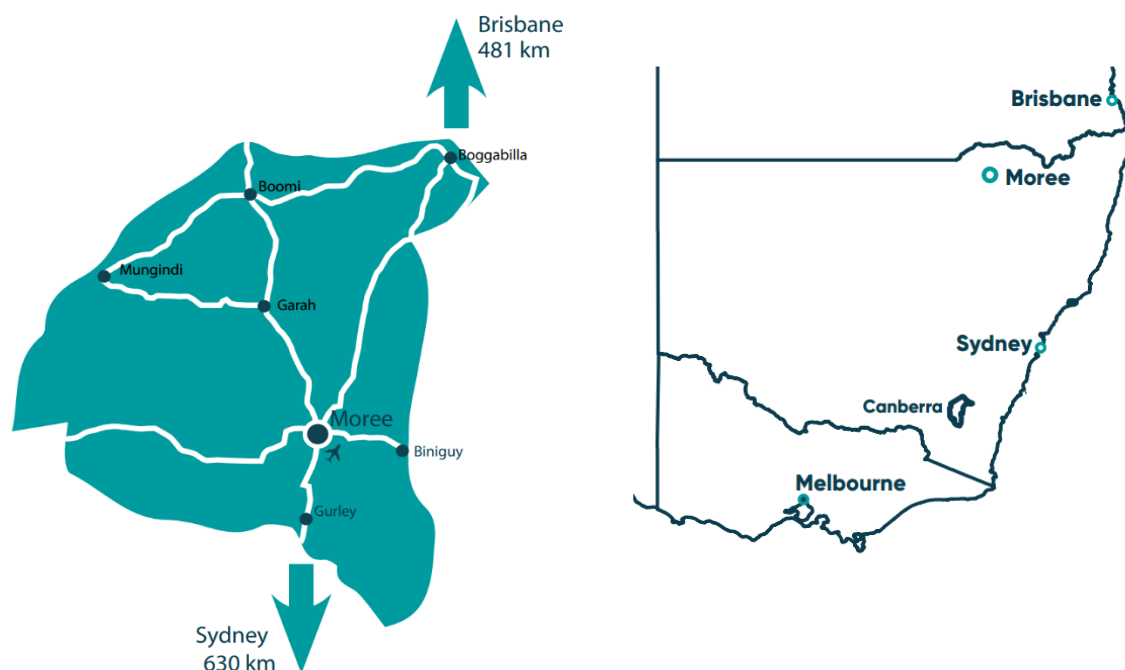


Figure 5.10 Map of Moree Plains Shire. Source: Moree Plains Shire Council (2021)

Socio-cultural aspects

According to the Australian Bureau of Statistics (2021c), the population of Moree Plains is now 12,751 residents. Moree, being the central hub of the Shire, has a population of 7,845 residents, with 22.9% identifying as Aboriginal and/or Torres Strait Islander (Australian Bureau of Statistics, 2021b). The median age of residents in Moree is 38 years old, with a slight majority being females (50.9%). It is worth noting that 77.6% of the residents speak English at home, while 6.4% of households use non-English languages such as Cantonese, Serbian, Nepali, Gamilaraay and Fijian.

Cultural diversity is an important aspect of the town of Moree with its significant Indigenous population. It presents an opportunity for both residents and visitors to learn about the history, traditions and perspectives of the Indigenous community. From cultural events and art exhibitions to storytelling sessions, there are many ways to engage with and learn from the Indigenous culture. In addition, visitors can explore the town through heritage buildings, landmarks and museums, including the Moree Plains Gallery, the Moree Artesian Aquatic Centre and the Moree Plains Shire library. These historic sites offer insights into the town's cultural significance and heritage.

In terms of the community's health, the 2021 census data indicated that 8.9% of the population had with asthma, 7.4% had arthritis and 6.9% had mental health conditions such as depression or anxiety. These statistics highlight the need for increased community awareness and resources to promote physical and mental wellbeing and improve overall quality of life.

Economic aspects

Moree Plains has a diverse array of cultural, heritage, agricultural and natural resources. These assets play an important role in the region's economic growth. In 2019, the region attracted approximately 263,000 visitors from both domestic and international locations, with a majority of 67.3% being domestic visitors (Tourism Research Australia, 2019). In terms of household income, the median weekly earnings of residents are comparatively lower at \$1,494, as opposed to the state and national averages of \$1,829 and \$1,746, respectively. The percentage of unemployed people in the town stands at 4.2% which is lower than the state and national averages of 4.9% and 5.1%, respectively.

To achieve significant economic growth and opportunities for future generations, the Shire has developed a strategy that focuses on agri-tourism businesses, improving tourism infrastructure, and unlocking the potential for Indigenous tourism (Moree Plains Shire Council, 2021). One of the primary tourist attractions in town is the Moree Artesian Aquatic Centre, which attracts a significant proportion of Moree's visitors (Tourism Moree, 2019). Moree's visitors are characterised by a growth in the self-drive touring market and the growing number of baby boomers and Gen X travelling to the town (Tourism Moree, 2019). With its strategic location, in 2019, the Shire attracted highway travellers for a quick stop (Tourism Moree, 2019). However, the absence of data on visitor numbers makes it challenging to accurately assess its economic impact.

Environmental aspects

Moree's community has expressed concern regarding the increasing number of residents leaving the area. As a result, the Moree Plains Shire has created a comprehensive strategic plan for its community, informed by extensive community engagement (Moree Plains Shire Council, 2021). This plan effectively captures the community's needs, wants and aspirations while addressing the challenges the Shire faces, including changing environments and opportunities. It is important to note that the Shire has experienced several environmental issues in recent years, such as devastating bushfires in 2019/20 and flooding in 2021 and 2022 which are attributed to climate change (Goldblatt, 2022). Moreover, the recent COVID-19 pandemic has had an adverse impact on the Shire's socio-economic outlook. Unfortunately, there is a lack of data on the environmental impact of Moree as a tourist destination. To address these challenges, the strategic plan provides a roadmap for future development of the Shire, ensuring its long-term viability and sustainability.

5.7.2 Moree Artesian Aquatic Centre (MAAC)

Moree Artesian Aquatic Centre is located in the town of Moree in regional New South Wales (Moree Artesian Aquatic Centre, 2023-a). The town is also known as the spa capital of Australia, as the baths complex is NSW's first thermal bathing and sporting facility (Moree Plains Shire Council, 2021). The baths complex consists of an Olympic-sized swimming pool known as Moree Artesian Aquatic Centre and other bathing complexes which have been part of the town's history since 1895. Entry fees are required to access the naturally heated pools as a single-use – daily or weekly passes. The bath complex is a well-established facility which provides bathing experiences to families and friends to enjoy using artesian waters. It is one of the main tourist attractions in the region, with over 200,000 visitors every year (Moree Artesian Aquatic Centre, 2023-b).

Moree is known as the artesian capital of Australia; it is not surprising that three of the accommodation facilities have some sort of thermal pools. For example, every guest staying at Moree Hot Springs Units and Caravan Park can enjoy onsite naturally heated Artesian pools. The challenges posed by the pandemic, flooding and bushfires resulted in the management of the facility withdrawing from the second phase of the research. This has resulted in difficulties in collecting data on economic, environmental and socio-cultural factors.

5.8 Comparison of the impacts of the chosen case studies

Table 5.2 was designed to present a comprehensive comparison of the economic, environmental and socio-cultural characteristics of each destination, excluding the town of Moree. This table seeks to help stakeholders make informed decisions about how best to promote and develop these hot springs in a sustainable and responsible manner.

Table 5.2 Comparison of economic, socio-cultural and environmental aspects of the chosen destinations

| Aspects | Peninsula Hot Springs, Mornington Peninsula | Metung Hot Springs, Metung | Phillip Island Hot Springs, Phillip Island | Cunnamulla Hot Springs, Cunnamulla |
|---|--|---------------------------------------|---|---|
| Domestic Day Trip | 6,423,000 visitors (2023) | Not available | 1,425,000 visitors | 17,036 visitors |
| Average domestic daytrip spend | \$120 spent per visitor | Not available | \$118 spent per visitor | Not available |
| Economic | | | | |
| Domestic Overnight stays | 1,809,000 visitors (2023) | Not available | 1,193,000 visitors (2023) | Not available |
| Domestic overnight spend | \$555 per visitor | Not available | \$581 per visitor | Not available |

| | | | | | |
|-----------------------|---|--------------------|-----------------|----------------------|-----------------|
| | Average overnight stays | 2.4 nights (2023) | Not available | 2.5 nights (2023) | Not available |
| | Tourism employment (Full-time and Part-time) | 13,000 jobs (2022) | Not available | 4,119 jobs (2020-21) | Not available |
| | Average household income (\$) | \$1,555 | \$1,018 | \$1,175 | \$994 |
| | Population | 308,226 residents | 1,605 residents | 13,799 residents | 1,233 residents |
| Socio-cultural | Percentage of Aboriginal and/or Torres Strait Islander residents | 1% | 1.2% | 1% | 44.4% |

| | | | | | |
|----------------------|------------------------------|---|--|--|--|
| | Median age | 44 years old | 60 years old | 52 years old | 40 years old |
| | Health conditions | Arthritis Mental health conditions Asthma | Arthritis Mental health conditions Asthma | Arthritis Mental health conditions Asthma | Asthma Arthritis Mental health conditions |
| | | Efforts to conserve biodiversity | Plans for the proper management of natural resources | Biodiversity conservation | Efforts to protect the natural environment |
| Environmental | Sustainable practices | Education and support provided to the community | | Sustainable water management | Environmental conservation |
| Hot Springs | | Well-established | Emerging | Opened in February 2024 | Upcoming project set to open in 2025 |

5.9 Chapter Summary

In Chapter 5, the concepts of destinations, regions and Local Government Areas (LGA) were explored and how they apply in regional Australia. A definition of each term was given to help contextualise the five hot spring destinations chosen for this study: the Shire of Mornington Peninsula, Metung, Phillip Island, Cunnamulla and Moree Plains Shire. Each destination features a diverse range of economic, environmental and socio-cultural aspects that contribute to its appeal as a tourist destination. *Table 5.2* below summarises the key features of each destination, excluding Moree Plains Shire. It was noted that for small towns such as Metung, Moree and Cunnamulla, data was not readily accessible compared to larger LGAs.

This chapter also provided a background of each hot spring facility: Peninsula Hot Springs, Metung Hot Springs, Phillip Island Hot Springs, Cunnamulla Hot Springs and Moree Artesian Aquatic Centre. The chapter identifies the facilities that are well-established versus emerging ones. However, one significant limitation of this study was the lack of data on environmental and socio-cultural aspects of smaller LGAs, such as Moree, Metung and Cunnamulla. Another limitation is that Moree was unable to participate in the research due to challenging times, hence the lack of data on both the destination and the hot spring facility.

The following chapter will discuss the results of Phase 1 of this research. An in-depth analysis of the responses received from the Delphi technique will be investigated, focusing on developing a list of potential indicators.

Chapter 6 Phase 1 - Development of Indicators

6.1 Introduction

This chapter explains the process of developing indicators to assess the impacts of hot springs' socio-cultural, environmental and economic features. As discussed earlier, the Delphi technique (Dalkey & Helmer 1963) was used to identify measurable factors that could be applied to understanding the regional impact of hot springs operations. This chapter will discuss the questionnaire developed for both Rounds 1 and 2 of the Delphi technique followed by the analysis and findings from these rounds.

6.2 Questionnaire development: Design and content

As discussed in Chapter 4, the Delphi technique involved a qualitative approach with two rounds of questionnaires sent to a panel of experts. The purpose of the first phase of the research was to generate an extensive range of potential indicators reflective of the considerations of the hot springs industry globally. The responses gathered in Round 1 were fed back to the expert panel in Round 2 for them to rate on a 5-point Likert scale to obtain consensus. The experts were asked to focus on the emergence of hot springs worldwide and narrow their ideas on their impacts on the community, the environment and the economy. In Chapter 4, more information can be found on the advantages and disadvantages of the Delphi technique as a qualitative research strategy.

The panel of experts received two rounds of questionnaires. Round 1 of the Delphi technique was more of an exploratory study involving open-ended questions to gain an in-depth insight into the importance of hot springs and their impacts on visitors and the destination. Due to COVID-19 restrictions on travel, the questionnaire was emailed to the participants. This allowed them to respond to the questionnaire in their own time. The first round of the research aimed for the experts to freely express themselves on the emergence of hot springs (*Research Objective 1*) and their contributions to the destination in which they are located. Hence, the application of the Delphi technique called on the knowledge and expertise of the panel of experts to advise and brainstorm appropriate indicators to measure hot springs' socio-cultural, economic and environmental impacts on the destination and community (*Research Objective 2*). The first round of the Delphi technique provided an open space for the experts to share their thoughts on the topic. The questionnaire was structured as follows:

- Background of the research
- Key information about the researcher and supervisors

- Consent and Confidentiality
- Key terms
- Questions on the importance of hot springs and its impacts
 - Questions involved identifying appropriate indicators to measure socio-cultural, environmental and economic impacts of hot springs, and how they can be measured.
- Comment box

Open-ended questions encouraged the panel to explore the influence that hot springs can exert on their community and destination. This enabled them to share their insights on environmental, economic or socio-cultural issues. Themes were identified from the experts' responses to direct the development of the potential indicators for the second round of the Delphi technique. The questions covered the following topics:

- Type of hot springs the expert works for
- Contributions of hot springs to the destination
- Identifying appropriate socio-cultural, environmental and economic indicators
- Appropriate data or information to measure the socio-cultural, economic and environmental indicators.

Panel members were first asked about the contributions of hot springs in its destination. This question allowed them to specify what was being done already in broad terms. For each question, they were asked to identify three potential indicators in each category and ways to measure these proposed indicators. A comment section was included at the end of the questionnaire for feedback or to clear things up if needed.

The responses gathered from the first questionnaire were analysed and summarised. These responses were then presented in a second questionnaire to the same participants to gather further feedback and refinement. The Round 2 questionnaire included only closed questions using 5-point Likert scales. The panel was required to rate each potential indicator (not important, low importance, neutral, slightly important and extremely important). The survey was divided into three categories of impact: economic, environmental and socio-cultural. Under each section, a description of the indicator was added for the experts to recall Round 1. The measurement of each potential indicator was also added to the survey. Under each possible indicator, a comment box was provided for them to comment on their rating if needed.

The analysis and discussion of the results of the Delphi technique are provided in the following sections.

6.3 Analysis and discussion: Round 1 questionnaire

The following section presents the results of the first survey. After distributing 33 questionnaires, 100% of the respondents responded to all the questions and returned the questionnaires in Round 1. Each of these questions is analysed separately, and tables are provided to demonstrate the commonly cited themes identified by the experts. Each expert's questionnaire was imported into NVIVO for coding using thematic coding.

The coding process involved in this round was to identify important themes the panel of experts discussed and encode them for further analysis and discussion. In the following sections, discussion and analysis of Round 1 results of the coding process are outlined.

6.3.1 Experts' Profiles

To preserve the anonymity of the panel of experts, profiling questions were not included in Round 1 of the Delphi technique. However, since the participants are known to the researcher due to the quasi-anonymity of the research, the researcher was able to include the countries from which they come from. Doing so brings an international perspective to the research and supports the transferability of the findings. The diversity of the panel provided an overview of the potential ramifications that hot springs can have in different destinations.

Table 6.1 identifies the countries from which the 33 experts come. Most of them were from Australia, as the Australian Geothermal Association and Victoria University are funding the research. Five experts came from the United States, three were from China and one from each of these following countries: England, Germany, Morocco, New Zealand, Poland, Japan, Italy, Vietnam, Switzerland and Austria.

| Country | Respondents (n) |
|----------------|------------------------|
| Australia | 15 |
| England | 1 |
| Germany | 1 |
| Morocco | 1 |
| New Zealand | 1 |
| United States | 5 |
| Poland | 1 |
| China | 3 |
| Japan | 1 |
| Italy | 1 |
| Vietnam | 1 |
| Switzerland | 1 |
| Austria | 1 |
| Total | 33 |

Table 6.1 – Experts Profile – Country

6.3.2 Type of hot spring businesses

The first question of the questionnaire focused on the type of hot springs that the experts worked for. This question was asked to get an idea of the type of ownership, whether private sector, public sector or both. This delivers a better understanding of the decision-making process in each hot spring’s businesses. As shown in *Figure 6.1*, 9 experts responded that they either own or work in a private hot spring, four work in a public facility and five work in both private and public hot springs. The eight experts who responded “N/A” and “other” to this question were academics who research on this topic, future business owners of hot springs, consultants or members of affluent wellness and hot springs groups. The benefit of having this panel of experts is that it provided a broader perspective on the impacts of hot springs on its community, the environment and the economy in different hot springs worldwide.

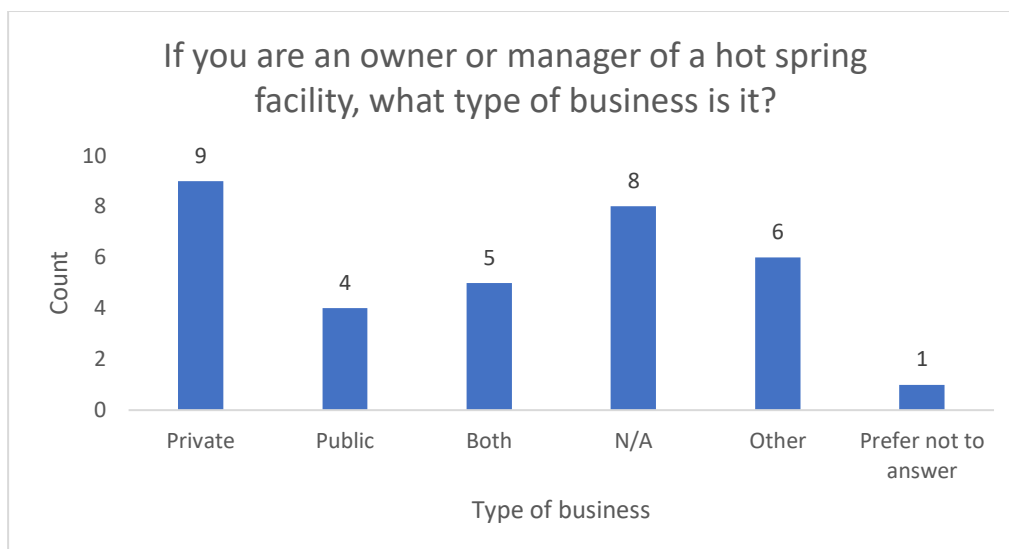


Figure 6.1 - Type of hot springs

6.3.3 Hot Springs' contributions to the destination

The second question involved discussing what the panel of experts believed would be the contributions of hot springs to the destination. This question gave freedom to the experts to express their thoughts and elaborate on actions taken by some of the hot springs they work for. The results were analysed to identify key themes and the frequency they were mentioned. *Table 6.2* presents a total of 15 themes relating to the contributions of hot springs on its destination. Four are classified as economic contributions, six as environmental and five as socio-cultural.

| Question 2: | |
|---|-------------------------|
| What contributions do you consider that hot springs make to the destination in which they are located? | Total references |
| Economic contributions | |
| Destination competitiveness | 3 |
| Employment | 15 |
| Regional economic development | 19 |
| Visitor Spend | 3 |
| Environmental contributions | |
| Biodiversity | 1 |
| Carbon footprint | 2 |
| Clean environment | 2 |
| Creating awareness | 1 |

| | |
|-------------------------------------|----|
| Regeneration | 3 |
| Sustainable practices | 8 |
| Socio-cultural contributions | |
| Connectedness | 6 |
| Cultural benefits | 7 |
| Destination attractiveness | 17 |
| Health benefits | 13 |
| Quality of life and wellbeing | 17 |

Table 6.2 – Hot springs’ contributions to the destination

Economic contributions of hot springs to the destination

The largest number of responses were related to the theme regional economic development. Most experts affirmed that hot springs actively contribute to regional economic growth by driving tourism and spending on local accommodation, food and beverages and activities, and increasing commerce in surrounding towns. Evidence for this theme included:

#4 – “Flow-on benefits to the local economy from a food & beverage, accommodation, activities, tours, leisure and sporting activities”

#5 – “Increased opportunity to drive tourism.”

#23 – “Partnerships and collaborations to support regional economic development.”

#30 – “Our hot spring spa resorts are light towers in the areas and support not only other touristic entities but also the supplier and regional producers.”

#22 – “Contribute to the cultural and economic development of the region.”

Employment was the second most widely discussed economic contribution made by hot springs to the region. Fourteen members of the panel directly addressed this topic, highlighting how hot springs can generate job opportunities to the local community and reduce unemployment or underemployment rates. Other economic contributions of hot springs were also identified, such as destination competitiveness and visitor spending. While these sub-themes were not as widely discussed, they are still important. For instance, hot springs can enhance the brand and prestige of a place, as noted by one respondent. Another expert stated that hot springs are an asset to the region and a major tourist attraction.

Visitor spending was also highlighted as making an important contribution, with one expert noting that 80% of guests are international, so it is in effect an export sector. Another respondent emphasised the significance of local and international tourism to the destination, as it can greatly contribute to the economy.

Environmental contributions of hot springs to the destination

The strongest theme in relation to the environmental contribution of the hot springs to the destination emphasised hot springs operators implementing sustainable practices. Two experts cited regeneration as being an overarching goal of hot springs operations, which can be achieved through various sustainable practices such as “revegetation of the landscape and cultivation and care for the natural environment”, the “...use of sustainable energy practices, i.e. solar energy” and “composting”. Overall, great value is placed on the environmental benefits that hot springs can deliver.

Another important topic discussed was the potential environmental impact of visitors to hot springs. However, the panel observed that by adopting strategic sustainable practices, hot springs can counterbalance this problem, which can take the form of noise, crowds, pollution and careless behaviour. This includes taking measures to curtail the damage caused by these scenarios. Below are examples of actions being undertaken by hot springs operators:

- “Environmental impact of guests travelling to the hot springs can be offset by tree planting programs and use of sustainable energy practices, i.e., solar energy, geothermal heating” (Respondent #4)
- “Hot spring project to become a landmark project, which will improve the local ecological environment, increase the greening rate, and control the air quality” (Respondent #33)
- “They have the potential to create water ecosystems” (Respondent #23)

Socio-cultural contributions of hot springs to the destination

Concerning the panel’s opinions on the socio-cultural contributions of hot springs to the destination, the most common themes were: firstly, quality of life and wellbeing; and, secondly, destination attractiveness. With reference to enhancing people’s quality of life and overall wellbeing, one respondent pointed out that hot springs offer a natural setting for visitors to unwind and connect with one another. Highlighting the locality of the hot springs as a wellness

destination can further boost their socio-cultural credentials as stated by another expert. Additionally, a few experts mentioned that hot springs are renowned for providing experiences that enhance the community's health and wellbeing that attract locals and out-of-town visitors. One of the experts identified the cultural significance of hot springs in shaping the history and identity of the surrounding community.

It is further noted that hot springs have a positive impact on users' overall sense of wellness and wellbeing. Due to their natural properties, hot springs can directly improve the health of their users and enhance physical or mental wellbeing at a community level, creating social connectivity. According to twelve experts, the presence of hot springs at a destination can raise awareness about the health benefits of using them. Hot springs can greatly enhance the appeal of a destination. The panel agree that hot springs can serve as a unique attraction, improving local visibility and adding to the allure of an area. In fact, one respondent suggested that hot springs have the power to transform a region. As a sought-after attraction, experts recommend hot springs to be paired with other activities, such as music and performance programs, to contribute to a destination's socio-cultural vitality.

This question sought to obtain a comprehensive understanding of the impact of hot springs on their community and destinations. It can be concluded that hot springs play an important role in boosting the economy, preserving the environment, and enriching the socio-cultural fabric of the destination in which they are located. The following section will examine the insights provided by the experts regarding the potential socio-cultural, environmental and economic impacts of hot springs as well as how these can be measured.

6.3.4 Potential impacts of hot springs

In this section of the questionnaire, the panel of experts was asked to identify three potential socio-cultural, environmental and economic impacts of hot springs, and how to measure them. The questionnaire emphasised the importance of understanding the socio-cultural impact of hot springs on both individuals and communities. For this reason, two specific questions were asked addressing the socio-cultural impacts of hot springs on their users/visitors and the destination.

Socio-cultural impacts of hot springs on its users/visitors

Table 6.3 displays the potential socio-cultural impacts of hot springs on their users /visitors as identified by the panel. Eight indicators were identified, and these are listed below.

| Question 3: | |
|---|-------------------------|
| What are the three most appropriate indicators you would use to measure the socio-cultural impacts of hot springs on its users/visitors? | Total references |
| Socio-cultural impacts of hot springs on its users/visitors | |
| Assessing health benefits for users/visitors | 32 |
| Frequency and purpose of visit | 29 |
| Assessing the quality of life of hot springs users | 12 |
| Visitor satisfaction | 11 |
| Number of activities or events | 10 |
| Feeling before and after visiting the hot springs | 7 |
| Happiness indices | 6 |
| Rank of hot springs facilities | 2 |

Table 6.3 - Number of times hot springs' socio-cultural impacts on their users/visitors were cited by the panel of experts.

The most commonly suggested indicator was “assessing health benefits on its users/visitors”. The majority of experts emphasised the importance of assessing mental and physical health of hot springs visitors as an indicator of its advantages. They advised assessing physical health in several areas, for instance improved sleep, dealing with arthritis, skin health, detoxification, muscle and bone health and blood pressure. Additionally, one expert stressed the importance of examining the mental health of hot springs visitors both before and after their visit as a means of measuring the positive impact on their overall health. Another expert suggested assessing the wellbeing of hot springs visitors by measuring anxiety and stress levels pre- and post-visit. To measure these indicators, using surveys is one of the suggested methods.

The panel suggested that the socio-cultural impacts of hot springs on visitors can be assessed by considering the frequency and purpose of visits. Repeat visitations may indicate that the hot springs hold a special meaning for the visitors and the length of stay can provide insights into the popularity and significance of the location. As well, the total number of visitors to the hot

springs per year can also be another indicator of the popularity to users. To measure these indicators, the experts suggested surveying visitors on their frequency of visiting the hot springs, length of stay and the purpose of their visits.

Assessing the quality of life of hot springs visitors is another important indicator, however, the views on how to assess it were wide-ranging. Some suggest that repeat visitations could be a proxy for level of wellbeing of hot springs visitors, while others suggest that the sense of wellbeing could be measured before and soaking in the hot springs. Surveys can be used to measure this indicator.

According to the experts, assessing visitor satisfaction is an important indicator. One expert suggested it would be feasible to implement a survey designed to elicit feedback from visitors regarding their level of satisfaction. Guest satisfaction surveys could serve to assess this indicator, which would suggest utilising the Net Promoter Score (NPS). Calculating the NPS score for the hot spring facility can indicate high levels of satisfaction if visitors recommend it to their friends or colleagues.

The participation rate of visitors in activities and events at the hot springs and the destination was identified as an indicator. The number of activities or events that visitors take part in can show the level of engagement that hot springs encourage in their visitors.

Table 6.4 and *Table 6.5* list the proposed socio-cultural indicators and their measurements. The main two main themes identified by the panel were the direct impact of hot springs on the health of hot springs' users and visitors and their sense of wellbeing. The focus was to group the proposed indicators under these main themes. Assessing mental health presents a challenge due to its subjective and complex nature. Nevertheless, one can measure mental health benefits by assessing stress levels before and after visiting the hot spring, as well as identifying the reason for visiting the hot springs, which can be done employing a visitor survey. Some respondents intimated that it is possible to measure perceived health benefits of using hot springs. These perceived health benefits could include any perceived improvements such as pain relief (e.g. for arthritis), relieving respiratory disease (asthma), better skin, and improvement in sleep, amongst others (Erfurt-Cooper & Cooper 2009; Erfurt 2022; Rai, Bhattarai & Khatiwada 2020).

| Theme | Proposed Indicators | How will it be measured? |
|--|----------------------------|--|
| Direct impact on the health of hot springs' users and visitors | | Purpose of visit |
| | Mental health benefits | Levels of stress before visiting hot springs and post-visit |
| | | Self-assessment by Visitor Survey |
| | Physical health benefits | Assessing improvement in sleep benefits on skin and symptoms of relief of pain |
| Visitor survey | | |

Table 6.4 - Proposed socio-cultural indicators for hot springs' users/visitors.

The experts frequently cited the sense of well-being among hot springs' visitors. However, measuring this can be challenging given that measurement is highly subjective. Some proposed that one possible approach to measuring visitors' wellbeing is through repeat visits, as these have been found to contribute to visitors' overall sense of relaxation and restoration (Vada, Filep, Moyle, Gardiner & Tuguinay 2023). The assumption is that visits to the hot springs would not be repeated if it did not create the desired outcome of improved wellbeing. Additionally, measuring the level of satisfaction of hot springs users/visitors could provide another avenue for assessing visitors' wellbeing (Bagheri, Guerreiro, Pinto & Ghaderi 2023). Whether physical or emotional, understanding how visitors feel before and after their hot springs experience could help determine their sense of wellbeing. However, it is important to acknowledge that measuring this can be biased and depend on each visitor's unique definition and perception of wellbeing as well as their experience at the hot springs.

| Theme | Proposed Indicators | How will it be measured? |
|--------------------|--|---|
| | Sense of well-being after visiting hot springs | Visitor survey |
| Sense of wellbeing | Number of hot springs visitors/users satisfied with their experience | Visitor survey – measuring hot springs’ visitors/users experiences using Net Promoter Score (NPS) |

Table 6.5 - Proposed socio-cultural indicators for hot springs’ users/visitors.

Socio-cultural impacts of hot springs on the destination

Table 6.6 displays 11 indicators that were devised based on the responses received for this question to evaluate the socio-cultural impacts of hot springs on the destination.

| Question 4: What are the three most appropriate indicators you would use to measure the socio-cultural impacts of hot springs on the destination? | Total references |
|--|------------------|
| Socio-cultural impacts of hot springs on the destination | |
| Quality of life of the community | 25 |
| Assessing health benefits at a community level | 20 |
| Culture of the region | 16 |
| Visitation patterns | 14 |
| Attractiveness of the destination | 13 |
| Involvement of the community | 12 |
| Number of locals using the hot springs | 11 |
| Economic infrastructure | 9 |
| Sense of belonging | 3 |
| Happiness indices | 2 |
| Life expectancy of the residents going to the destination | 2 |

Table 6.6 - Panel of experts cited the number of times hot springs’ socio-cultural impacts help the destination.

Among the most cited indicators for assessing the socio-cultural impacts of hot springs on the destination is the community's quality of life. This encompasses a variety of factors including the ways in which hot springs affect the life of people in the community. Experts prioritise understanding how the lifespan of residents contributes to their overall wellbeing. This can be evaluated by comparing the average lifespan of residents to national averages and conducting longitudinal studies to assess longevity at the community level. This data can be obtained from government studies and various reports. Additionally, economic factors like financial stability, affordable housing, and the health of the local community also play a role in determining the quality of life for residents. One expert suggested that the number of locals visiting the hot springs was an important measure in assessing the quality of life of the residents.

Assessing health benefits of a community is an important factor in determining the quality of life for its residents. The mental health of the residents has been a widely discussed topic, highlighting the importance of assessing anxiety or stress levels in the area where the hot springs are located. Recording morbidity rates and hospital visits were also discussed as providing insights into the overall health of residents, despite the fact that gathering this information can be challenging. Government reports can serve as a useful tool for measuring this information.

In order to gain a comprehensive understanding of a region's culture, experts recommend evaluating the level of community engagement. Engaging with the locals can offer insights into cultural practices and customs such as the significance of hot springs in a particular area. Furthermore, hot springs businesses could be a catalyst for social and cultural development, by bringing people together to celebrate water as a natural resource. To assess the level of social and cultural activity in the region, the number of cultural offerings and events that take place at the destination annually could be considered. This provides an opportunity to increase community involvement and participation.

Some of the experts' comments below highlight the importance to assess health benefits and quality of life at a community level:

- “Length and quality of life. With the benefits of greater social connection and improved economic prosperity, does this help people in the community live longer and more fulfilling lives - ABS statistics (or local community statistics) on the length of life and cause of death.” (Respondent #1)

- “Mental health & anxiety awareness and prevalence in local community (suicides, depression and anxiety rates).” (Respondent #23)
- “Percentages of those experiencing depression and/or anxiety in Austria’s Tyrol compared with the national average. Perhaps even musculoskeletal: chronic lower back pain might be 14% national, perhaps it is 10% in Tyrol where bathing is central to their community and way of life?” (Respondent #11)

Table 6.7 and *Table 6.8* outline the proposed socio-cultural indicators of hot springs on the destination. Although measuring quality of life can be difficult, one significant factor is the longevity of residents, which can be compared to national data to gauge the impact of hot springs on a community level. Furthermore, the number of locals utilising the hot springs can be obtained through visitor surveys, providing further details about residents’ quality of life. The experts also underscored the need to assess mental health benefits, specifically the prevalence of anxiety and depression in the community where the hot springs are located. The rates of people living in the hot springs destination suffering from anxiety and depression can be found in national data sets.

| Theme | Proposed Indicators | How will it be measured? |
|--------------------------------------|--|--|
| | Average lifespan of residents at the destination compared to national averages | Local government statistics |
| Health benefits at a community level | Longevity and quality of life of residents | Visitor survey |
| | Percentage of visitors who live locally | Community survey/local government statistics |
| | Percentage of people at the hot springs destination to go to hospital compared to other destinations | government statistics |

| | | |
|------------------------|--|--------------------|
| Mental health benefits | Percentage of people at the hot springs' destination suffering from anxiety and depression | National data sets |
|------------------------|--|--------------------|

Table 6.7 - Proposed socio-cultural indicators for the destination.

The panel refers to the level of engagement between the hot springs operators and the local community as an essential indicator. The proposed indicators and how they will be measured are listed in *Table 6.8* as a reflection of the experts' opinions.

| Theme | Proposed Indicators | How will it be measured? |
|-------------------------------|--|---|
| | Diversity and inclusion (e.g., people with disabilities/collaborations with First Nations people/local community group engagement) | Annual report/policies of hot springs' businesses – CSR activities |
| Bathing culture of the region | Level of engagement with the community Number of partnerships and engagements with tourism facilities in the region | Hot springs' surveys will include how many partnerships and engagements any hot springs facilities have with other businesses in the region |

Table 6.8 - Proposed socio-cultural indicators for the destination.

Environmental impacts of hot springs on the destination

The fifth question asked to the panel was to identify appropriate indicators for measuring the environmental impacts of hot springs on the destination and to determine the method of assessment. To consolidate the responses provided by the experts, *Table 6.9* was produced and it includes the indicators identified from their responses.

| Question 5: | Total |
|--|-------------------|
| a) What are the three most appropriate indicators you would use to measure the environmental impacts of hot springs on the destination? | references |
| <hr/> | |
| Environmental impacts of hot springs on the destination | |
| Assessing sustainable practices | 36 |
| Biodiversity – Regeneration | 33 |
| Water usage | 25 |
| Air Quality | 22 |
| Energy usage | 20 |
| Waste management | 14 |
| Diversity of wildlife in the region | 7 |
| Transportation | 6 |
| Crowding | 5 |
| Annual use of hot springs | 2 |

Table 6.9 - Panel of experts cited the number of times the environmental impacts of hot springs.

One of the most frequently mentioned indicators in *Table 6.9* is assessing hot springs' sustainable practices. The panel of experts defined sustainable practices as the “awareness of a clean environment” (Respondent #7) and “sustainable development practices employed” (Respondent # 6). Sustainability is a critical issue in the tourism industry, but tracking progress can be problematic (Farrell & Hart 1998; Goodland 1995; Higgins-Desbiolles 2018; Hussain 2021; Roberts 2023; Roberts & Tribe 2008; Tsung Hung, Fen-Hauh & Jui-Tu 2021; Wang & Lin 2021). Respondent #9 suggests that “sustainability monitoring” and “appropriate verification protocols” can assist in achieving sustainability.

Biodiversity can serve as an important indicator of long-term sustainability and measuring various metrics such as the number of trees planted, native forests, vegetation changes, and

flora and fauna can provide insights into a destination’s sustainable practices. The experts emphasised the importance of monitoring the impact of biodiversity in hot springs destinations. Added to this, some experts have advocated that these hot springs destinations could boost the natural environment by setting vegetation or revegetation targets and improving the habitats of fauna. Drawing on this discussion, the following indicators and their measurements are listed in *Table 6.10*.

| Theme | Proposed Indicators | How will it be measured? |
|--------------|--|--|
| Biodiversity | Positive aims of the hot springs business on the issue of supporting wildlife | Objectives of hot springs operators |
| | Programs for promoting forest cover | Reports on commitments made by hot springs operators |
| | Commitment to environmental improvement, such as forest cover and land care either onsite or elsewhere | Reports on commitments made by hot springs operators |

Table 6.10 - Proposed environmental indicators.

The following most cited indicators were “air quality” and “energy usage” which were grouped for analysis and discussion under the theme of climate change and energy. According to *Figure 6.2*’s word cloud generated by NVIVO, out of 11 experts who highlighted the importance of air quality, five cited “carbon footprint” or “carbon emissions”. As emphasised in Chapters 2 and 3, climate change is a critical and ongoing topic discussed within the tourism industry that needs to be addressed. The primary cause of global warming is greenhouse gas emissions. Hence, it is important to calculate the amount of greenhouse gas emissions that are produced by hot springs’ operations. Some experts also identified the amount and type of energy used by the hot springs as potential indicators worth considering.

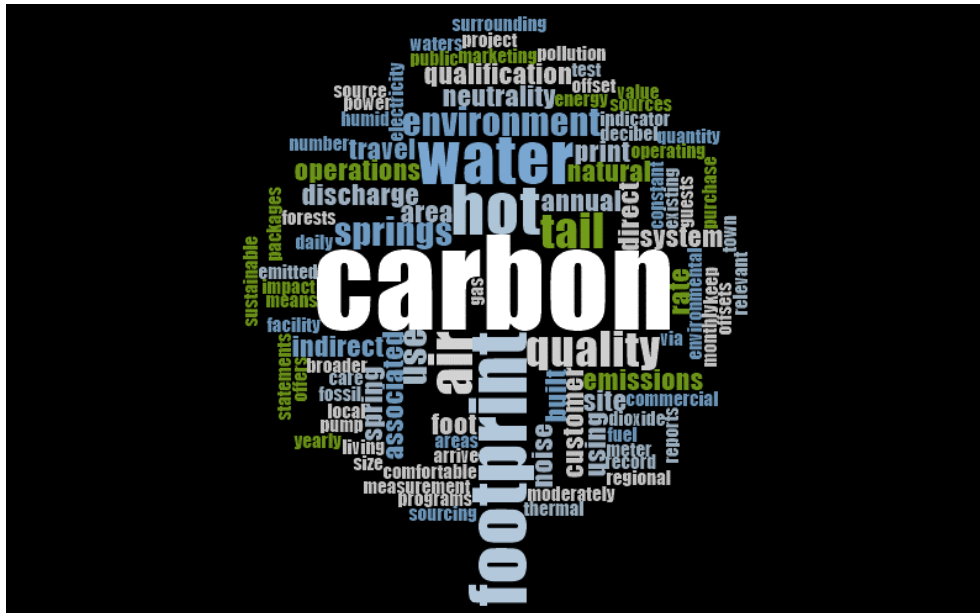


Figure 6.2 Word cloud generated by NVIVO on the theme of air quality.

Some of the comments from the experts below suggest that climate change and energy are important factors for the hot springs industry to be aware of:

- “Carbon footprint, i.e., fossil fuel use, sourcing local, sustainable energy sources, programs to offset environmental impact” (Respondent #4)
- “Quantity of carbon dioxide emitted using thermal waters” (Respondent #24)
- “% of the energy that is renewable” (Respondent #13)
- “Energy use (gas, electric)” (Respondent #21)
- “Measurement of energy offset from geothermal benefit” (Respondent #6)

While most of the comments made by the experts were broad, it was important that the proposed indicators reflected both the experts’ comments and the Sustainable Development Goals (SDGs) as discussed in the literature review (Chapter 3). *Table 6.11* displays the proposed environmental indicators under the theme of climate change and energy.

| Theme | Proposed Indicators | How will it be measured? |
|---------------------------|--|---|
| | Greenhouse gas emissions per visitor as a result of hot springs operations | Calculations based on the operator’s energy bills |
| Climate Change and Energy | Aims for net zero by 2050 | Plans to achieve this goal by hot springs operators |
| | Percentage of energy used from renewables and gas producing – use of geothermal heat as energy | Percentage of solar, wind, hydro, and geothermal energy used by hot springs operators |

Table 6.11 - Proposed environmental indicators.

“Water usage” and “waste management” were other frequently cited indicators. Waste reduction practices were recognised as an opportunity to reduce many environmental problems. For some experts, it was important to assess the amount of waste disposed in landfill by the hot springs facility. Some experts also emphasised the importance of water usage as an environmental indicator, as the amount of water used by the hot springs facility was referenced as an indicator.

The following experts’ statements on both topics will further provide evidence for discussion:

- “Waste & energy: waste levels (compost, food waste, landfill, recycling), net electricity/gas/water usage” (Respondent #23)
- “Community survey/ recycle programs/ solid waste management” (Respondent #27)
- “Use of water” (Respondent #13)

Due to the nature of hot springs and the comments made by the experts, the amount of waste disposed by the hot springs facility and how hot springs operators use their springs/mineral water were classified as significant. This information is represented in *Table 6.12*.

| Theme | Proposed Indicators | How will it be measured? |
|--------------|--|---|
| Waste | Amount of solid waste to landfill divided by number of visitors. | Waste assessment by hot springs operators |
| | Commitment to circular economy (Recycling) | The objective of hot springs operators |
| | Fresh water used per visitor | Water assessment by hot springs operators |

Table 6.12 - Proposed environmental indicators.

Economic impacts of hot springs on the destination

Table 6.13 presents the top economic indicators of hot springs on the destination, as identified by experts in response to question 6. While analysing the responses to this question, two main themes emerged, namely direct and indirect economic impacts.

Question 6:

| What are the three most appropriate indicators you would use to measure the economic impacts of hot springs on the destination? | Total references |
|--|-------------------------|
|--|-------------------------|

Economic impacts of hot springs on the destination

Direct Economic impacts

| | |
|---------------------------------------|----|
| Employment rates at the hot springs | 33 |
| Visitors spend | 14 |
| Hot springs revenue | 12 |
| Number of visitors to the hot springs | 8 |
| Overnight stays | 8 |
| Income generation | 5 |
| Tourism growth to the destination | 5 |
| Seasonal variation | 2 |
| Visitor satisfaction | 2 |

| Indirect Economic impacts | |
|--|----|
| Employment rates at the destination | 18 |
| Taxes | 7 |
| Economic improvements for the community | 4 |
| Engagement with the community | 3 |
| Scale of the hot springs industry at the destination | 2 |

Table 6.13 - Number of times the panel of experts cited hot springs' economic impacts.

Under the theme of direct economic impacts, experts identified several indicators, namely, employment rates at the hot springs, visitor spending, visitation numbers and overnight stays at the hot springs and at the destination. To grasp the direct economic impact of the hot springs where they are located, it is important to assess the number of visitors coming to the hot springs per year, their expenditure and for how long they stay. The experts also found it important to assess the number of employees at the hot springs. Surveying visitors may be able to measure these indicators. While hot springs revenue and income generation were mentioned several times, it was unclear how these indicators would be measured.

The following comments made by the experts address these themes.

- “Employment rates - directly employed by the hot springs facility” (Respondent #4)
- “Net jobs created” (Respondent #17)
- “Number of visitors, both new and returning” (Respondent #27)
- “Visitor economy – As we are an overnight destination rather than a day trip destination, guests will contribute to the visitor economy by staying overnight in local accommodation, buying meals from the local restaurants and booking other experiences in the region.” (Respondent #28)
- “Number of local and international tourists visiting the hot springs” (Respondent #24)
- “Average amount spent per visit” (Respondent # 27)

The direct economic indicators and their measurements are identified in *Table 6.14* below.

| Theme | Proposed Indicators | How will it be measured? |
|---|--|--|
| Direct economic impacts of hot springs' operations at the destination | Number of visitors to the hot springs facility | Businesses' report |
| | Average spend per visitor at the hot springs facility | Economic analysis from a survey done by hot springs operators |
| | Number of people employed by the hot springs facility | Annual report of hot springs' businesses |
| | Number of visitors coming to the destination for the hot springs | Visitor survey |
| | Overnight stays by visitors to hot springs | Visitor survey |
| | Total amount spent at the destination by hot springs visitors | Visitor survey |
| | Number of people employed as a result of hot springs | Economic analysis |
| | Average spend per visitor at the hot springs facility | Visitor Survey/ Point of Sale software at the hot springs facility |

Table 6.14 - Proposed direct economic indicators.

Looking at the indirect economic impacts, the following indicators were mentioned by the experts: unemployment rates at the destination, level of engagement with the community and economic improvement for the community. As the experts did not elaborate too much on the indirect economic impacts of hot springs on the destination, some of the financial contributions mentioned in question 1 were used to make a list of the potential indicators.

At a destination/community level, income was identified as an essential indirect economic indicator of hot springs at the destination. Measuring the average household income and the percentage of unemployment there will help evaluate the region's economic health and can be compared to other regions. Assessing the number of businesses at the destination will also help evaluate the hot springs' impact on their business. Having hot springs visitors attend events or other attractions could improve the destination's economic health. Therefore, *Table 6.15* lists the potential indirect economic indicators of hot springs at the destination.

The following comments elicited by the experts highlight the indicators identified under the theme of indirect economic impacts:

- “Annual employment and unemployment numbers in the town or region” (Respondent #1)
- “Unemployment rate at destination level” (Respondent #24)
- “Tourism employment rate is high; income is higher than other regions” (Respondent #19)
- “Number of cultural offerings per year and number of social activities per year” (Respondent #20)

| Theme | Proposed Indicators | How will it be measured? |
|---------------------------|---|---------------------------------|
| Indirect economic impacts | Average household income at the destination | Local government statistics |
| | % unemployment at the destination | Local government statistics |
| | Number of businesses at the destination | Local government statistics |
| | Number of people attending activities, events and attractions at the destination as a result of hot springs | Visitor survey |

Table 6.15 - Proposed indirect economic indicators.

In total, thirty-two indicators were proposed based on the analysis of the experts' responses in Round 1. These indicators were then presented to the panel of experts in Round 2 to be rated on a 5-point Likert scale. The second round aimed to achieve greater consensus from the panel and was conducted through an online survey. Round 2 of the study was designed to gain more consensus from the panel of experts. Section 6.4 will provide a more detailed explanation of this process.

6.4 Analysis and Discussion: Round 2

During the first round of the Delphi technique, a total of thirty-two potential indicators was proposed to assess the socio-cultural, economic and environmental impacts of hot springs on the community and destination. Most these indicators received a consensus score of over 3.5. Some indicators were rephrased after reviewing the literature (Chapter 3), while some were disregarded as being impractical. The rationale behind the rating score of each indicator will be discussed in the following sections. In the next section, the results of the second questionnaire will be presented. In this round, thirty-three questionnaires were distributed to the experts and thirty-one were received back. After distributing 33 questionnaires to the experts, 31 respondents responded to all the questions and returned the questionnaires in Round

2. Each question was analysed separately, and the mean score of each identified indicator are presented in graphs.

6.4.1 Development and Content: Round 2

Round 2 of the Delphi technique involved an online questionnaire designed to gather opinions of experts on the proposed indicators for measuring the impacts of hot springs. This round was based on the discussions that took place during the first round, and experts were invited to complete the questionnaire at their convenience.

To facilitate the rating process, a 5-point Likert scale was included in this round, and experts were asked to rate the proposed indicators according to their importance. A comment box was also available for experts to provide additional feedback. For example, *Figure 6.3* provides a screenshot of the proposed economic indicators and displays the available options for the experts to rate, ranging from not important to extremely important. The proposed indicators were grouped into three categories: economic (direct and indirect economic impacts), environmental (climate change and energy, waste and biodiversity) and socio-cultural impacts (direct impact on the health of hot springs' users and visitors, sense of wellbeing, health benefits at a community level and bathing culture of the region); each of which was accompanied by a brief explanation to aid the rating process. Chapter 4 (methodology) provides further discussion on the scale's usage and its advantages and disadvantages.

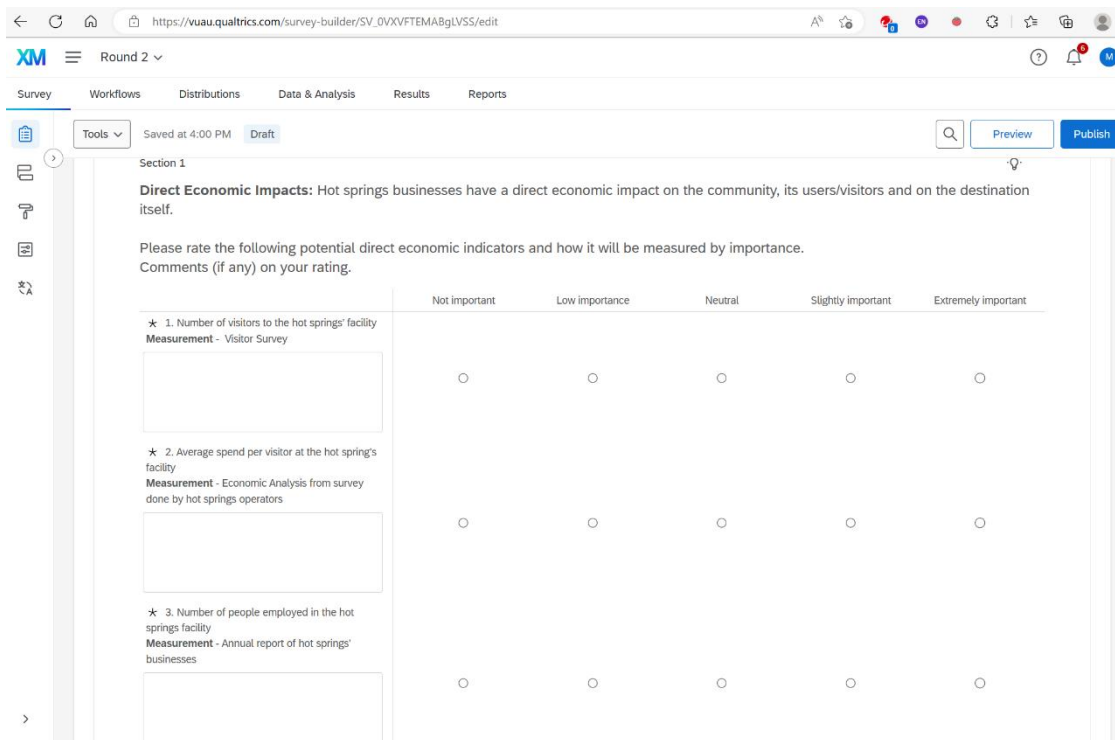


Figure 6.3 – Proposed economic indicators.

6.4.2 Economic Indicators

Under the theme of direct economic impacts, the panel assessed seven indicators, and *Figure 6.4* displays the mean scores assigned to each of these indicators. It is unsurprising that the number of visitors attracted to the destination by hot springs (indicator 4) received the highest score of 4.84. Overnight stays as a result of hot springs (indicator 5) received a mean score of 4.68, while the total amount spent at the destination as a result of hot springs (indicator 6) and number of visitors to the hot springs facility (indicator 1) both received a mean score of 4.65. Suggested here is that these are important economic indicators. Although some experts queried how the number of visitors to the hot springs facility could be measured, a visitor survey was established to gather this information for the research. The number of people employed by the hot springs facility (indicator 3) received a mean score of 4.45, and the information will be gathered from the annual reports of the hot springs operator.

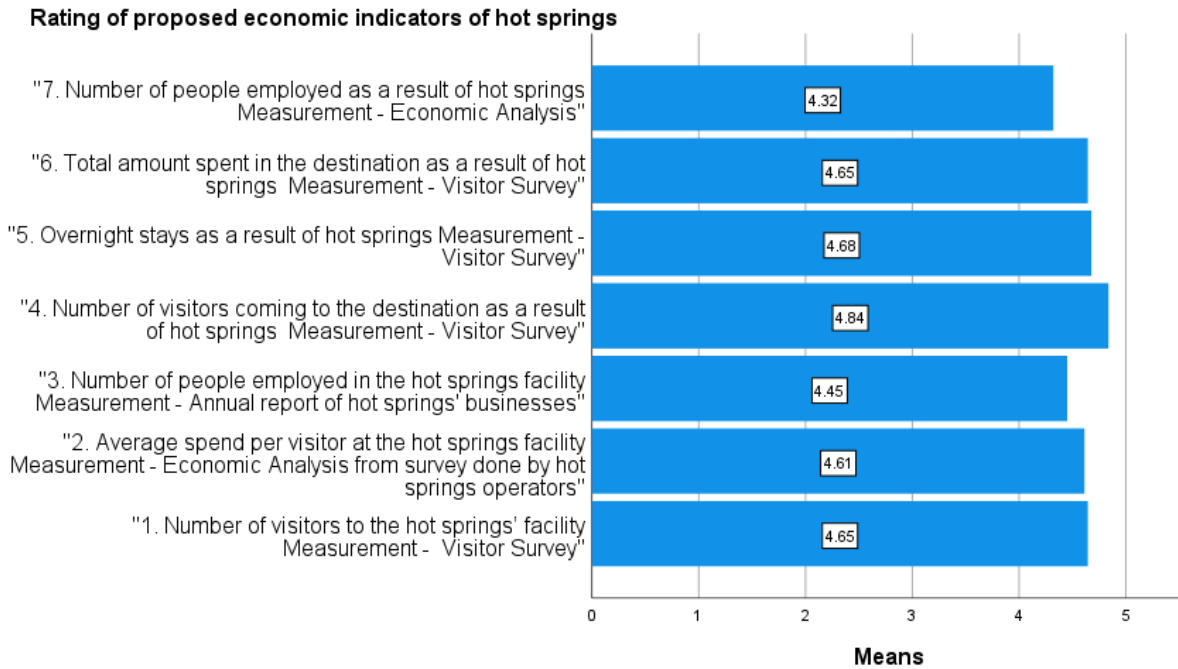


Figure 6.4 - Rating of proposed economic indicators of hot springs and their measurements

In *Figure 6.4*, all of the direct economic indicators received a mean score higher than 4, indicating consensus among the experts. However, with the lowest mean score of 4.32, the number of people employed due to hot springs (indicator 7) was disregarded from the final potential indicators list for not being feasible and realistic. *Table 6.16* shows the six potential indicators that were retained from the seven proposed indicators.

| Potential Economic Indicators | | |
|--|---|--|
| Themes | Potential Indicators | How will it be measured? |
| Direct Economic impacts of Hot springs' operations on the destination | 1. Number of visitors to the hot springs facility | Businesses' report |
| | 2. Number of people employed by the hot springs facility | Annual report of hot springs' businesses |
| | 3. Number of visitors coming to the destination for the hot springs | Visitor survey will include the purpose of visit |
| | 4. Overnight stays by visitors to the hot springs | Visitor survey will include length of stay and choice/types of accommodation. |
| | 5. Average spend per visitor at the hot springs facility | Visitor Survey/ Point of Sale software at the hot springs facility |
| | 6. Total amount spent at the destination by hot springs visitors. | Visitor survey will include how much money they spend on the destination (e.g., restaurants, accommodation, treatments). |

Table 6.16 - Potential economic indicators and their measurements.

In this category of indirect economic impacts, the panel of experts rated the proposed indicators as necessary and appropriate, as depicted in *Figure 6.5*. The number of people attending activities, events, and attractions at the destination due to hot springs (indicator 11) was identified as important by the experts and scored the highest mean of 4.44. This indicator highlights the significant indirect economic impact of hot springs on the destination. However, indicator 10 - the number of businesses at the destination (indicator 10) - was deemed too vast to assess, and it was suggested to focus on tourism businesses instead. Although some experts expressed concerns about the potential problem of unemployment at the destination (indicator 9), others viewed it as an important indicator to demonstrate how hot springs benefit the lower-income socio-economic groups. Conversely, the average household income at the destination (indicator 8) received the lowest mean score of 3.66 but is important to assess the economic wealth and living standards of the residents.

Figure 6.5 shows that all the proposed indirect economic indicators received a rating above 3.5, meaning that the panel of experts reached a consensus. Some of the potential indicators were rephrased to fit the research better, and *Table 6.17* presents these indicators and their measurements.

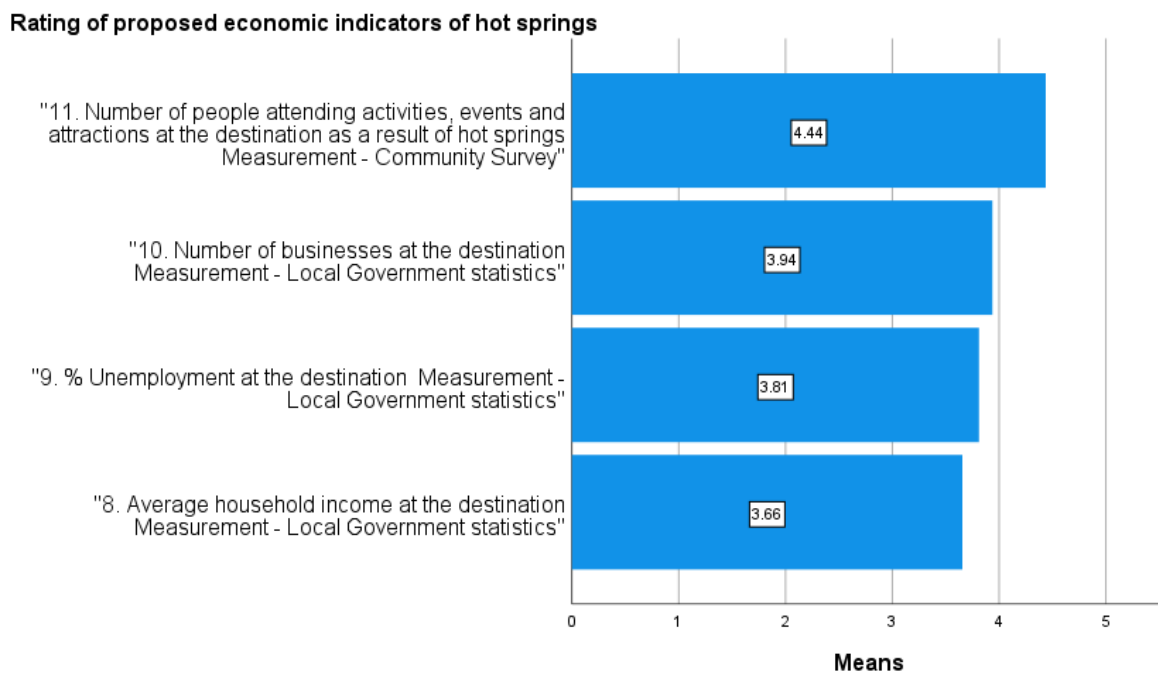


Figure 6.5 - Rating of proposed economic indicators of hot springs and their measurements.

| Potential Economic Indicators | | |
|--------------------------------------|--|---|
| Themes | Potential Indicators | How will it be measured? |
| Indirect economic impacts | 7. Average household income at the destination | Local government statistics – ABS statistics |
| | 8. % Unemployment in destination | Local government statistics – ABS statistics |
| | 9. Number of tourism businesses at the destination | Local government statistics, which will include the total number of tourism businesses at the destination |
| | 10. Number of people attending activities, events and attractions at the destination as well as visiting the hot springs | Visitor survey will include how many activities, events and attractions they attended at the destination. |

Table 6.17 - Potential economic indicators and their measurements.

6.4.3 Environmental Indicators

Upon review of the feedback gathered, the proposed environmental indicators were highly rated by several respondents. However, there were certain proposed indicators that posed difficulties in measurement for the hot springs operators. *Figure 6.6* demonstrates the rating given to the proposed environmental indicators and their measurements.

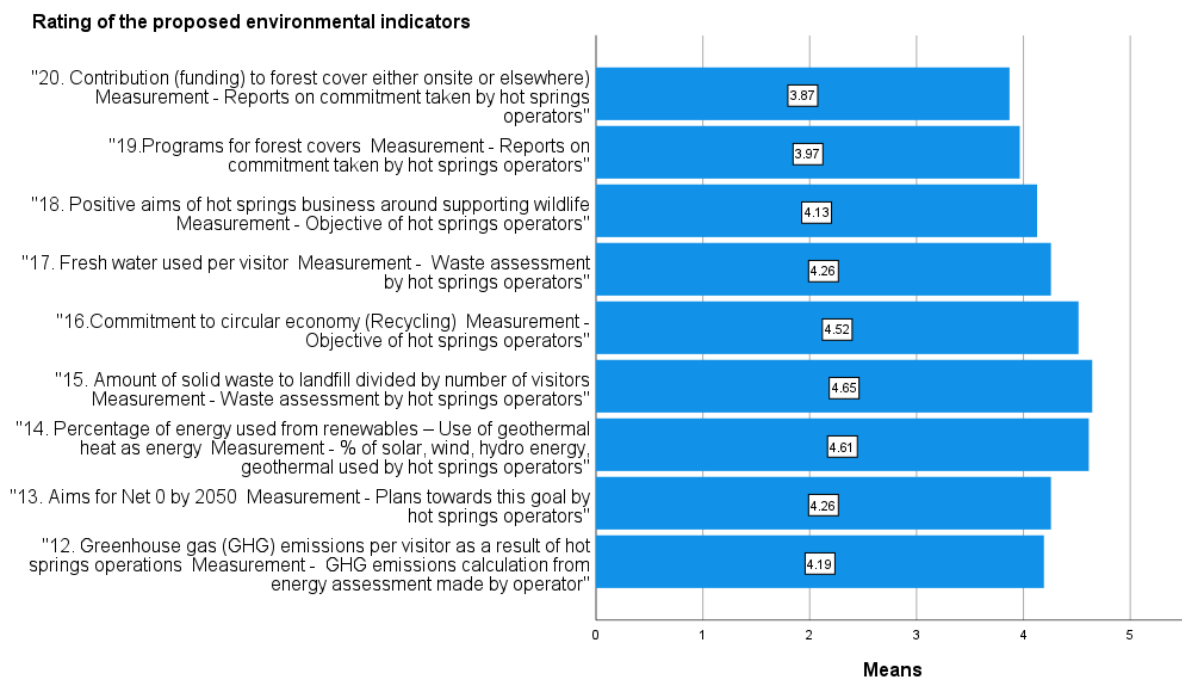


Figure 6.6 - Rating of the proposed environmental indicators and their measurements.

During Round 1, the environmental impact of hot springs on a destination was identified based on several factors. When it comes to climate change and energy, the use of renewable energy (indicator 14) was rated as the second most important factor with a mean score of 4.61. This is very significant as hot springs are known for using renewable energy such as solar panels or geothermal energy. As stated by one expert measuring greenhouse gas emissions (indicator 12) is “an important mission but not important for hot springs to measure”; subsequently, it was not given top priority (mean score of 4.20). Some experts found it challenging to measure this indicator for individual operators. However, education and awareness are essential for measuring and reducing greenhouse gas emissions. It is important for businesses to measure their greenhouse gas emissions, and in the case of this study, sharing data and calculations with hot springs operators can promote awareness and encourage sustainable practices.

In regard to waste management, with the highest mean score of 4.65, the amount of solid waste to landfill per visitor (indicator 15) was deemed “very important” by one of the experts as “all

facilities should be aiming for net zero to landfill”. The experts also discussed the importance of indicator 17 which measures freshwater usage per visitor. However, due to its potential for being misleading and difficult to measure, the indicator was rephrased to focus on the usage of geothermal waters by hot springs operators, for both bathing and non-bathing purposes. To measure this, hot springs operators can conduct a water assessment and check their water bills.

Experts had mixed views on indicator 18 which looked at the positive aims of hot springs businesses supporting wildlife (mean = 4.13) under the biodiversity theme, while some citing that it can be “very subjective” and “hard to measure” while others cited that it “needs to be described as net biodiversity gain year on year” referred to as “specific benefits for indigenous and local wildlife species”. Taking into account feedback from the experts and the literature review, this indicator was rephrased to reflect the commitment of hot springs businesses to supporting wildlife conservation. To assess this indicator, the objectives of hot springs operators can be reviewed. In Round 1, contribution (funding) to creating more forest cover onsite or elsewhere (indicator 20) was discussed as an important environmental indicator, however in Round 2, it received the lowest mean score of 3.87. Experts noted that many hot springs are not actually located in forested areas, and for those that are, further funding of and support given to projects in the surrounding community could position hot springs as leaders in biodiversity aims including links to carbon sequestration. Taking these factors into consideration, the indicator was restated as onsite or elsewhere. This indicator can be measured by looking at the reports on the commitments of hot springs operators.

Finally, based on the time frame of the research, the indicators’ viability of being measured, and the availability of data, other proposed indicators were disregarded. *Table 6.18* shows the proposed environmental indicators and their measurements.

| Potential Environmental Indicators | | |
|---|--|---|
| Themes | Potential Indicators | How will it be measured? |
| | 11. Greenhouse gas emissions per visitor as a result of hot springs operations | Calculations based on the operator's energy bills |
| Climate Change and Energy | 12. Percentage of energy used from renewables, including geothermal heat as energy | Percentage of solar, wind, hydro, and geothermal energy used by hot springs operators |
| | 13. Amount of solid waste to landfill per visitor | Waste assessment by the operator will include how much waste is disposed of each day. |
| Waste | 14. Usage of water by hot springs operators | Water assessment reports by operator. |
| | 15. Commitment of hot springs business to support wildlife conservation | Objectives of hot springs operators. |
| Biodiversity | 16. Contribution to environmental improvement such as forest cover and/or land care either onsite or elsewhere | Reports on commitments made by hot springs operators |

Table 6.18 - Potential environmental indicators and their measurements.

6.4.4 Socio-cultural Impacts

One of the challenging aspects of this study was developing indicators to measure the socio-cultural impacts of hot springs. The difficulty in doing this was due to the lack of comparable indicator sets and the qualitative nature of socio-cultural dimensions. During Round 1, the focus was on identifying the impacts of hot springs on both their users/visitors and their community. Consequently, it was important to devise innovative indicators that would accurately assess the wellbeing of both individual hot springs visitors and the community as a whole.

Figure 6.7 presents the experts' ratings of the proposed socio-cultural indicators on the visitors/users of hot springs. All five proposed indicators received a mean score of above 4.5, indicating a general agreement among the panel of experts. The highest mean score of 4.81 was given to indicator 24 which measured the sense of well-being after visiting hot springs, while indicator 22 assessed anxiety and stress levels before and after visiting hot springs; it received a mean score of 4.52.

Measuring well-being can be subjective, problematic and time-consuming. However, one available measure to evaluate stress levels before and after visiting the hot springs or by assessing any physical improvements in health post-visit. Studies show that hot springs have a positive impact on enhancing relaxation, wellbeing and reducing stress (Smith & Puczkó 2016). Evaluating the physical improvements after a visit to the hot springs (indicator 23) received a mean score of 4.65, and it represents an opportunity to assess any visible improvements experienced by the visitors.

The purpose of visiting received a high mean score of 4.74. The purpose can differ from one hot spring facility to another. Hence it is an opportunity to assess the frequency of visits and the reason for experiencing the hot springs at a specific facility. The satisfaction level of hot springs visitors was considered as an important indicator that had to be measured. The initial proposed indicator (indicator 25) was rephrased to "level of satisfaction of hot springs visitors/users" to make it more appropriate. The satisfaction level can be measured using the Net Promoter Score, which is essential to measure both for the hot springs facility and the destination where the hot springs are located. The reason is that the satisfaction level of hot springs' visitors can potentially have a positive correlation to the level of satisfaction of hot springs' visitors concerning the destination.

Rating of proposed socio-cultural indicators



Figure 6.7 - Rating of proposed socio-cultural indicators and their measurements

Hence, *Table 6.19* lists the potential socio-cultural indicators on the visitors/users of hot springs and how to measure them using a visitor survey.

| Potential Socio-Cultural Indicators On the visitors/users of hot springs | | |
|---|---|--|
| Themes | Potential Indicators | How will it be measured? |
| | 17. Purpose of visit | Percentage of visitors who attend the hot springs to improve their health or well-being. |
| Direct impact on the health of hot springs' users and visitors | Assess Mental health benefits 18. Levels of stress levels before visiting the hot springs and post-visit | Self-assessment by visitor survey. This survey will include the percentage of visitors who saw an improvement in their level of stress post-visit at the hot springs facility. |

| | | |
|---------------------------|--|--|
| Assess Physical health | 19. Improvement in sleep, benefits for skin and relief of pain | Visitor surveys will include how they felt before and after visiting the hot springs facility and perceived benefits on their physical health. |
| | 20. <u>Physical and Emotional wellbeing</u> Sense of well-being before and after visiting hot springs | Visitor survey will include visitors' stress levels before and after using the hot springs. |
| Sense of wellbeing | 21. <u>Level of satisfaction</u> Level of satisfaction of hot springs visitors/users | Visitor survey - Measuring hot springs visitors/users' experiences using Net Promoter Score |

Table 6.19 - Potential socio-cultural indicators and their measurements.

In *Figure 6.8*, the proposed socio-cultural indicators referring to the community were rated by the experts. The importance of assessing the impacts of hot springs on the community was identified in Round 1, prompting the proposed indicators to fill in the gaps. In Round 1, the residents' quality of life and longevity were frequently cited, resulting in two proposed indicators: firstly, indicator 27 which measured the percentage of locals using the hot springs (mean = 4.36); and secondly, indicator 26 which assessed the average lifespan of residents at the destination compared to national averages (mean = 3.52). A visitor survey can measure the percentage of visitors who lived locally, helping to assess whether the residents support the region's hot springs' businesses and inform them of the health benefits for the community. One expert pointed out that assessing the average lifespan of residents at the destination can link to blue zones, regions worldwide where people live a healthy lifestyle and live the longest (Buettner & Skemp 2016). Hot springs destinations could learn from the blue zone regions. While the measurement to assess the average lifespan of residents at the destination can be obtained from national data sets, some experts warned that "other factors can impact this figure".

In Round 1 discussions, the experts identified the bathing culture of the destination as prominent theme. This theme was further developed to assess the level of engagement the hot springs facilities have with their community. Many experts believed it was important to showcase the contributions made by these businesses to the community. Two indicators were proposed to the panel of experts: diversity and inclusion initiatives with a score mean of 4.48 (indicator 30) and the number of partnerships and engagement with tourism facilities in the region with a score mean of 4.36 (indicator 30). By examining diversity and inclusion initiatives, hot springs’ businesses can evaluate their current efforts and identify opportunities to be more inclusive or all-encompassing. This could include employing individuals with disabilities or collaborating with First Nations People. One expert suggested assessing “pathways for young people including training and jobs” to measure diversity and inclusion initiatives. This makes it possible to assess the socio-cultural impact of hot springs at a community level. Another way to measure the level of community engagement is by evaluating the number of partnerships and engagement hot springs businesses have with other businesses in the region.

Rating of proposed socio-cultural indicators

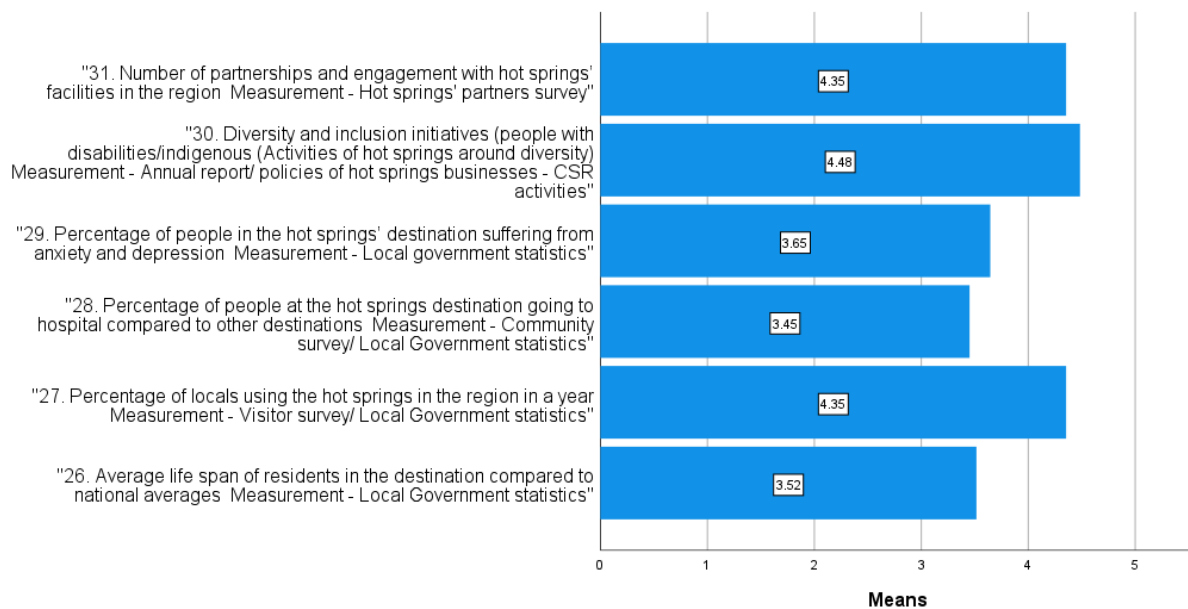


Figure 6.8 - Ranking of proposed socio-cultural indicators and their measurements

The potential socio-cultural indicators in the community are explained in the table below (*Table 6.20*).

| On the community | | | |
|---|---|---|--|
| Health benefits at a community level | <u>Longevity and quality of life of residents</u> | 22. Average lifespan of residents at the destination compared to national averages | National data sets |
| | | 23. Percentage of visitors who live locally. | Visitor survey |
| | <u>24. Mental health benefits</u> | Percentage of people at the hot springs' destination suffering from anxiety and depression. | National data sets |
| Bathing culture of the region | | 25. Diversity and inclusion initiatives (e.g., People with disabilities/collaborations with First Nations people/local community group engagement.) | Annual report/policies of hot springs' businesses – CSR activities |
| | <u>Level of engagement with the community</u> | 26. Number of partnerships and engagements with tourism facilities in the region | Hot springs' partner surveys will include how many partnerships and engagements, if any, hot springs facilities have with other regional businesses. |

Table 6.20 - Potential socio-cultural indicators and their measurements

6.5 Potential Indicators Summary

Out of 32 proposed indicators, 26 were selected to be tested in Australian hot springs. The 26 potential indicators are summarised in *Table 6.21*.

| Potential Economic Indicators | | |
|--|---|--|
| Themes | Potential Indicators | How will it be measured? |
| Direct Economic impacts of hot springs' operations on the destination | 1. Number of visitors to the hot springs facility | Businesses' reports |
| | 2. Number of people employed by the hot springs facility | Annual reports of hot springs businesses |
| | 3. Number of visitors coming to the destination for the hot springs | Visitor survey will include the purpose of visit |
| | 4. Overnight stays by visitors to hot springs | Visitor survey will include length of stay and choice/types of accommodation. |
| | 5. Average spend per visitor at the hot springs facility | Visitor Survey/ Point of Sale software at the hot springs facility |
| | 6. Total amount spent at the destination by hot springs visitors. | Visitor survey will include how much money they spend on the destination (e.g., restaurants, accommodation, treatments). |

| | | |
|----------------------------------|--|---|
| Indirect economic impacts | 7. Average household income at the destination | Local government statistics |
| | 8. % unemployment at the destination | Local government statistics |
| | 9. Number of tourism businesses at the destination | Local government statistics, which will include the total number of tourism businesses at the destination |
| | 10. Number of people attending activities, events and attractions at the destination as well as visiting the hot springs | Visitor survey will include how many activities, events and attractions they attended at the destination. |

Potential Environmental Indicators

| Themes | Potential Indicators | How will it be measured? |
|----------------------------------|--|---|
| Climate Change and Energy | 11. Greenhouse gas emissions per visitor as a result of hot springs operations | Calculations based on the operator's energy bills |
| | 12. Percentage of energy used from renewables, including geothermal heat as energy | Percentage of solar, wind, hydro, and geothermal energy used by hot springs operators |
| Waste | 13. Amount of solid waste to landfill per visitor | Waste assessment by the operator will include how much waste is disposed of each day. |

| | |
|---|---------------------------------------|
| 14. Usage of water by hot springs operators | Water assessment reports by operator. |
|---|---------------------------------------|

| | |
|---|--------------------------------------|
| 15. Commitment of hot springs business to support wildlife conservation | Objectives of hot springs operators. |
|---|--------------------------------------|

| | | |
|---------------------|---|--|
| Biodiversity | 16. Contribution to environmental improvement such as forest cover and/or land care either onsite or elsewhere. | Reports on commitments made by hot spring' operators |
|---------------------|---|--|

Potential Socio-Cultural Indicators

On the visitors/users of hot springs

| Themes | Potential Indicators | How will it be measured? |
|---|----------------------------------|---|
| | 17. Purpose of visit | Percentage of visitors who attend the hot springs to improve their health or well-being. |
| Direct impact on the health of hot springs' users and visitors | Assess Mental health benefits | 18. Levels of stress before visiting hot springs and post-visit Self-assessment by visitor survey. This survey will include the percentage of visitors who saw an improvement in their level of stress post-visit at the hot springs facility. |
| | Assess Physical health | 19. Improvement in sleep, benefits for skin and relief of pain Visitor survey will include how they felt before and after visiting the hot springs facility and perceived benefits on their physical health. |

| | | |
|---|--|--|
| Sense of wellbeing | 20. <u>Physical and Emotional wellbeing</u> Sense of well-being before and after visiting hot springs | Visitor survey will include visitors' stress levels before and after using the hot springs. |
| | 21. <u>Level of satisfaction</u> Level of satisfaction of hot springs visitors/users | Visitor survey - Measuring hot springs visitors/users' experiences using Net Promoter Score |
| On the community | | |
| Health benefits at a community level | <i>Longevity and quality of life of residents</i> | 22. Average lifespan of residents at the destination compared to national averages National data sets |
| | | 23. Percentage of visitors who live locally. Visitor survey |
| | 24. <u>Mental health benefits</u> Percentage of people at the hot springs' destination suffering from anxiety and depression. | National data sets |
| Bathing culture of the region | <u>Level of engagement with the community</u> | 25. Diversity and inclusion initiatives (e.g., People with disabilities/collaborations with First Nations people/local community group engagement.) Annual report/ policies of hot springs' businesses – CSR activities |

| | |
|--|--|
| 26. Number of partnerships and engagements with tourism facilities in the region | Hot springs' partner surveys will include how many partnerships and engagements, if any, hot springs facilities have with other regional businesses. |
|--|--|

Table 6.21 - Summary of the proposed economic, environmental and socio-cultural indicators

6.6 Chapter Summary

The purpose of this chapter has been to identify a set of indicators using the Delphi Technique. The discussion includes the process undertaken to complete both rounds of the Delphi Technique and a detailed review of each potential indicator. Each indicator was categorised under key themes and the measurement of each one was classified. The chapter concluded with the list of proposed indicators developed by the panel of experts. With the emergence of hot springs tourism businesses throughout Australia, it was important to validate the developed indicators in hot springs destinations that the country has. Hence, Phase 2 of the research will consist of a visitor survey to assess and measure the developed indicators at hot springs destinations in regional Australia. The testing phase aims to establish the extent to which the indicators can provide a reliable measure of the regional impact of hot springs operations. This will be further discussed in Chapter 7.

Chapter 7 - Testing the Indicators

7.1 Introduction

This chapter presents the outcomes of a comprehensive visitor survey conducted at two hot springs operating in Australia, namely Peninsula Hot Springs and Metung Hot Springs. The study assesses a range of indicators and concludes how hot springs help the economy, environment and community in regional Australia. Additionally, secondary data is gathered to validate the developed indicators used for all hot springs facilities and destinations. The following sections of this chapter describe the visitors to Peninsula Hot Springs and Metung Hot Springs based on the results derived from the visitor survey. For Cunnamulla Hot Springs and Phillip Island Hot Springs, secondary data was collected as preliminary data before these establishments had opened. The demographics of each group of visitors are described in section 7.2.

7.2 Overview of the Visitor Survey

During Phase 2 of the research, the visitor survey was designed to fulfil the study's third objective, namely to test the indicators initially developed in Chapter 6 (Phase 1 – Development of indicators) using the Delphi Technique. Data generated in Phase 2 were collected using an online survey platform called Qualtrics. Due to the recent COVID-19 pandemic and financial constraints, conducting interviewer completion surveys and face-to-face interviews was not feasible. Hence, implementing an online survey was the only feasible option. Furthermore, given the funding for this research and the relationship developed with hot spring stakeholders, it was an opportunity to administer a self-completion survey to hot spring visitors at each facility with the support of both Peninsula and Metung hot springs staff.

Time, location and method of survey completion

The visitor survey was sent to 170,402 recipients who visited and bathed at Peninsula Hot Springs between the 31st of August 2020 and 1st of September 2022 and 15,775 recipients who visited and bathed at Metung Hot Springs between the 18th of November 2022 and 30th of June 2023. Arrangements were made with the Peninsula Hot Springs and Metung Hot Springs marketing teams to administer the visitor survey to their customer databases. A total of 3631 and 76 responses for Peninsula Hot Springs and Metung Hot Springs, respectively, were recorded and will be described as one group better to understand the overall hot springs' community sample. Unfortunately, due to unforeseen challenges, Moree Artesian Spa could not participate in the data collection process for this phase.

Table 7.1 displays the number of surveys collected for each hot spring facility. It is worth noting that the hot spring facilities included in this research are at various stages of development. Peninsula Hot Springs and Moree Artesian Spa are well-established facilities. Metung Hot Springs is a new emerging hot spring that opened in November 2023, Cunnamulla Hot Springs opened in February 2024 and Phillip Island Hot Springs is set to open in 2025.

Table 7.1 - Data Collection of PHS and MHS visitor surveys.

| Hot Spring Facility | Frequency |
|-----------------------------|------------------|
| Peninsula Hot Springs (PHS) | 3631 |
| Metung Hot Springs (MHS) | 76 |

Note: N is the number of surveys collected.

In the following section, a descriptive analysis of the visitor survey distributed among visitors of Peninsula Hot Springs and Metung Hot Springs will be conducted. The demographic data followed by an assessment of the economic, environmental and socio-cultural impacts of hot springs on both visitors and destination will be presented.

7.3 Descriptive Analysis

7.3.1 Demographics

The following section will describe guests who have visited the Shire of Mornington Peninsula and the town of Metung and who bathed at Peninsula Hot Springs and Metung Hot Springs. This information was collected from the demographics section at the end of the visitor survey. This section will provide general information about Peninsula Hot Springs and Metung Hot Springs visitors, which includes:

- Resident or second homeowner of the Shire of Mornington Peninsula and Metung,
- Gender,
- Age Group,
- Occupation,
- Postcode, and
- Language spoken at home.

7.3.2 Peninsula Hot Springs

Table 7.2 summarises the demographic data collected from Peninsula Hot Springs visitors.

Resident or second homeowner of the Shire of Mornington Peninsula

Out of 3231 total responses, 87.6% were from individuals who were not residents of the Shire of Mornington Peninsula, while out of 2828 total responses, 94.7% indicated that they were not second homeowners in the area. Of the remaining respondents, 402 were confirmed residents of the shire, and 93 stated they owned a second home at the destination. A total of 7 participants chose not to answer this particular question.

Gender

From the total sample of 3231, 3062 people stated their gender in response to the question. Interestingly, most respondents identified as female (81.1%), while 17.6% identified as male, and less than 1% identified as non-binary or preferred not to disclose their gender.

Age Group

According to the visitor survey, the majority of Peninsula Hot Springs visitors falls between the ages of 40 and 49. The survey also identified three distinctive age groups emerging from the survey: 18-29 years old, 30 - 39 years old, and 40-49 years old.

Occupation

After analysing the data received for this question, the standard classification list of occupations from the ABS was used to identify job titles and classify them into significant occupations (Australian Bureau of Statistics, 2022a). These include managers, professionals, technicians and trade workers, community and personal service workers, clerical and administrative workers, sales workers, machinery operations and drivers and labourers. Additionally, options such as retired, self -employed, unemployed and prefer not to answer were added to the list.

According to the survey results, it was noted that the largest percentage of respondents, totalling 37.9%, work in professional roles. Following close behind are clerical and

administrative workers and community and personal service workers at 13.3% and 13.2%, respectively. The remaining participants work in various occupations such as managers, sales workers, technicians, trade workers, machinery, operators and drivers. A small minority reported being retired, unemployed or self-employed.

Postcodes

The results included visitors from 12 countries, with the majority (99.1%) being from Australia. The rest were from countries such as the United States, New Zealand, Canada, Japan, Malaysia, Poland, United Kingdom, Spain, Singapore, Chile and India. For further analysis, the data was broken down by region, with 536 respondents from regional Victoria. The breakdown by region is presented in *Table 7.2* with 208 respondents from the Shire of Mornington Peninsula, 134 from Phillip Island, and 67 from Gippsland. The remaining respondents were dispersed throughout Victoria.

Languages spoken at home

The majority of respondents (90.9%) speak English at home, while the remaining speak other languages such as Mandarin, Cantonese, Arabic, Vietnamese, Italian, Hindi, Greek, Spanish, and French.

Table 7.2 -PHS demographics data

| | | Frequency (N) | Percent % |
|--|-------------------|---------------|-----------|
| Resident of the Shire of Mornington Peninsula | Yes | 402 | 12.4% |
| | No | 2829 | 87.6% |
| | Total | 3231 | 100.0% |
| Second homeowner in the Shire of Mornington Peninsula | Yes | 93 | 3.3% |
| | No | 2678 | 94.7% |
| | Prefer not to say | 57 | 2.0% |
| | Total | 2828 | 100.0% |
| Gender | Male | 539 | 17.6% |
| | Female | 2482 | 81.1% |
| | Non-Binary | 23 | 0.8% |
| | Prefer not to say | 18 | 0.6% |
| | Total | 3062 | 100.0% |
| Age group | 18-29 years old | 675 | 22.1% |
| | 30-39 years old | 721 | 23.6% |
| | 40-49 years old | 733 | 23.9% |
| | 50-59 years old | 603 | 19.7% |

| | | | | |
|-------------------|--|-----------------|--------|------|
| | 60 or more years | 304 | 9.9% | |
| | Prefer not to say | 25 | 0.8% | |
| | Total | 3061 | 100.0% | |
| Occupation | Managers | 288 | 10.4% | |
| | Professionals | 1052 | 37.9% | |
| | Technicians and Trade workers | 98 | 3.5% | |
| | Community and Personal Service Workers | 367 | 13.2% | |
| | Clerical and Administrative Workers | 370 | 13.3% | |
| | Sales Workers | 158 | 5.7% | |
| | Machinery Operators and Drivers | 35 | 1.3% | |
| | Labourers | 22 | 0.8% | |
| | Retired | 144 | 5.2% | |
| | Self-employed | 64 | 2.3% | |
| | Unemployed | 159 | 5.7% | |
| | Prefer not to answer | 22 | 0.8% | |
| | Total | 2779 | 100.0% | |
| | Postcodes | New South Wales | 69 | 2.7% |
| | | South Australia | 22 | 0.9% |

| | | | |
|------------------|------------------------------|------|--------|
| | Western Australia | 5 | 0.2% |
| | Australian Capital Territory | 8 | 0.3% |
| | Queensland | 18 | 0.7% |
| | Victoria | 2451 | 95.3% |
| | Total | 2573 | 100.0% |
| Victoria | Regional Victoria | 536 | 21.9% |
| | Urban | 1915 | 78.1% |
| | Total | 2451 | 99.1% |
| Countries | Australia | 2843 | 0.2% |
| | USA | 5 | 0.2% |
| | Canada | 1 | 0.0% |
| | New Zealand | 8 | 0.3% |
| | Japan | 1 | 0.0% |
| | Malaysia | 2 | 0.1% |
| | Poland | 1 | 0.0% |
| | United Kingdom | 2 | 0.1% |
| | Spain | 1 | 0.0% |
| | Singapore | 2 | 0.1% |
| | Chile | 1 | 0.0% |
| | India | 1 | 0.0% |

| | | | |
|---------------------------------|------------|------|--------|
| | Total | 2868 | 100.0% |
| Languages spoken at home | English | 2762 | 90.9% |
| | Mandarin | 40 | 1.3% |
| | Arabic | 6 | 0.2% |
| | Cantonese | 21 | 0.7% |
| | Vietnamese | 23 | 0.8% |
| | Italian | 14 | 0.5% |
| | Hindi | 17 | 0.6% |
| | Other | 157 | 5.2% |
| | Total | 3040 | 100.0% |

7.3.3 Metung Hot Springs

Table 7.3 summarises the demographic data collected from visitors to Metung Hot Springs.

Resident or second homeowner of the town of Metung

A total of 66 respondents participated in the visitor survey, with 27.3% identifying themselves as residents of the town of Metung and 8.5% as second homeowners.

Gender

Based on the visitor survey results, it is interesting to note that 80% of the respondents were female, while the percentage of male respondents amounted to 20%.

Age Group

The median age group of the respondents was between 50 and 59 years old, accounting for 34% of the participants. On average, most respondents were between 40 and 49 years old, (23.4%), or 60 to 69 years old (25.5%).

Occupation

As stated in section 7.3.1, the collected data was analysed using the ABS's standard classification list of occupations (Australian Bureau of Statistics, 2022a). In addition to that list, the options for retired and unemployed were added. According to the survey results, it was noted that the largest percentage of respondents, totalling 36.4%, work in professional roles. Following close behind are managers at 25.0%. The remaining participants hold various occupations such as community and personal service workers, clerical and administrative workers, sales workers, technicians, trade workers, machinery, operators and drivers. A small minority reported being retired or unemployed.

Postcodes

All respondents to the visitor survey were found to be from Australia, with 52.9% of the respondents from regional Victoria. Meanwhile 22.6% were from the town of Metung and Melbourne and one respondent had arrived from New South Wales.

Languages spoken at home

The data collected from the visitor survey showed that English was the only language spoken at home by the majority of the respondents. However, the response rate for this question was relatively low, with only 30 out of 66 participants responding.

Table 7.3 -Metung demographics data

| | | Frequency (N) | Percent % |
|-----------------------------------|-------------------|----------------------|------------------|
| Resident of Metung | Yes | 18 | 27.3% |
| | No | 48 | 72.7% |
| | Total | 66 | 100.0% |
| Second homeowner in Metung | Yes | 4 | 8.5% |
| | No | 43 | 91.5% |
| | Prefer not to say | 0 | 0.0% |
| | Total | 47 | 100.0% |
| Gender | Male | 6 | 20.0% |
| | Female | 24 | 80.0% |
| | Non-binary | 0 | 0.0% |
| | Prefer not to say | 0 | 0.0% |
| | Total | 30 | 100.0% |
| Age group | 18-29 years old | 2 | 4.3% |
| | 30-39 years old | 2 | 4.3% |
| | 40-49 years old | 11 | 23.4% |
| | 50-59 years old | 16 | 34.0% |
| | 60 -69 years old | 12 | 25.5% |

| | | |
|---|----|--------|
| 70 – 79 years old | 4 | 8.5% |
| 80 or more years old | 0 | 0.0% |
| Prefer not to say | 0 | 0.0% |
| Total | 47 | 100.0% |
| <hr/> | | |
| Managers | 11 | 25.0% |
| Professionals | 16 | 36.4% |
| Technicians and Trade workers | 0 | 0.0% |
| Community and Personal Service Workers | 3 | 6.8% |
| Clerical and Administrative Workers | 3 | 6.8% |
| Sales Workers | 0 | 0.0% |
| Machinery Operators and Drivers | 0 | 0.0% |
| Labourers | 0 | 0.0% |
| Retired | 10 | 22.7% |
| Self-employed | 0 | 0.0% |
| Unemployed | 1 | 2.3% |
| Prefer not to answer | 0 | 0.0% |
| Total | 44 | 100.0% |

Occupation

| | | | |
|------------------|---------------------------------|---------|--------|
| Postcodes | New South Wales | 1 | 1.9% |
| | Melbourne | 12 | 22.6% |
| | Regional Victoria | 28 | 52.9% |
| | Metung | 12 | 22.6% |
| | Total | 53 | 100.0% |
| | Languages spoken at home | English | 30 |
| Mandarin | | 0 | 0.0% |
| Arabic | | 0 | 0.0% |
| Cantonese | | 0 | 0.0% |
| Vietnamese | | 0 | 0.0% |
| Italian | | 0 | 0.0% |
| Hindi | | 0 | 0.0% |
| Other | | 0 | 0.0% |
| Total | | 30 | 100.0% |

7.4 Testing Indicators

A comprehensive analysis of the developed indicators discussed in Chapter 6 is covered in this section. Each hot spring facility's economic, environmental and socio-cultural indicators will be assessed. The aim is to provide a thorough assessment of how well these indicators perform and gain insights into how the hot spring facilities affect their surrounding areas. This section aims to evaluate the indicators of both Peninsula Hot Springs and Metung Hot Springs by gathering primary data through visitor surveys and analysing secondary data. However, only secondary data was analysed for the emerging hot springs, Cunnamulla Hot Springs and Phillip Island Hot Springs.

7.4.1 Testing Economic Indicators

7.4.1.1 Peninsula Hot Springs, Victoria

In order to ensure the accuracy of the collected data, secondary data obtained from Peninsula Hot Springs was strictly sourced from either the Calendar Year 2019 or the Financial Year 2018-2019. The closure of all hot spring facilities in light of the recent coronavirus pandemic made this approach necessary. The secondary data was obtained from PHS internal records and government websites.

Direct Economic Impacts

Indicator 1: Number of visitors to the hot springs facility

PHS management has provided data on the number of visitors received during the calendar and financial years. The figures show that 2019 PHS welcomed 535,156 visitors, while in the financial year 2018/19, they received 509,590 guests. However, the pandemic caused a significant reduction in visitor numbers in the 2021/22 financial year, with 363,962 guests visiting PHS. On average, PHS has just over 30,000 guests per month.

Indicator 2: Number of people employed by the hot springs facility.

PHS management provided data regarding their employee count in 2019 and 2022. They had 331 employees in 2019, and 337 employees in 2022 following the pandemic.

Indicator 3: Number of visitors coming to the destination for the hot springs

Based on the data outlined in *Figure 7.1*, most respondents selected the Shire of Mornington Peninsula as their preferred vacation spot for leisure and recreation. The second most popular reason for visiting was to spend time with family and friends. Additionally, *Figure 7.2* indicates that 121 participants were interested in visiting hot springs in the area.

Figure 7.1 -Reasons for visiting the Shire of Mornington Peninsula

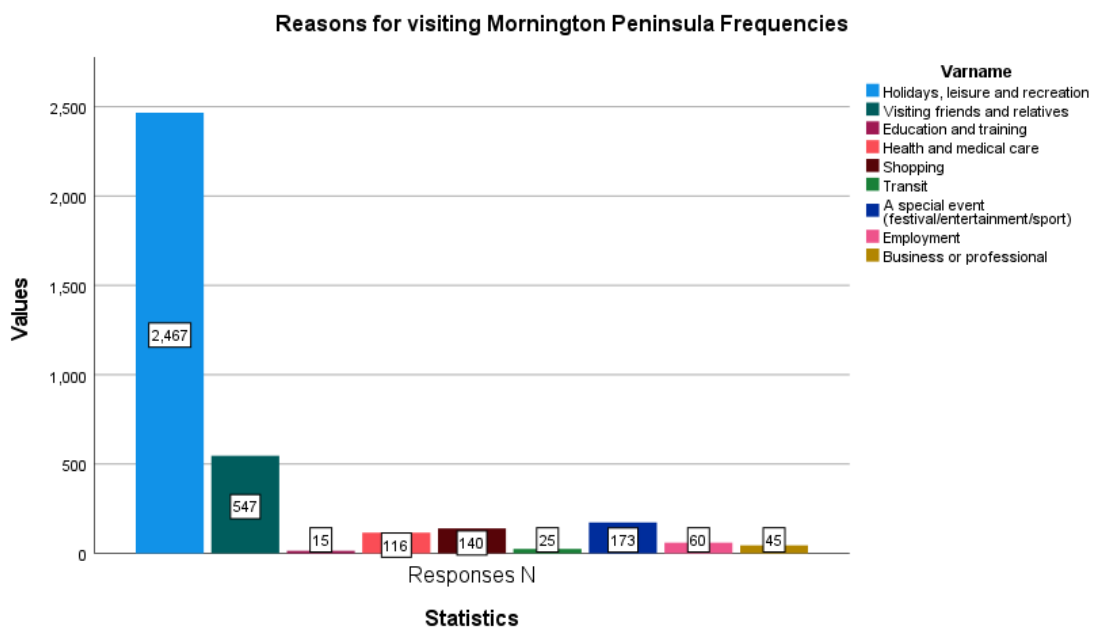
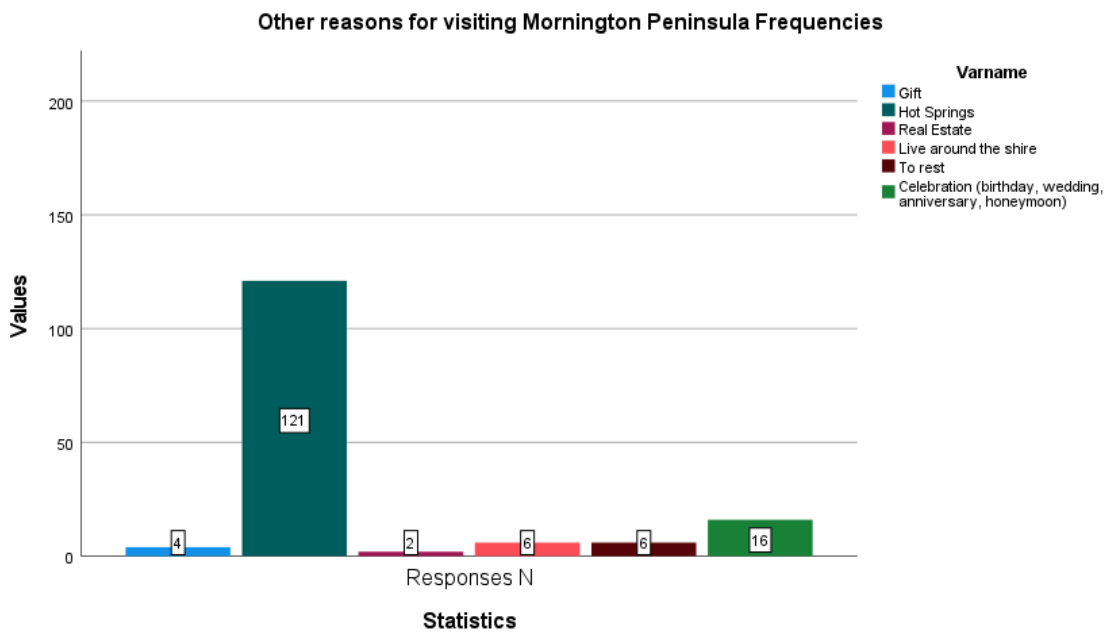


Figure 7.2 -Other reasons for visiting the Shire of Mornington Peninsula



Indicator 4: Overnight stays by visitors to hot springs

Initially, the survey results indicate that visitors typically stay for an average of seven nights at the destination, with a minimum of two days and a maximum of 89 days. Among respondents, 14.9% stayed as least one night in the Shire, while 43.5% only went for day trips. It is important to note that day trips were excluded from the calculation of the average stay duration. While there was a wide range in the length of stay, with the longest overnight stay being 89 nights, the median length was identified as two. The most typical length of stay in the Shire was two nights. Some respondents provided extreme answers such as 89- day stay which was considered an outlier, resulting in uneven data distribution. The exclusion of these outliers helps in presenting a more accurate representation of the typical visitor stay *Table 7.4* and *Table 7.5* summarise the evidence of this data.

Table 7.4 - Average overnight stays in the Shire of Mornington Peninsula

| | N | Minimum | Maximum | Mean | Median | Mode |
|--|-------------|----------------|----------------|-------------|---------------|-------------|
| Length of overnight stays in the Shire | 1326 | 2 | 21 | 7.00 | 2.00 | 2.00 |
| Total N | 1326 | | | | | |

Note: N is the number of responses, excluding day trips, residents and second homeowners of the Shire of Mornington Peninsula.

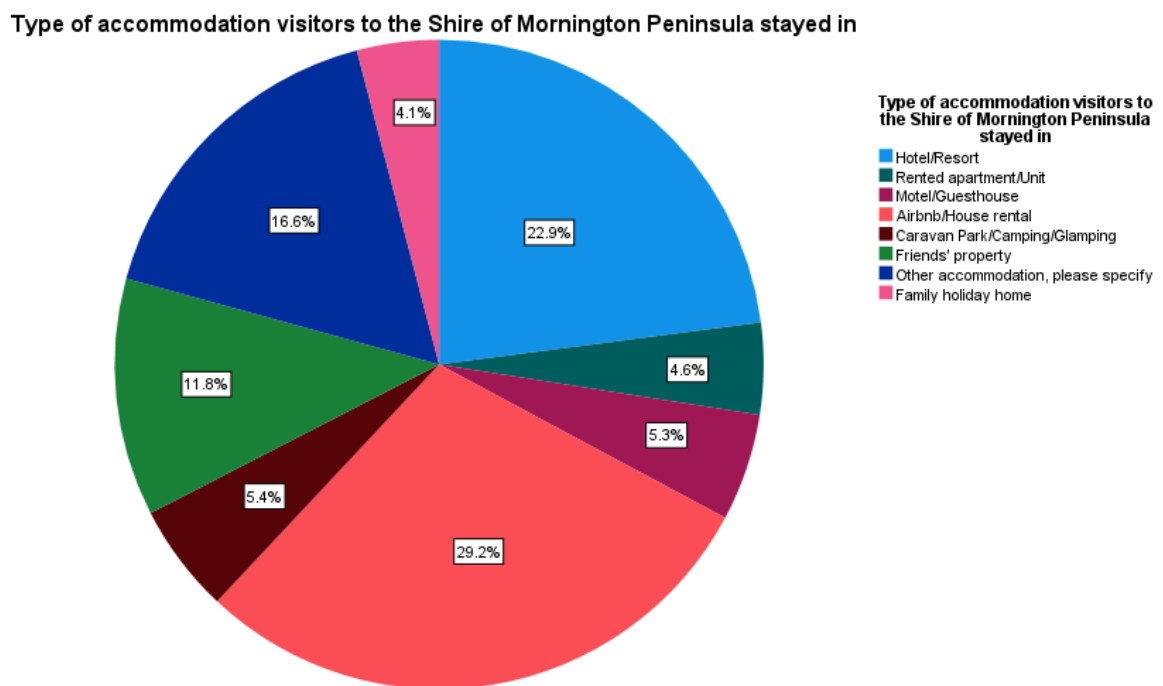
Table 7.5 -Length of stay at the Shire of Mornington Peninsula

| | Responses | |
|---|------------------|--------------------|
| | N | Percent (%) |
| Day trip only | 1405 | 43.4 |
| 1 | 481 | 14.9 |
| 2 | 546 | 16.9 |
| 3 | 155 | 4.8 |
| 4 | 44 | 1.4 |
| 5 | 30 | .9 |
| 6 | 43 | 1.3 |
| 7 | 13 | 0.4 |
| Number of overnight stays in the Shire | | |
| 9 | 1 | 0.0 |
| 10 | 3 | 0.1 |
| 12 | 1 | 0.0 |
| 13 | 2 | 0.1 |
| 14 | 5 | 0.2 |
| 20 | 1 | 0.0 |
| 21 | 1 | 0.0 |
| 89 | 1 | 0.0 |
| Total | 2732 | 84.5 |
| Missing | | |
| Resident/Second homeowner | 495 | 15.3 |
| System | 7 | 0.2 |
| Total | 502 | 15.5 |
| Total | 3234 | 100.0 |

Note: N is the number of responses.

Analysing overnight stays in the Shire of Mornington Peninsula requires understanding the types of accommodation visitors stayed in. The analysis reveal that the most preferred types of accommodations in the Shire of Mornington Peninsula by the visitors were Airbnb and house rentals, accounting for 29.2% of stays, followed by friends' properties at 11.8%, and other types of accommodations at 16.6%. Only a small minority of visitors opted to stay in caravan parks, glamping and camping sites. Furthermore, some respondents mentioned staying on a boat or spending a night at the hot springs and another night in a hotel. To get a better idea of this information, refer to the pie chart in *Figure 7.3*.

Figure 7.3 Type of accommodation visitors to the Shire of Mornington Peninsula stayed in



Indicator 5: Average spend per visitor at the hot springs facility.

To calculate the average spend per visitor at PHS, the following calculation is applied:

$$\text{Average spend per visitor} = \frac{\text{Total amount spent}}{N}$$

Where,

N is the number of responses received for each category.

Total amount spent is the sum spent in each category.

Table 7.6 gathers this information and calculates the mean for each category. The average amount spent on entrance fees was \$130.95, accommodation was \$509.49, shopping was \$69.52, wellness was \$239.45, and the mean was \$68.38 for food and beverages. Thus, visitors to PHS spent an average total of \$203.56.

Table 7.6 -Average spend per visitor at PHS

| | Entrance Fee | Accommodation | Shopping | Wellness | Food & Beverage |
|--------------------------------|-------------------------|----------------------|-----------------|-----------------|--------------------------------|
| N | 2329 | 225 | 274 | 649 | 1840 |
| Sum (\$) | 304,989.00 | 114,636.00 | 19,048.90 | 155,405.00 | 125,827.50 |
| Mean (\$) | 130.95 | 509.49 | 69.52 | 239.45 | 68.38 |
| Median (\$) | 100.00 | 400.00 | 50.00 | 200.00 | 50.00 |
| Std. Deviation (\$) | 105.66 | 396.43 | 61.17 | 185.34 | 75.32 |

Note: N is the number of responses.

Indicator 6: Total amount spent at the destination by hot spring visitors.

Table 7.7 displays an estimation of expenditure distribution among hot spring visitors in the Shire of Mornington Peninsula. Based on the provided data, the highest expenses are attributed to accommodation, with an average spent being \$562.09 per visitor. Subsequently, package deals come in second place, with an average of \$371.38, while wellness expenses follow closely behind with an average of \$247.71. Together, hot spring visitors spent a total of \$1,970,044.39. It is important to note here that the low response rates for accommodation

expenses may be due to the considerable number of residents, second homeowners and day visitors who do not require accommodation.

Table 7.7 -Total amount spent per category in the Shire of Mornington Peninsula

| | Accommodation (n=1110) | Transportation (n=2220) | Package Deals (n=167) | Food and Beverages (n=2159) | Activities (n=732) | Shopping (n=799) | Wellness (n=1667) |
|-----------------------------------|---------------------------|----------------------------|-----------------------------|-----------------------------------|-----------------------|---------------------|----------------------|
| Mean | \$562.09 | \$69.42 | \$371.38 | \$204.17 | \$194.47 | \$168.84 | \$247.71 |
| Median | \$400.00 | \$50.00 | \$200.00 | \$120.00 | \$150.00 | \$100.00 | \$200.00 |
| Total amount spent | \$623,924.90 | \$153,102.09 | \$62,020.00 | \$440,797.50 | \$142,352.00 | \$134,900.90 | \$412,947.00 |

Note: *n* is the number of respondents.

It excludes the residents, second homeowners and non-spenders at the Shire of Mornington Peninsula.

Theme: Indirect Economic Impacts

Indicator 7: Average household income at the destination

According to the ABS census data (Australian Bureau of Statistics, 2021b), the average weekly household income in the Shire of Mornington Peninsula is \$1555 compared to \$1759 for Victoria and \$1746 for Australia.

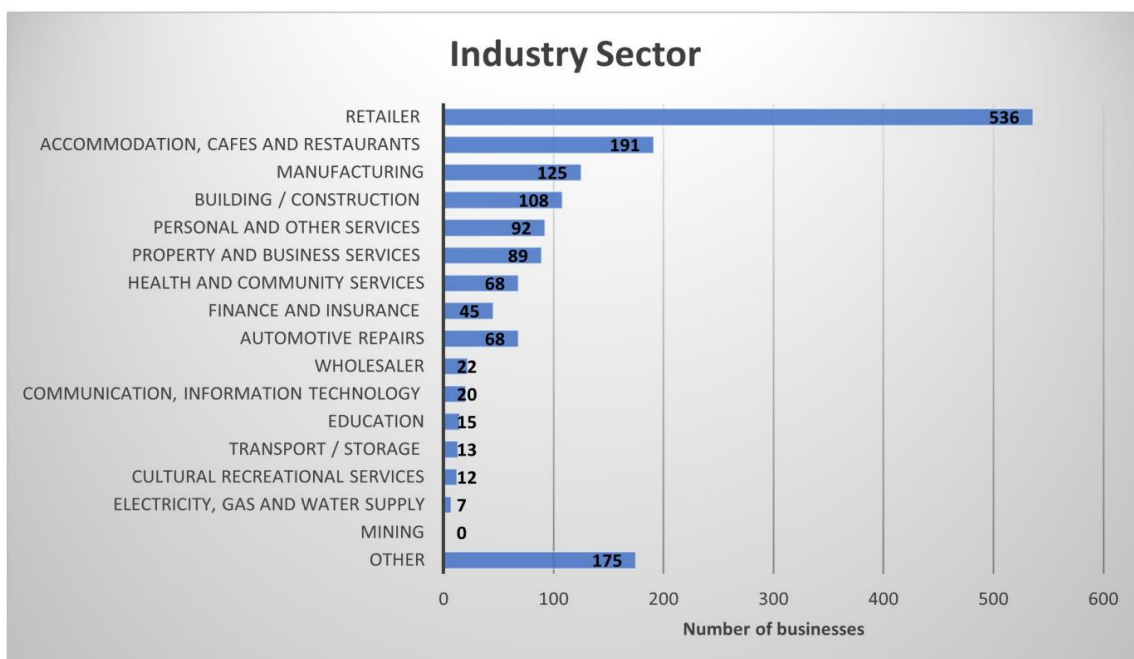
Indicator 8: % Unemployment at the destination

This data was obtained from the ABS Census, which showed that 3.9% of Mornington Peninsula residents were unemployed in 2021 (Australian Bureau of Statistics, 2021b). Additionally, the census reported that 35.3% of the population of Mornington Peninsula was not in the labour force in 2021, which is explained by the recent pandemic.

Indicator 9: Number of tourism businesses at the destination

According to a recent report by Tourism Research Australia (2023a), Mornington Peninsula had an estimated 3,474 tourism businesses in 2019, which grew to 3,932 in 2021-2022. It is important to note that this data encompasses the LGA of Shire of Mornington Peninsula, which is part of Mornington Peninsula. The Mornington Peninsula business survey revealed that the retail industry has the largest number of businesses (536), followed by accommodation, cafés and restaurants, (191), and manufacturing (125), among others (Mornington Peninsula Shire, 2023). The data above is visually represented in *Image 7.1*. However, it is essential to note that while this data indicates the total number of businesses in the region, it does not explicitly focus on tourism enterprises. Therefore, this data provides an overview of the overall business landscape in the Shire of Mornington Peninsula, but it does not represent the tourism industry comprehensively.

Image 7.1 -Industry Sector sourced by Mornington Peninsula Business Survey (2023)



Indicator 10: Number of people attending activities, events and attractions at the destination as well as visiting the hot springs

According to the visitor survey, 1886 visitors (77.4%) participated in activities, events or attractions at the destination in addition to visiting the hot springs. While 524 respondents did not attend any activities, events or attractions (21.5%), 27 were residents of the Shire of Mornington Peninsula (1.1%). Since an open-ended question was asked, the responses were analysed using NVivo to obtain a more comprehensive understanding of the sample.

The most popular activities in the Shire of Mornington Peninsula were visiting the beach, restaurants, cafés, wineries, picking fruit and going to the markets. Additionally, some visitors enjoyed hiking and walking in nature parks and shopping while staying at the destination. This can be illustrated in the word cloud below (*Image 7.2*). During their stay in the Shire, some respondents also enjoyed visiting surrounding towns, including Dromana, Fingal, Flinders, Port Nepean, Red Hill, Rye and Sorrento.

Image 7.2 - Word cloud of activities, events or attractions done by PHS visitors



The respondents had attended various events, including festivals, carnivals, races, weddings, and birthdays. The specific festivals attended included the Vineshop Festival, Rye Festival, Kite Festival, Food and Wine Festival, African Festival, Green Music Festival, and Red Hot Summer Music Festival. The word cloud below (*Image 7.3*) illustrates this information.

Image 7.3 - Word cloud of events PHS visitors attended in the Shire



According to the responses gathered, some participants expressed an appreciation for the attractions in the Shire and various activities and events. Among these attractions were Seawinds Garden, Point Nepean National Park, Arthur’s Seat, Ashcombe Maze, Enchanted Adventure Garden, Moonlight Sanctuary Wildlife Conservation Park, Quarantine Station and others.

7.4.1.2 Metung Hot Springs, Victoria

Metung Hot Springs had a soft launch in November 2022 and was officially inaugurated in January 2023. Hence, the data gathered reflects the establishment's initial stage of operation. The secondary data was obtained from MHS internal records and government websites.

Theme: Direct economic impacts

Indicator 1: Number of visitors to the hot springs facility

Metung Hot Springs management provided the number of guests attending the hot springs facility. From November 2022 to June 2023, Metung Hot Springs welcomed 26,806 visitors, including 935 who participated in the glamping experience.

Indicator 2: Number of people employed by the hot springs facility.

From November 2022 to June 2023, MHS had 110 employees. As of August 2023, 75 people were employed, including 16 full-time, seven part-time and 52 casual employees. This data has been provided by MHS management.

Indicator 3: Number of visitors coming to the destination for the hot springs

Most of Metung's visitors, totalling 26 individuals, come to enjoy holidays, leisure activities, and other recreational pursuits (as illustrated in *Figure 7.4*). Visiting family and relatives was the second most common reason for visiting, with six respondents indicating this as their primary motivation. Only four people reported visiting Metung for work, while a small minority travelled to the town for educational, health, transit, business or professional reasons. Finally, a few respondents (3 in total, as shown in *Table 7.8*) indicated that their visit to Metung was motivated by the desire to experience the hot springs.

Figure 7.4 -Reasons for visiting the town of Metung

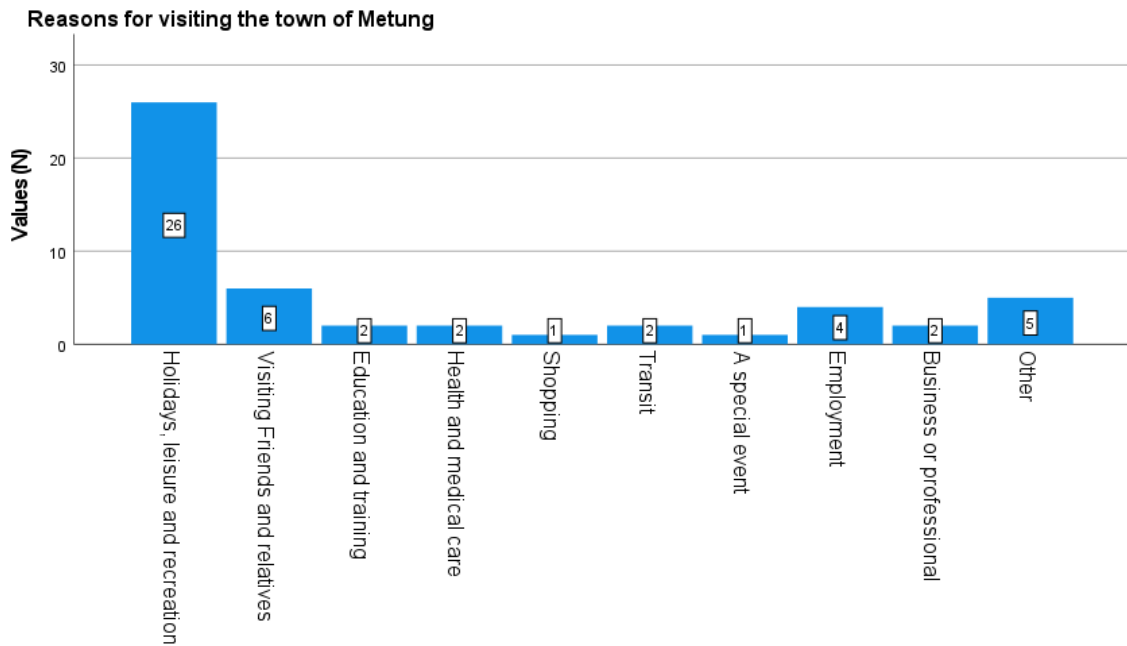


Table 7.8 -Other reasons for visiting the town of Metung

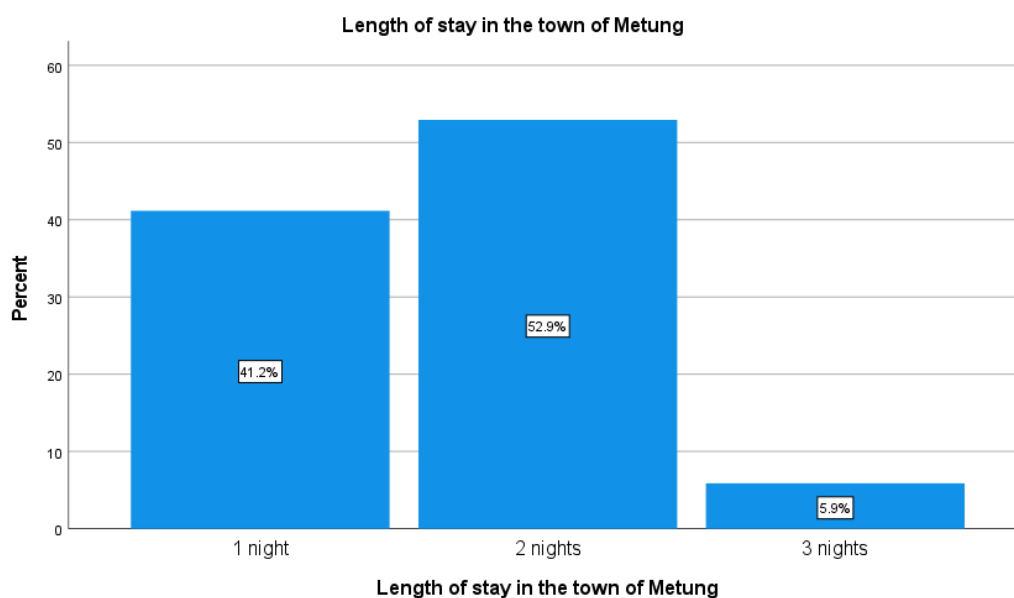
| Other reasons for visiting the town of Metung | | |
|---|-----------|--------------|
| | Responses | |
| | N | Percent (%) |
| Other reasons for visiting Metung | 5 | 62.5 |
| Hot springs | 3 | 37.5 |
| Total | 8 | 100.0 |

Note: N is the number of responses.

Indicator 4: Overnight stays by visitors to hot springs

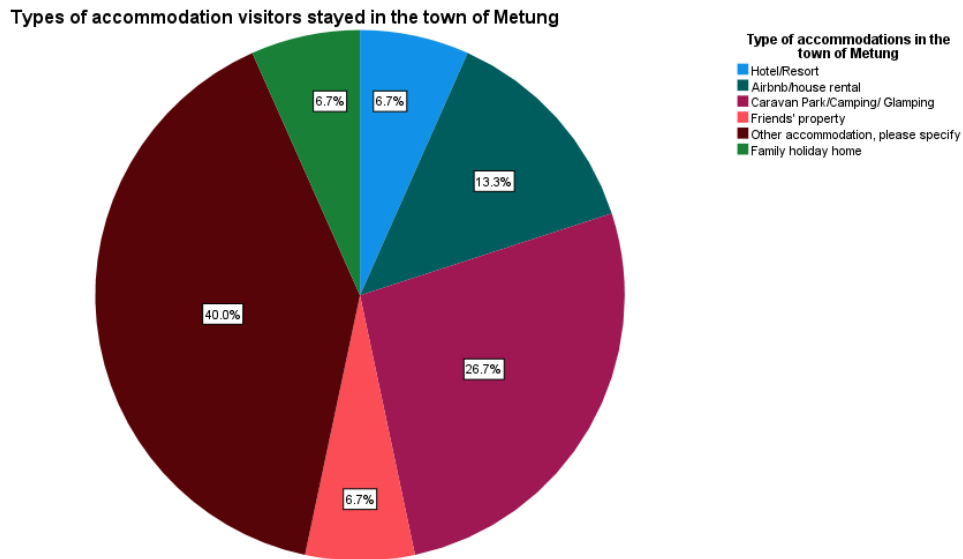
Based on the responses, the average length of stay in Metung is two nights. The accompanying bar chart (*Figure 7.5*) highlights that most respondents stayed for a maximum of three nights, with a minimum of one night. It is worth noting that the chart only reflects overnight stays and does not factor in data visits.

Figure 7.5 - Length of stay in the town of Metung



When analysing overnight stays, it is very important to identify the specific type of accommodation respondents stayed out during their visit. Metung’s most common types of accommodation were caravan parks, campsites or glamping (26.7%) and Airbnb or house rentals (13.3%). A minority of the visitors opted for hotels or resorts (6.7%), stayed with friends (6.7%) or stayed in a family holiday home (6.7%). A few respondents also reported staying on a boat or in a motorhome. *Figure 7.6* illustrates the information above in this pie chart.

Figure 7.6 - Types of accommodation visitors to Metung stayed in



Indicator 5: Average spend per visitor at the hot springs facility.

To determine the average spend per visitor at MHS, the following method was utilised:

$$\text{Average spend per visitor} = \frac{\text{Total amount spent}}{N}$$

Where,

N is the number of responses received for each category.

Total amount spent is the sum spent in each category.

Based on the survey results, visitors to MHS spent an average of \$168 on entrance fees, \$924 on accommodation, \$55 on shopping, \$286 on wellness and \$82.14 on food and beverages. Overall, the average spend per visitor at MHS was \$1,515.14, as shown below in *Table 7.9*.

Table 7.9 - Average spend per visitor at MHS

| Average spend per visitor at MHS | | | | | |
|---|----------|---------------------------|---------------------------|------------------|------------------|
| | N | Responses | | | |
| | | Minimum Spent (\$) | Maximum Spent (\$) | Sum (\$) | Mean (\$) |
| Entrance fee | 20 | 25.00 | 1200.00 | 3360.00 | 168.00 |
| Accommodation | 5 | 500.00 | 1600.00 | 4620.00 | 924.00 |
| Shopping/Gift shop | 3 | 30.00 | 75.00 | 165.00 | 55.00 |
| Wellness | 5 | 90.00 | 400.00 | 1430.00 | 286.00 |
| Food and Beverages | 14 | 10.00 | 500.00 | 1150.00 | 82.14 |
| Total | | | | 10,725.00 | 1,515.14 |

Note: N is the number of responses.

Indicator 6: Total amount spent at the destination by hot springs visitors.

According to the data shown in *Table 7.10*, visitors to the hot springs in the town of Metung spent the most on accommodation and package deals, with an average of \$740 and \$735.45, respectively. Wellness expenses were in second place, with an average of \$315.06, while activities had an average spend of \$200. The total amount spent by visitors to the destination amounted to \$21,984. However, it is essential to note that these figures will need to be reassessed later due to the low response rate.

Table 7.10 -Total amount spent in the town of Metung by visitors

| Total Amount spent by visitors in the town of Metung | | | | | |
|--|----|--------------|--------------|------------------|-----------------|
| Categories | N | Responses | | | |
| | | Minimum (\$) | Maximum (\$) | Sum (\$) | Mean (\$) |
| Transportation | 21 | 10.00 | 200.00 | 1545.00 | 73.57 |
| Accommodation | 11 | 100.00 | 1600.00 | 8090.00 | 735.45 |
| Package deals | 2 | 200.00 | 1280.00 | 1480.00 | 740.00 |
| Activities | 2 | 100.00 | 300.00 | 400.00 | 200.00 |
| Shopping | 9 | 50.00 | 400.00 | 1150.00 | 127.78 |
| Wellness | 16 | 30.00 | 1200.00 | 5025.00 | 314.06 |
| Food and Beverages | 29 | 20.00 | 700.00 | 4294.00 | 148.07 |
| Total | | | | 21,984.00 | 2,338.93 |

Note: N is the number of responses.

Theme: Indirect Economic Impacts

Indicator 7: Average household income at the destination

The data collected from the ABS 2021 census reveals that Metung's average weekly household income is \$1,219. This figure is significantly less than the average household income for Victoria (\$1,759) and the national average (\$1,746), as reported by the ABS in 2022. This data indicates the economic landscape of Metung, which is characterised by lower household incomes compared to other areas in Victoria and Australia (Australian Bureau of Statistics, 2022b).

Indicator 8: % Unemployment at the destination

Data from the census conducted in Metung has revealed the proportion of unemployed individuals in the region in 2021. According to the findings, the unemployment rate in Metung is estimated at 1.7%. This rate is significantly lower than the unemployment rates recorded in Victoria and across Australia, which stand at 5% and 5.1%, respectively (Australian Bureau of Statistics, 2022b).

Indicator 9: Number of tourism businesses at the destination

According to Tourism Research Australia (2023b), the Lakes region, encompassing the town of Metung, had 731 businesses in 2022. Meanwhile, a local analysis conducted by the Metung Business and Tourism Association (Metung BTA) in 2018 indicated eleven food establishments, six entertainment-focused ventures, and thirteen accommodation-based enterprises in Metung (Metung BTA, 2018). From this information, it can be concluded that the number of tourism businesses in Metung is approximately 30.

Indicator 10: Number of people attending activities, events and attractions at the destination as well as visiting the hot springs

According to the visitor survey, 31 visitors engaged in activities or attractions in Metung. Meanwhile, 30 respondents did not attend any activities, events or attractions, including 18 residents. Due to the low response rate for this question, this data was analysed using SPSS. The most popular activities among visitors included exploring local restaurants, cafés, pubs, and markets and participating in outdoor activities like walking, swimming and cycling. Some visitors also enjoyed visiting the country club and surrounding towns while at the destination and taking in the sights of Gippsland lakes. It was noted that no visitors attended an event during their time in the area. This information is portrayed in *Table 7.11* below

Table 7.11 -Activities, events or attractions attended by visitors in the town of Metung

| Activities, events or attractions in the town of Metung | N |
|--|-----------|
| Country Club | 4 |
| Restaurants, cafés, pubs, markets | 19 |
| Visiting Gippsland lakes and surrounding towns | 1 |
| Sports – outdoor activities | 7 |
| Boat | 1 |
| Beach | 3 |
| Wellness activities | 1 |
| Visiting friends | 2 |
| Adventure park | 1 |
| No activities | 10 |
| Total N | 49 |

Note: N is the number of times the respondent mentioned the activity, event or attraction.

7.4.1.3 Phillip Island Hot Springs, Victoria

In preparation for the opening of Phillip Island Hot Springs in 2025, relevant information was collected from government websites and Destination Phillip Island. The secondary data will provide valuable insights for the hot springs' successful launch.

Theme: Direct economic impacts

The direct economic impact indicators related to Phillip Island Hot Springs' were not evaluated since it has not yet opened.

Theme: Indirect Economic Impacts

The indirect economic impacts related to Phillip Island as a destination are assessed in this section. Secondary data was gathered for *Indicators 7, 8 and 9*.

Indicator 7: Average household income at the destination

According to the ABS census data, the average weekly household income on Phillip Island in 2021 was \$1,175 (Australian Bureau of Statistics, 2021c). This figure is lower than the average household income of \$1,759 for Victoria and \$1,746 for Australia. This data provides valuable insights into the income levels of households at the destination.

Indicator 8: % Unemployment at the destination

According to the ABS census data, it can be observed that the rate of unemployment in Phillip Island stands at 3.5%, which is notably lower when compared to the respective figures of 5.0% and 5.1% for Victoria and Australia (Australian Bureau of Statistics, 2021c).

Indicator 9: Number of tourism businesses at the destination

As of 2022, Phillip Island had in total 608 tourism businesses operating in the region. It is important to note that Phillip Island data includes the Bass Coast Shire area. These figures convincingly confirm the region's popularity as a tourist destination.

7.4.1.4 Cunnamulla Hot Springs, Queensland

With the opening of Cunnamulla Hot Springs in February 2024, secondary data was collected from government websites and personal communication with staff at Paroo Shire Council. Most secondary data reported was for Outback Queensland, given that Cunnamulla is a small town in that part of the state.

Theme: Direct economic impacts

Indicators 7, 8 and 9 were assessed to measure the indirect economic impacts on the town of Cunnamulla. This data was gathered from government websites and from the local council.

Theme: Indirect Economic Impacts

Indicator 7: Average household income at the destination

The Australian Bureau of Statistics (2021a) states that the average weekly household income of Cunnamulla in 2021 is \$994, which is relatively low compared to Queensland and Australia's average income. Queensland's average weekly household income is estimated at \$1,675 and an average of \$1746 across Australia.

Indicator 8: % Unemployment at the destination

With 6% of individuals unemployed in the town of Cunnamulla, the unemployment rate is relatively high compared to the unemployment rates for Queensland (5.4%). The data from the ABS census revealed that the percentage of unemployed individuals in both Cunnamulla and Queensland was higher than the national average of 5.1% (Australian Bureau of Statistics, 2021a).

Indicator 9: Number of tourism businesses at the destination

Tourism Research Australia (2023b) disclosed the number of tourism businesses in Outback Queensland to 390 in 2022, encompassing the town of Cunnamulla. As of 2023, 18 tourism businesses were identified in Cunnamulla as stated by the management of Paroo Shire.

7.4.2 Testing Environmental Indicators

This section undertakes a thorough analysis of the environmental indicators of all the hot springs sites and destinations. The data took the form of secondary data and was sourced from the hot springs facilities. It is essential to mention that the analysis did not include Cunnamulla Hot Springs and Phillip Island Hot Springs, as they have yet to be opened.

7.4.2.1 Peninsula Hot Springs, Victoria

Theme: Climate change and Energy

Indicator 11: Greenhouse Gas emissions per visitor as a result of hot springs operations

To estimate GHG emissions per visitor, it is critical to identify Scope 1 and Scope 2 which are relevant to Peninsula Hot Springs. Scope 1 covers the direct emissions from that establishment's operations. Scope 2 includes the greenhouse gas emissions indirectly released from an organisation's operations. These emissions would not have occurred if the organisation had ceased its activities (Clean Energy Regulator, 2023). Peninsula Hot Springs' gas bills and electricity bills for 2019 were collected to measure Scope 1 and Scope 2 of GHG emissions, respectively. For Scope 1, GHG emissions were calculated as per the guidelines issued by the Department of Industry, Science, Energy and Resources.

The following formula is used:

$$\text{Scope 1 total GHG emissions (tCO}_2 - e) = \frac{Q \times EC \times EF_C}{1000}$$

Where:

Q is the quantity of fuel type in gigajoules;

EC is the energy content factor of the fuel type in gigajoules;

EF_C is the Scope 1 combined energy factor (including carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O)) in kilograms of CO₂-e per gigajoule.

$$\text{Scope 1 total GHG emissions (tCO}_2 - e) = \frac{2292.63 \times 1 \times 51.53}{1000}$$

$$\text{Scope 1 total GHG emissions (tCO}_2 - e) = 118.14$$

The emissions factor for natural gas used was estimated by the Department of Climate Change, Energy, the Environment and Water in conjunction with the Australian National Greenhouse Accounts. The methods for calculating GHG emissions are based on the National Greenhouse and Energy Reporting (Measurement) Determination 2008 (Clean Energy Regulator, 2023).

For Scope 2, the emissions were derived from the amount of electricity used by PHS on its electricity bills. GHG was not calculated as it is stated on the bills. Peninsula Hot Springs' total GHG emissions in tonnes was 1278 for the 2018/19 financial year.

To determine the GHG emissions per visitor, the total GHG emissions (Scope 1 + Scope 2) for Peninsula Hot Springs in 2019 (in kg) was divided by the number of guests visiting the place in 2019. The following calculation was undertaken:

$$\text{GHG emissions per visitor} = \frac{118140 + 1278000}{535156}$$

$$\text{GHG emissions per visitor} = 2.60\text{kg of carbon dioxide produced per visitor}$$

Hence, the GHG emissions per visitor as a result of hot springs operations is 2.60kg.

Indicator 12: Percentage of energy used from renewables, including geothermal heat as energy.

The percentage of renewable energy can be calculated as the percentage of renewable energy used to the percentage of total energy used. The indicator is calculated based on the following formula:

$$\text{Percentage of renewable energy} = \frac{\text{Energy consumption of renewables}}{\text{Total energy consumption}} \times 100$$

PHS installed solar panels in 2021 as part of its Glamping development. However, the use of solar and wind energy was limited before 2021. Due to the lack of data on the energy consumption of renewables from the operator for FY 2018/19 or Calendar 2019, this indicator was hard to measure.

Theme: Waste

Indicator 13: Amount of solid waste to landfill per visitor

The frequency of waste collection and bin size were used to calculate the amount of solid waste that PHS sent to landfill. The bin size for general waste equals 4.5m^3 , and the bins are emptied once per week during regular operation times and twice per week during summer and Easter school holidays, equating to 70 times in 2019. The formula used to estimate the amount of solid waste in landfills was as follows:

$$\text{Amount of solid waste to landfill} = \text{Frequency of waste collection} \times \text{Bin size}$$

$$\text{Amount of solid waste to landfill} = 70 \times 4.5 = 315\text{m}^3$$

Hence, the amount of solid waste to landfill equals to 315t or 315000 kg.

It is assumed that the bins were full, and the collection frequency was twice weekly during busy periods. The amount of solid waste sent to landfill in 2019 equalled 315m^3 , which equals 315 tonnes.

The amount of solid waste to landfill per visitor in 2019 is:

$$\text{Amount of solid waste to landfill per visitor} = \frac{315000}{535,156} = 0.59\text{kg}.$$

Hence, the amount of solid waste to landfill per visitor is 0.59kg.

Indicator 14: Usage of water by hot springs' operators

In 2019, Peninsula Hot Springs used 617,497 kL of hot geothermal water and 241,792 kL of cold groundwater as illustrated in *Figure 7.7* and *Figure 7.8*. Water is primarily used for bathing purposes.

Figure 7.7 - Monthly hot geothermal water usage

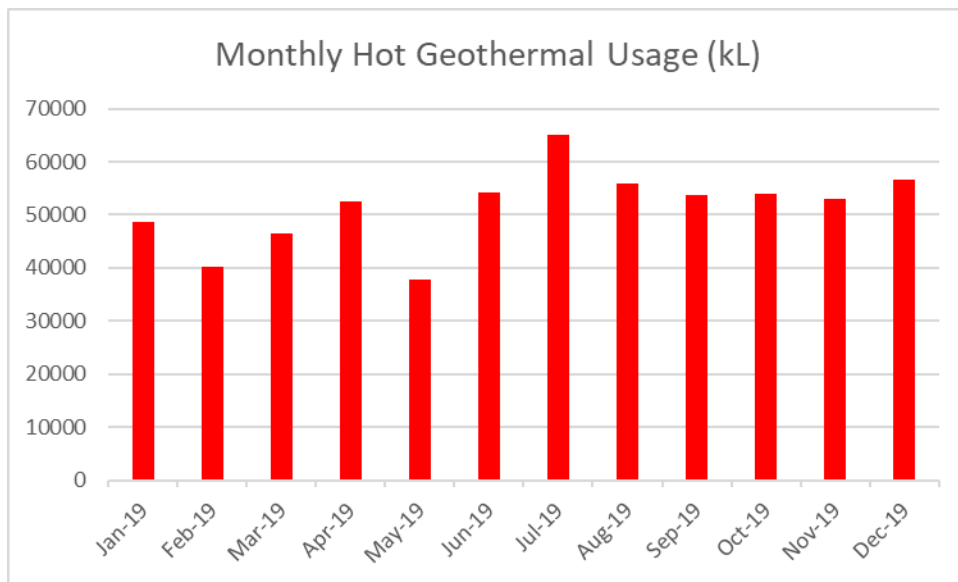
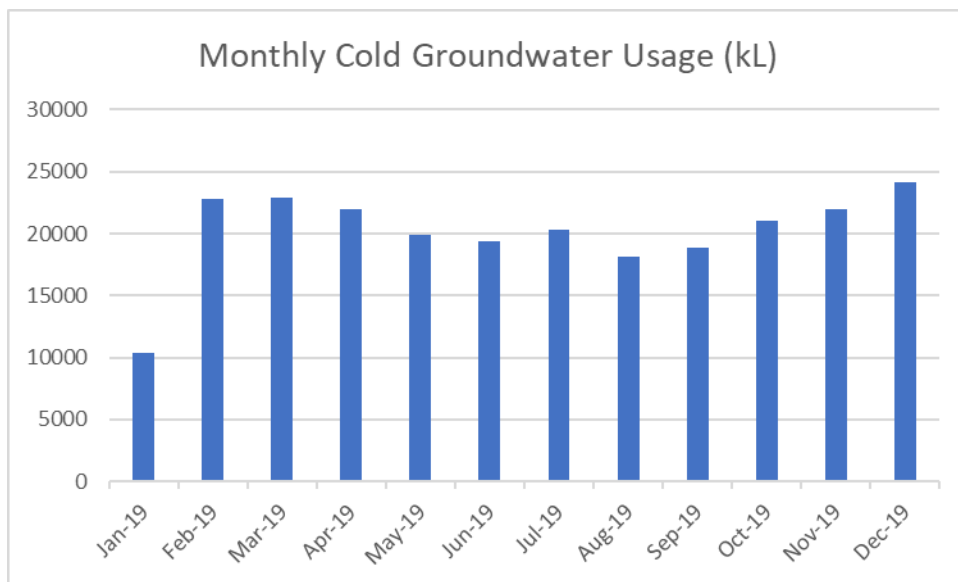


Figure 7.8 - Monthly cold groundwater usage



Theme: Biodiversity

Indicator 15: Commitment of hot springs business to support wildlife conservation.

The Land and Environment Department at PHS thoroughly evaluated their support for realising wildlife conservation objectives. A team of 20 qualified individuals mapped various areas of the property and carefully evaluated all species that required proper management to ensure biodiversity conservation. The outcome of this evaluation was the PHS rare and endangered

species map. The department's objectives included recycling 200 cubic metres of green waste to provide nutrients and moisture for garden beds and establishment of plants.

PHS recognises that education plays a crucial role in supporting wildlife conservation efforts. With this in mind, over 220 educational signs have been installed throughout the property, describing various bird species, frogs, plants, reptiles, and mammals. These signs provide visitors with information on creating a friendly habitat for indigenous wildlife at PHS and an opportunity for the business to engage with and educate the community. PHS staff also have the opportunity to learn more about PHS fauna and flora by attending training that leads to the Conservation and Land Management Certificate II.

Indicator 16: Contribution to environmental improvement such as forest cover and/or land care either onsite or elsewhere.

PHS has significantly contributed to wildlife conservation, having planted more than 300,000 species since its establishment. In FY 2021/22, the organisation planted 5,000 species, including replanting indigenous species. Unfortunately, the Ecological Vegetation Class (EVC) Coastal Alkaline Scrub group, which consists of 90 species that were present on the PHS site in 1788, is currently endangered (Mornington Peninsula Shire, 2023). To fully restore the area to its former state, PHS has been working throughout the year to represent the EVC.

The Land and Environment team has been very active during this period, and their work has included a decision to resurface internal roads with 40 cubic meters of recycled concrete in 2021-22, based on the PHS Environmental Plan values. PHS has also purchased stock from the Willum Warrain Aboriginal Association Bush Nursery on the Mornington Peninsula for seedlings or mature plants not nurtured within the onsite nursery. Overall, PHS is committed to environmental preservation.

7.4.2.2 Metung Hot Springs, Victoria

Theme: Climate change and energy

Indicator 11: Greenhouse Gas emissions per visitor as a result of hot springs operations

The GHG emissions per visitor could not be calculated for Metung Hot Springs because since it is a new facility, it is using a generator and large gas tanks to supply electricity and gas.

Indicator 12: Percentage of energy used from renewables, including geothermal heat as energy.

To date, MHS has installed 25kW of solar panels as an energy source. Hence, to calculate how much energy these solar panels produce, the following formula will be used:

$$\text{Daily Solar Energy}_{MHS} = \text{Rated output of Solar Panel} \times \text{Solar irradiance} \times 85\%$$

Where,

Daily Solar Energy_{MHS} is the consumption of solar energy per day by MHS,

The rated output of Solar Panels is the solar power production (power in watts) and

Solar irradiance is the amount of sunlight the solar panel system receives. The amount of sunlight the solar panel system receives can be determined by solar hours per day. It is assumed that the average daily sunlight is 5 hours, based on the finding of the Bureau of Meteorology (2023). 85% is the estimated solar panel efficiency.

Hence, the solar energy consumption per day is calculated as follows:

$$\text{Daily Solar Energy}_{MHS} = 25kW \times 5 = 106.25 \text{ kWh}$$

The solar energy used by MHS from November 2022 to June 2023 is then calculated by multiplying 106.25kWh by the number of days they operated. From November 2022 to June 2023, MHS was open for 224 days. Subsequently, the solar energy consumed by MHS for that period amounted to 22,800 kWh.

The percentage of renewable energy can be calculated as the ratio of the percentage of solar energy used to the percentage of the total energy used by Metung Hot Springs. Since the facility

uses a generator, the total energy consumption could not be estimated. This means that the percentage of renewable energy could not be calculated using the following formula:

$$\text{Percentage of renewable energy} = \frac{\text{Energy consumption of renewables}}{\text{Total energy consumption}} \times 100$$

$$\text{Percentage of renewable energy} = \frac{22,800}{\text{Total energy consumption}} \times 100$$

Theme: Waste

Indicator 13: Amount of solid waste to landfill per visitor

Currently, MHS observes an average daily disposal of 15 kilograms of solid waste in landfill. Due to the data made available by MHS management, the amount of solid waste in landfill was calculated differently. Here the amount of solid waste sent to landfill was calculated as follows:

$$\text{Amount of solid waste to landfill} = \text{Average daily solid waste to landfill} \times N$$

Where,

N is the number of days MHS operated. In this case, from the 18th of November 2022 to the 30th of June 2023, equating to 224 days.

$$\text{Amount of solid waste to landfill} = 15 \times 224 = 3360 \text{ kg}$$

MHS has an estimated 3360 kgs of solid waste destined for landfill. To calculate the amount of solid waste in landfills per visitor, the following formula was deployed:

$$\text{Amount of solid waste to landfill per visitor} = \frac{\text{Amount of solid waste to landfill}}{\text{Number of visitors}}$$

Where,

The number of visitors will be from November 2022 to June 2023.

$$\text{Amount of solid waste to landfill per visitor} = \frac{3360}{26806} = 0.13\text{kg}$$

The average amount of solid waste to landfill per visitor is 0.13kg.

Indicator 14: Usage of water by hot springs' operators

According to the management of Metung Hot Springs, each year a volume of 90 megalitres of geothermal water is used with an additional 15 megalitres sourced from the cold water bore. The primary purpose of this water is for bathing.

Theme: Biodiversity

Indicator 15: Commitment of hot springs business to support wildlife conservation.

MHS is committed to supporting wildlife conservation as it actively creates more bushland habitat for local wildlife in East Gippsland. Additionally, the staff at this establishment are fostering environmental awareness in all their stakeholders.

Indicator 16: Contribution to environmental improvement such as forest cover and/or land care either onsite or elsewhere.

As a new establishment, Metung Hot Springs is committed to contributing to environmental improvement in the long run. Metung Hot Springs vegetation and flora comprise over 50 species and 16 aquatic plants on site.

7.4.2.3 Phillip Island Hot Springs, Victoria & Cunnamulla Hot Springs

Under the themes of climate change and energy, waste and biodiversity, *Indicators 11 to 16* cannot be measured, as Phillip Island Hot Springs and Cunnamulla Hot Springs were not operating when this chapter was written.

7.4.3 Testing sociocultural indicators

In this section the socio-cultural indicators of all the hot spring sites and destinations are thoroughly examined. The data was gathered from various sources, including visitor surveys, hot spring facilities, census records, and government databases. It is essential to state here that this analysis did not include Cunnamulla Hot Springs and Phillip Island Hot Springs, as they have yet to commence operations. This section is structured into two parts, focusing on the socio-cultural impacts on visitors and the community. Each indicator will be carefully assessed.

7.4.3.1 Peninsula Hot Springs, Victoria

Socio-cultural impacts on the users/visitors of hot springs

Theme: Direct impact on health on hot springs' users and visitors

Indicator 17: Purpose of visit

The visitor survey revealed the primary motivations for visiting PHS. The majority of respondents (41.2%) seek relaxation and rejuvenation. In comparison, others are drawn to the opportunity for socialising and group activities with friends and family (19.7%), romantic or recreational time with a partner or close friend (17.4%), and the chance to experience and discover the unique offerings of the hot springs. While health reasons (8.8%) and meeting new people (0.2%) were less common, many visitors indicated that they came to PHS for celebratory occasions, such as birthdays and anniversaries (45.2%), or received vouchers as a gift (32.9%). *Figure 7.9* and *Figure 7.10* provide a visual breakdown of these additional reasons for visiting PHS.

Figure 7.9 - Reasons for visiting PHS in percentage terms

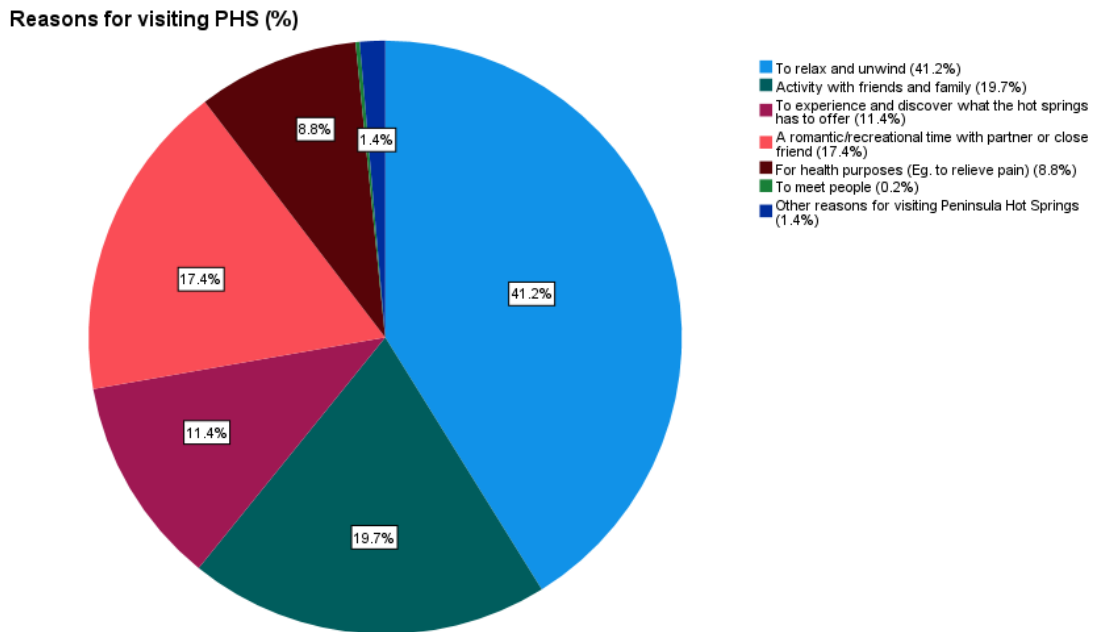
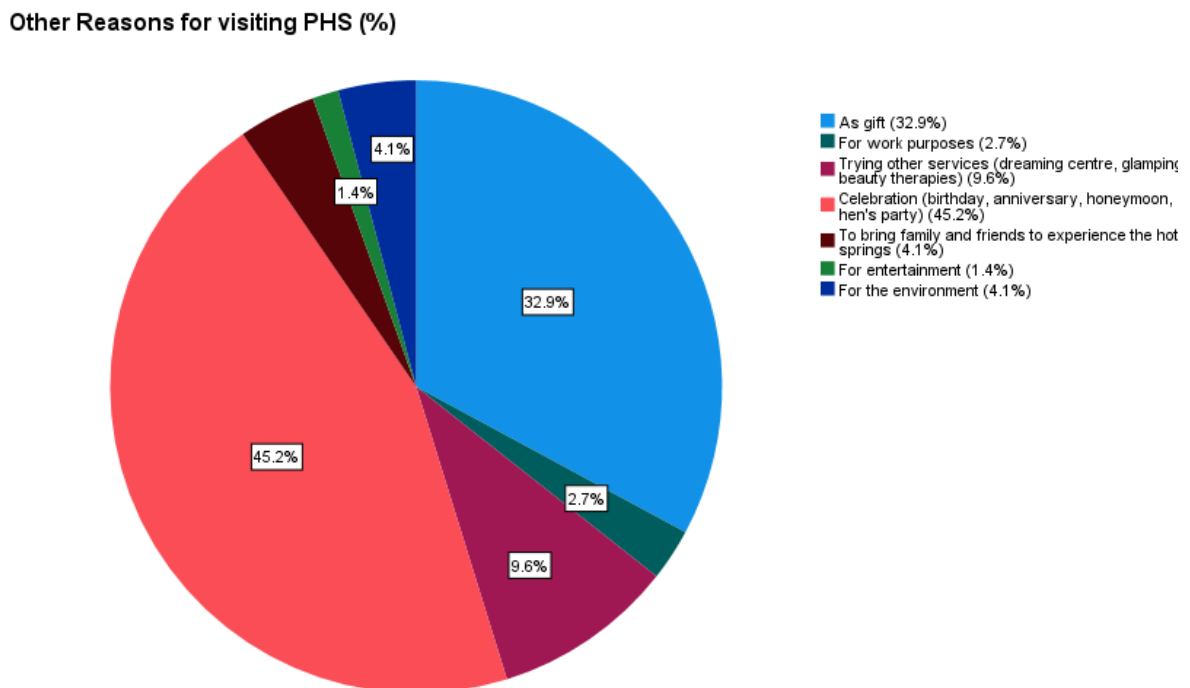


Figure 7.10 - Other reasons for visiting PHS in percentage terms



The percentage of visitors who attend the hot springs to improve their health or well-being will be calculated to assess this indicator. As highlighted in Part I of the literature review, visitors typically find their well-being improved when their experiences merge pleasure and indulgence, meaningful experiences, and participating in altruistic activities (Pope, 2018). Therefore, to enhance visitors' well-being, offering experiences that allow for recreation and relaxation, enjoyable and fun activities, immersion in nature, community participation, and social interaction is important. This insight classified the motives for visiting PHS into two categories: enhancing well-being and enhancing health, as elaborated in *Table 7.12*.

Under the category “enhance well-being”, the following motives for visiting PHS were identified: to relax and unwind, activity with friends and family, a romantic/recreational time with partner or close friend, celebration, to bring family and friends to experience what the hot spring has to offer, and for the environment. Under the category “enhance health”, the motive for visiting PHS was for the purpose of improving one’s health. Hence, the percentage of visitors who attended the PHS to do this or their well-being is 87.6%.

Table 7.12 - Percentage of visitors who went to PHS to enhance their health and well-being

| Categories | Responses | |
|---------------------------|---|---------------|
| | N | Percent |
| Enhance well-being | To relax and unwind | 2725 41.2% |
| | Activity with friends and family | 1303 19.7% |
| | A romantic/recreational time with partner or close friend | 1151 17.4% |
| | Celebration | 33 0.5% |
| | To bring family and friends to experience the hot springs | 3 0% |

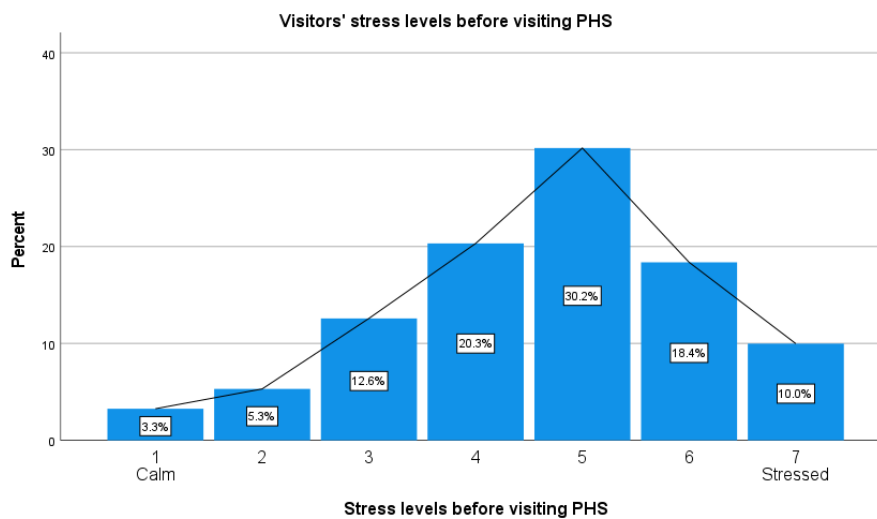
| | | | |
|-----------------------|---------------------|-------------|--------------|
| | For the environment | 3 | 0% |
| Enhance health | For health purposes | 583 | 8.8% |
| Total | | 5801 | 87.6% |

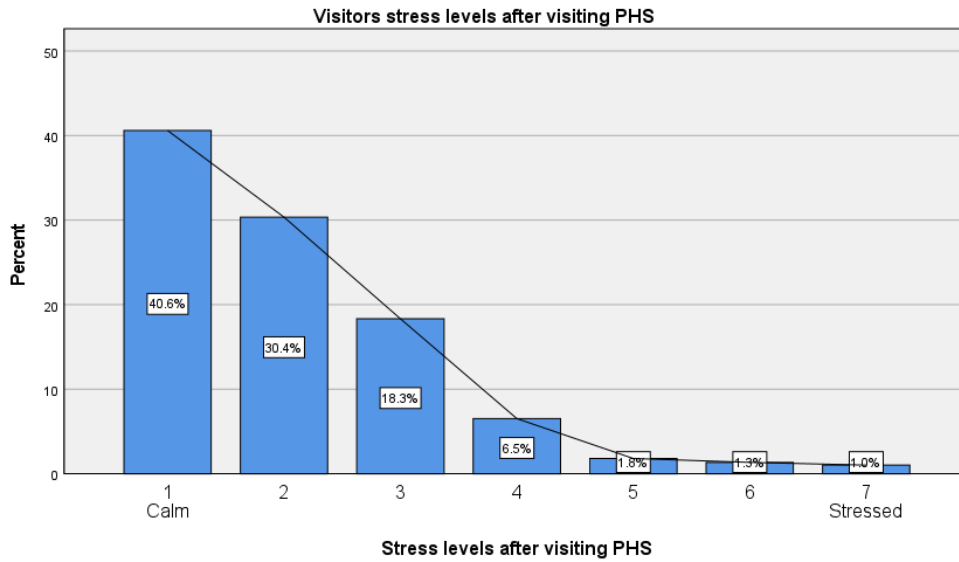
Note: N is the number of responses

Indicator 18: Levels of stress before visiting hot springs and post-visit

The stress levels felt by visitors to PHS were evaluated by asking them to rate their stress levels before and after their attendance, using a scale from 1 (calm) to 7 (stressed). *Figure 7.11* below depicts the patterns in visitors' stress levels before and after they went to PHS. Notably, 58.6% of visitors reported feeling stressed before going to the hot springs, with a median rating of 5. Nonetheless, after experiencing the hot springs, 89.3% of visitors reported feeling calm, with a median rating of 2.

Figure 7.11 -Stress levels before and after visiting PHS





Indicator 19: Improvement in sleep, benefits for skin and relief of pain

According to the visitor survey results, a notable percentage of respondents experienced an improvement in their physical and mental well-being. Specifically, 26.9% of the surveyed population reported enhanced quality of sleep, 15.1% experienced relief from joint pain, and 13.5% reported a general improvement in skin health (see *Table 7.13*). *Table 7.14* presents additional positive outcomes observed by PHS visitors, including better mental health where people felt happy and were in a better mood and had better relationships with partners, family and friends, alleviation of muscle and back pain, enhanced recovery and rehabilitation.

Table 7.13 -Observable improvements after visiting PHS

| | | Responses | |
|--------------------------------|------------------------------------|-------------|---------------|
| | | N | Percent |
| Observable improvements | Better sleep | 1845 | 26.9% |
| | General skin improvements | 925 | 13.5% |
| | Relief of joint pain | 1034 | 15.1% |
| | Feeling relaxed | 2832 | 41.3% |
| | No improvements | 93 | 1.4% |
| | Other improvements, please specify | 135 | 2.0% |
| Total | | 6864 | 100.0% |

Note: N is the number of times the respondents identified these improvements.

Table 7.14 -Other observable improvements after visiting PHS

| | | Responses | |
|--------------------------------------|---|-----------|---------|
| | | N | Percent |
| Other Observable Improvements | Improved Mental Health | 42 | 0.6% |
| | Improved connections/mindfulness | 22 | 0.3% |
| | Relief of back and muscle pain and enhanced recovery and rehabilitation | 43 | 0.6% |
| | Improved breathing | 3 | 0.3% |
| | Improved insomnia | 1 | 0.0% |
| | Improved digestion | 2 | 0.1% |
| | Improved cold symptoms | 3 | 0.1% |

Note: N is the number of times the respondents identified these improvements

Theme: Sense of well-being

Indicator 20: Sense of well-being before and after visiting hot springs

Measuring well-being is quite complex as discussed in Part I of the literature review. Many factors influence one's sense of well-being, including financial status, stage of life, cultural background, and more. As a result, the meaning of well-being can vary for visitors depending on the circumstances. In the context of tourism, it is worth exploring the impacts of experiences on visitors' sense of well-being, stress levels post-visit, physical and mental improvements, and satisfaction.

Most surveyed people reported diminished stress levels following their visit to PHS, as evidenced by a positive shift in *Indicator 18*. The enhanced mental and emotional state visitors experienced likely contributed to this improvement in their overall state of mind and well-being. *Indicator 17* revealed that relaxation and rejuvenation were the primary reasons for visiting PHS, which aligns with the observed physical and mental health improvements highlighted in *Indicator 19*. These positive outcomes likely played a positive role in promoting a sense of well-being among PHS visitors. *Table 7.15* displays the primary reasons respondents visited the Shire of Mornington Peninsula, with 65.9% indicating that holidays, leisure and recreation were their motivations. Since relaxation and rejuvenation are the primary objectives for visiting the destination and PHS, engaging in holiday and leisure activities can enhance overall well-being.

Table 7.15 -Reasons for visiting the Shire of Mornington Peninsula

| | | Responses | |
|---|---|-----------|---------|
| | | N | Percent |
| Reasons for visiting the Shire of Mornington Peninsula | Holidays, leisure and recreation | 2467 | 65.9% |
| | Visiting friends and relatives | 547 | 14.6% |
| | Education and training | 15 | 0.4% |
| | Health and medical care | 116 | 3.1% |
| | Shopping | 140 | 3.7% |
| | Transit | 25 | 0.7% |
| | A special event (festival/entertainment/sport) | 173 | 4.6% |
| | Employment | 60 | 1.6% |
| | | | |

| | | | |
|-----------------------------------|---|-------------|---------------|
| | Business or professional | 45 | 1.2% |
| Other reasons for visiting | Gift | 4 | 0.1% |
| | Hot springs | 121 | 3.2% |
| | Real estate | 2 | 0.1% |
| | Live around the Shire | 6 | 0.2% |
| | To rest | 6 | 0.2% |
| | Celebration (birthday, wedding, anniversary, honeymoon) | 16 | 0.4% |
| | Total | 3743 | 100.0% |

Note: N is the number of respondents excluding Mornington Peninsula residents and second homeowners of the Shire.

The sense of well-being can be further evidenced by identifying repeated visitations to the destination and PHS. Repeated visits create positive emotions and experiences among visitors, enhancing their well-being (Vada et al., 2023). Based on the findings presented in *Table 7.16* and *Table 7.17*, over half of the respondents - 62.5% and 50.7%, respectively – have made many trips to the Shire of Mornington Peninsula and PHS in 2021-2022. Additionally, the median number of visits at these locations is six and five times, respectively.

Table 7.16 -Number of visits to the Shire of Mornington Peninsula in 2021-2022

| | | Responses | | |
|--|-------------------|-------------|-------------|---------------|
| | | N | Percent | Valid Percent |
| Number of visits to the Shire of Mornington Peninsula (2021-2022) | 2 times | 580 | 17.9 | 28.7 |
| | 3 times | 510 | 15.8 | 25.2 |
| | 4-8 times | 568 | 17.6 | 28.1 |
| | More than 8 times | 364 | 11.3 | 18.0 |
| | Total | 2733 | 62.5 | 100.0 |

Note: N is the number of responses, excluding respondents who visited the Shire once, Mornington Peninsula residents and second homeowners.

Table 7.17 -Number of visits to PHS in 2021-2022

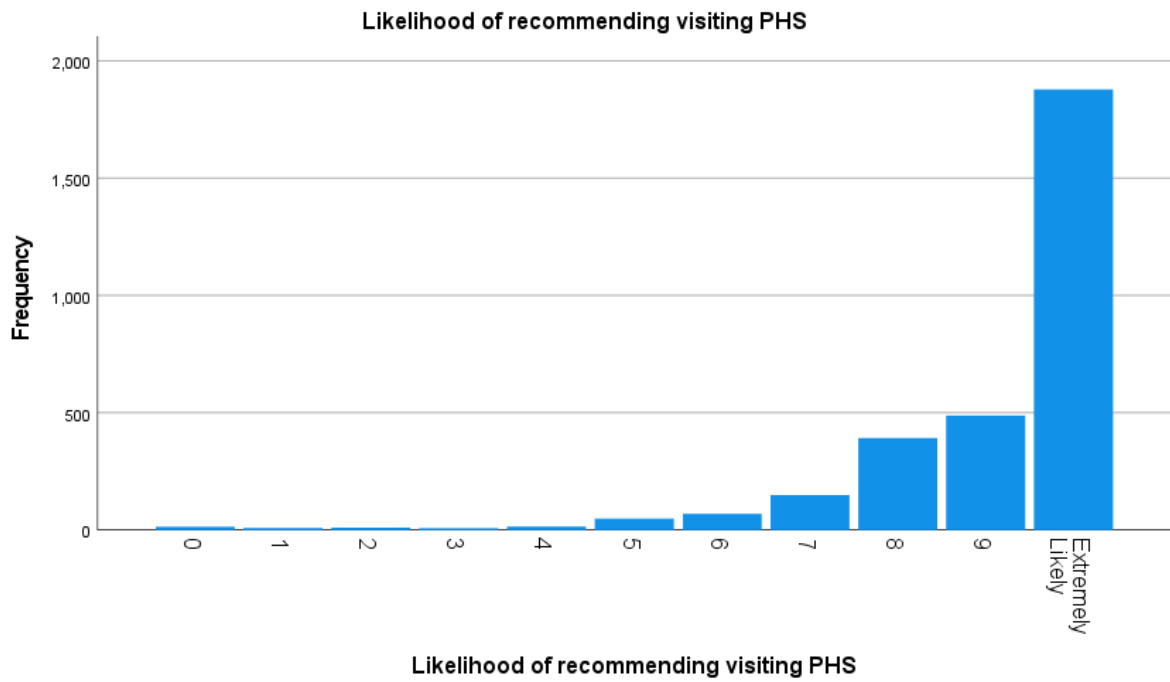
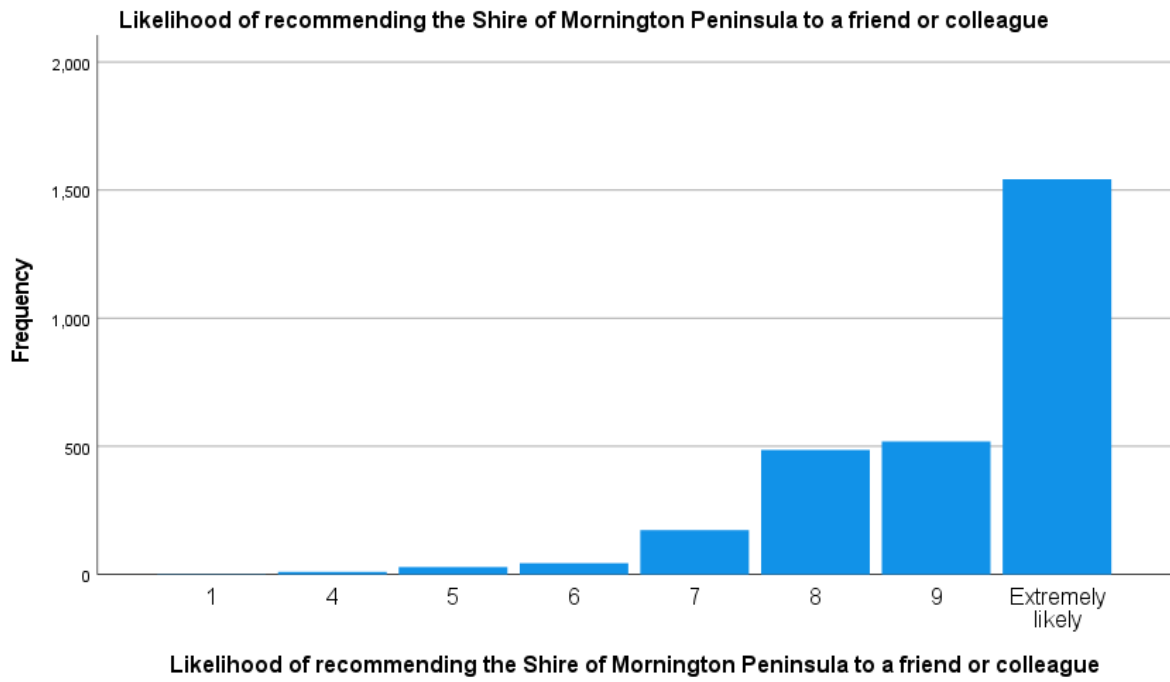
| | | Responses | | |
|---|-------------------|-------------|-------------|---------------|
| | | N | Percent | Valid Percent |
| Number of visits to PHS in 2021-2022 | 2 times | 879 | 27.6 | 53.6 |
| | 3 times | 375 | 11.6 | 22.9 |
| | 4 -8 times | 286 | 8.8 | 17.4 |
| | More than 8 times | 101 | 3.1 | 6.2 |
| | Total | 3212 | 50.7 | 100.0 |

Note: N is the number of responses, excluding respondents who visited PHS once.

Indicator 21: Level of satisfaction of hot springs visitors/users

An evaluation of the Net Promoter Score (NPS) for both the destination and PHS was done to determine visitor satisfaction. By analysing the visitor survey data, the likelihood of a visitor recommending a trip to the Shire of Mornington Peninsula and PHS to a friend or colleague was found to be highly probable. The graph below (*Figure 7.12*) visually illustrates this information.

Figure 7.12 – Net Promoter Score (NPS) of visitors to PHS and the Shire of Mornington Peninsula



Socio-cultural impacts on the community

Theme: Health benefits at a community level

Indicator 22: Average life span of residents at the destination compared to national averages.

In 2022, Mornington Peninsula residents' average life expectancy was 84.1 years for women and 81.2 years for men. Since the Shire of Mornington Peninsula forms part of the Mornington Peninsula region, the average life span is assumed to be the same. This figure is compared to the national average of 83.2 years old (Australian Bureau of Statistics, 2023).

Indicator 23: Percentage of visitors who live locally.

According to the survey results, the proportion of individuals visiting the Shire of Mornington Peninsula who reside or own a second home there stands at 15.3% in contrast to non-residents visiting PHS. Furthermore, the percentage of visitors who possess a second home in the Shire is comparatively low. This data is provided in *Table 7.18* below.

Table 7.18 -Percentage of visitors who live at the destination

| Resident or second homeowner of the Shire of Mornington Peninsula | Responses | |
|---|-------------|--------------|
| | N | Percent |
| Yes | 495 | 15.3 |
| No | 2739 | 84.7 |
| Total | 3234 | 100.0 |

Note: N is the number of responses

Indicator 24: Percentage of people at the hot springs' destination suffering from anxiety and depression

According to the census, it has been found that 9.8% of the residents of the Mornington Peninsula are suffering from mental health conditions like anxiety or depression (Australian Bureau of Statistics, 2021b). The percentage is higher than the corresponding numbers in Victoria and across Australia, which are 8.8%. Moreover, the data reveals that mental health conditions are more prevalent among women than men.

Theme: Bathing culture of the region

Indicator 25: Diversity and inclusion initiatives (e.g., People with disabilities/collaborations with First Nations people/local community group engagement.)

PHS has taken proactive steps towards fostering diversity and inclusion within its enterprise and the Mornington Peninsula community. They have established strong partnerships with local businesses, promoted employment opportunities, and utilised local suppliers, all the while contributing to the local economy. Additionally, PHS has implemented various inclusive programs in schools, universities and sports clubs throughout the region.

PHS has established inclusive initiatives with various organisations, including the local and indigenous William Warrain Foundation, with whom they celebrate NAIDOC⁴ week each year. PHS also works closely with Mental Health Australia and Mental Assist to promote mental health awareness, a cause that is dear to their hearts. Each year, PHS runs its “share the warmth” campaign, inviting visitors to bring a friend experiencing mental hardship free of charge to enjoy the hot springs. Furthermore, PHS collaborates with Musculoskeletal Australia (MSK) to raise awareness for individuals with musculoskeletal conditions. To support guests in their bathing experience, warm water exercise cards are offered, following the guidelines of MSK.

⁴ NAIDOC is celebrated each year in Australia to commemorate the history, culture and achievements of Aboriginal & Torres Strait Island people.

Indicator 26: Number of partnerships and engagements with tourism facilities in the region

PHS has forged partnerships and collaborated with several local suppliers, although only tourism-related partnerships were considered to assess this indicator. The number of 105 local partnerships underscores PHS’s commitment to nurturing solid ties with the community. *Table 7.19* depicts the number of tourism partnerships PHS has established in the area.

Table 7.19 -Number of partnerships with local businesses

| Types of Partnerships | | N |
|------------------------------|------------------------------------|------------|
| Accommodation | Beachside retreats | 6 |
| | Bed & Breakfast | 15 |
| | Groups | 6 |
| | Hotels and motels | 10 |
| | Luxury | 5 |
| | Resorts | 4 |
| | Self-contained | 14 |
| Activities | Horse riding | 2 |
| | Water activities | 5 |
| | Attractions | 4 |
| | Red Hill Candle Co. | 1 |
| | Golf | 2 |
| | Local markets | 7 |
| | Art galleries | 1 |
| Food & Beverages | Estate | 7 |
| | Wineries, breweries & distilleries | 7 |
| Transport & Tours | Touring companies | 9 |
| Total | | 105 |

Note: N is the number of tourism partnerships

Sociocultural impacts

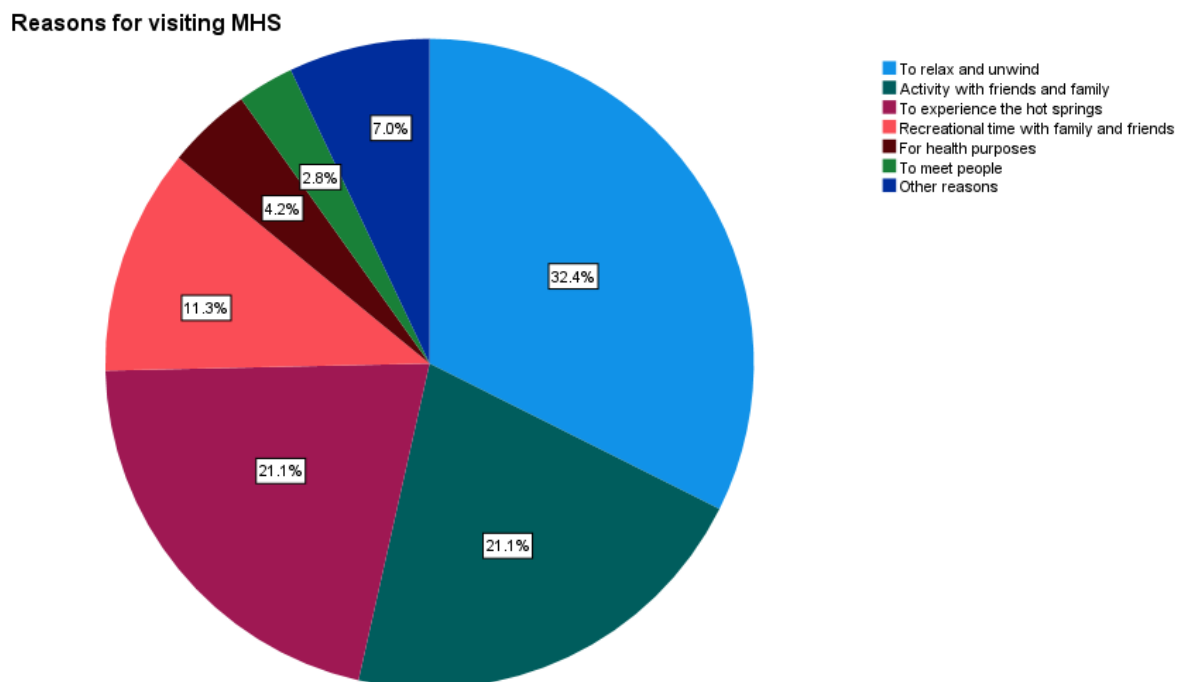
on the users/visitors of hot springs

Theme: Direct impact on health on hot springs' users and visitors

Indicator 17: Purpose of visit

The primary motives for visiting MHS were diverse. While the largest group of respondents (32.4%) sought relaxation and rejuvenation, a significant portion (21.1%) were drawn to activities with family and friends, and an equal percentage (21.1%) were interested in exploring the hot springs. Spending quality time with loved ones (11.3%) was also a popular reason for visiting. A smaller percentage of respondents came to MHS for health purposes (4.2%) or to meet people (2.8%). Interestingly, some surveyed had not yet been to MHS but planned to use a gift voucher in the future. Finally, one participant remarked on visiting MHS for work purposes, among other reasons. The pie chart below (*Figure 7.13***Figure 7.13**) provides a visual breakdown of the reasons for visiting MHS.

Figure 7.13 - Reasons for visiting Metung Hot Springs

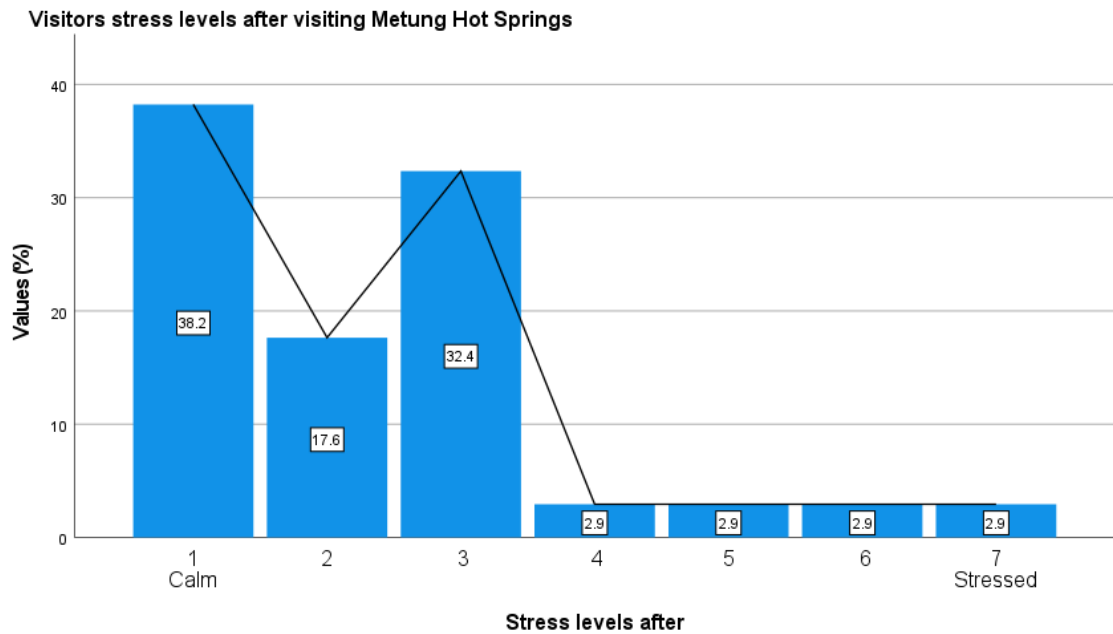
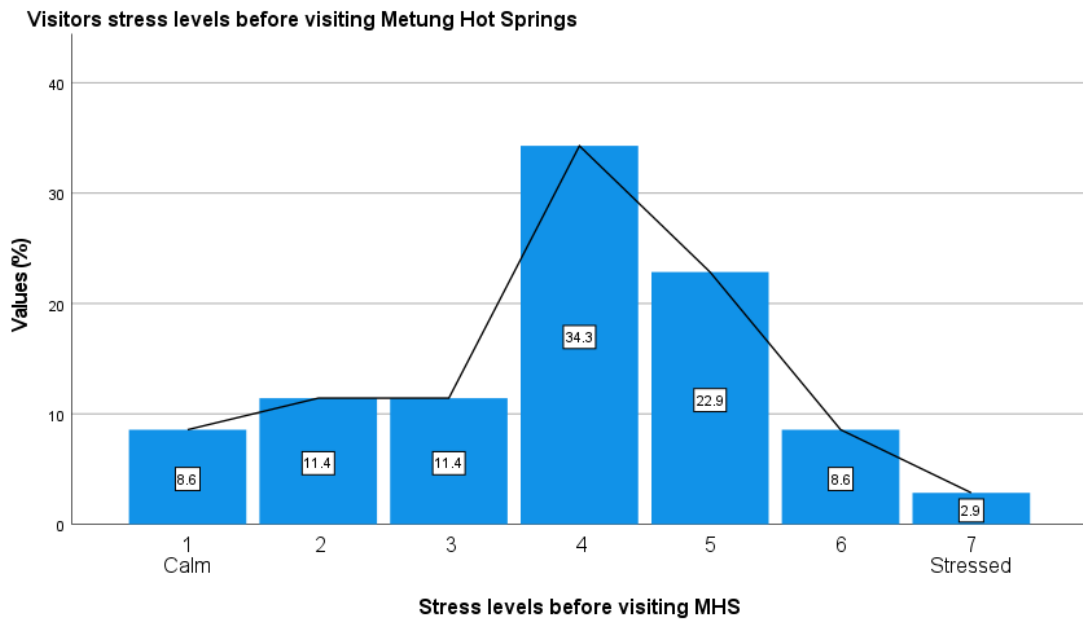


It can be concluded that a significant proportion of guests visited the hot springs with the primary intention of enhancing their overall health and wellness. This was attributed to various factors such as unwinding, socialising with loved ones, indulging in leisurely pursuits, and enjoying the therapeutic benefits of hot springs. Consequently, the percentage of guests who visited MHS to improve their well-being was determined to be 90.1%.

Indicator 18: Levels of stress before visiting hot springs and post-visit

To evaluate the stress levels before and after visiting MHS, participants were asked to rate them using a scale from 1 (calm) to 7 (stressed). *Figure 7.14* below presents the trend in stress levels of MHS visitors before and after visiting the hot springs. Before visiting the hot springs, 34.4% of visitors reported feeling stressed and 34.3% indicated feeling somewhat stressed, with a median rating of 4. However, after experiencing the hot springs, a significant proportion of visitors (88.4%) reported feeling calm, with a median rating of 2.

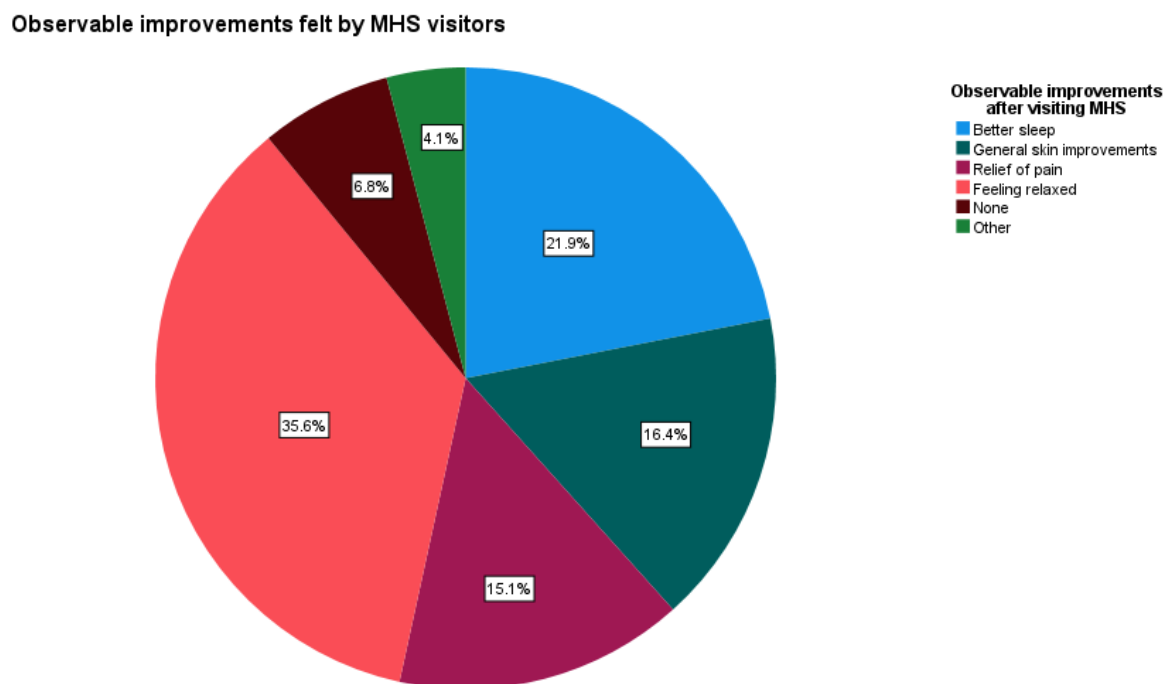
Figure 7.14 - Stress levels before and after visiting Metung Hot Springs



Indicator 19: Improvement in sleep, benefits for skin and relief of pain.

The findings gathered from the visitor survey indicate that a large number of participants indicated experiencing an improvement in their physical and mental health. Specifically, out of those surveyed, 21.9% reported better quality of sleep, 16.4% observed an improvement in their skin health, and an additional 16.4% found relief from joint pain (arthritis). Moreover, some participants mentioned an overall enhancement in their mental health and increased social engagement. This information is illustrated in *Figure 7.15*.

Figure 7.15 - Observable improvements felt by Metung Hot Springs visitors



Theme: Sense of well-being

Indicator 20: Sense of well-being before and after visiting hot springs

As previously discussed in Part I of the literature review, exploring visitors' stress levels before and after going to the hot springs and their physical and mental improvements and satisfaction levels can shed light on their sense of well-being.

Indicator 18 provides evidence of a reported decline in stress levels among visitors following their visit to MHS, while *Indicator 17* delves into the enhanced physical and mental

improvements experienced by visitors, which likely contribute to their overall well-being. These findings align with the primary reasons for visiting MHS, which include relaxation and unwinding. Additionally, the observed improvements in physical and mental health, highlighted in *Indicator 19*, promote a sense of well-being among MHS visitors.

Repeated visitations to the destination and the hot springs may lead to an enhanced sense of well-being. However, as MHS is a relatively new facility, the data collected from visitors who have visited Metung and MHS between November 2022 and June 2023 may not be conclusive. This is because most visitors have only made one visit, based on the figures presented below in *Table 7.20* and *Table 7.21*.

Table 7.20 -Number of visits to the town of Metung (2022 – 2023)

| | | Responses | | |
|---|-------------------|-----------|-------------|---------------|
| | | N | Percent | Valid Percent |
| Number of visits to the town of Metung (2022-2023) | Once | 18 | 27.3 | 50.0 |
| | 2 times | 4 | 6.1 | 11.1 |
| | 3 times | 5 | 7.6 | 13.9 |
| | 4-8 times | 1 | 1.5 | 2.8 |
| | More than 8 times | 8 | 12.1 | 22.2 |
| Total | | 36 | 54.5 | 100.0 |

Note: N is the number of responses, excluding Metung residents, second homeowners, and respondents who had never visited Metung in the past year.

Table 7.21 -Number of visits to MHS (2022 – 2023)

| | | Responses | | |
|--|---------|-----------|-------------|---------------|
| | | N | Percent | Valid Percent |
| Number of visits to MHS (2022-2023) | Once | 23 | 34.8 | 88.5 |
| | 2 times | 2 | 3.0 | 7.7 |
| | 3 times | 1 | 1.5 | 3.8 |
| Total | | 26 | 54.5 | 100.0 |

Note: N is the number of responses, excluding Metung residents, second homeowners, and respondents who had never visited MHS in the past year.

Indicator 21: Level of satisfaction of hot springs visitors/users

The level of satisfaction was gauged through an analysis of the Net Promoter Score (NPS) for both Metung and MHS. Based on the insights gathered from the visitor survey, it was determined that the probability of a visitor recommending a trip to Metung and MHS to a friend or colleague was highly probable. Specifically, the NPS scores for Metung and MHS were 51.17 and 11.36, respectively. The gauge charts below visually illustrate this data (*Figure 7.16* and *Figure 7.17*).

Figure 7.16 - Net Promoter Score (NPS) for Metung

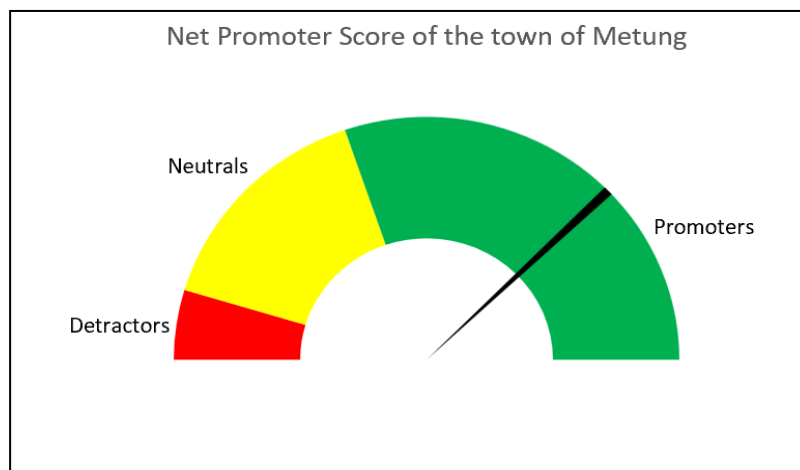
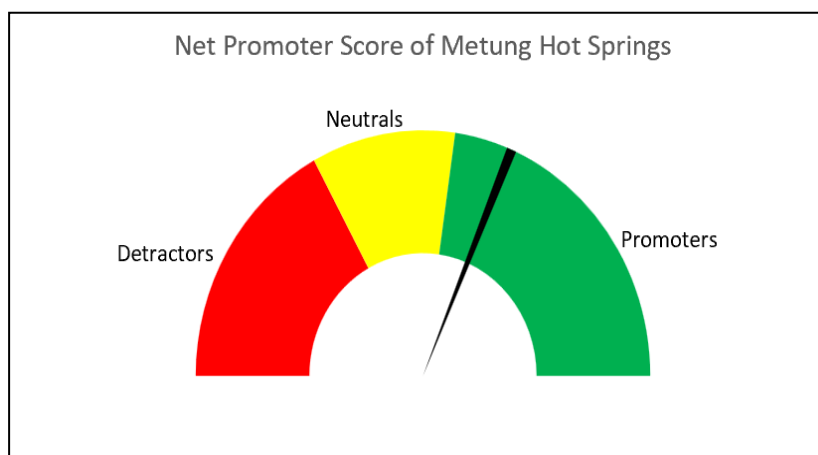


Figure 7.17 - Net Promoter Score (NPS) for Metung Hot Springs



Socio-cultural impacts on the community

Theme: Health benefits at a community level

Indicator 22: Average life span of residents at the destination compared to national averages

According to the ABS, males in Gippsland can expect to live for 78.7 years, while females have a life expectancy of 83.2 years between 2020 and 2022 (Australian Bureau of Statistics, 2023). Overall, the life expectancy for the Gippsland region is 80.9 years old. Given that Metung is part of Gippsland, it is reasonable to assume that life expectancy in Metung would be similar to that of the broader region. In addition, Australian residents' national average life span is 81.2 years for males and 85.3 years for females.

Indicator 23: Percentage of visitors who live locally.

The proportion of visitors to the town of Metung who either reside or own a second home in the town stands at 33.9%. The remaining 66.1% are non-residents. This data is presented in *Table 7.22* below.

Table 7.22 -Percentage of visitors who live locally

| Resident or second homeowner of the town of Metung | Responses | |
|---|-----------|---------|
| | N | Percent |
| Resident | 18 | 27.7 |
| Second homeowner | 4 | 6.2 |
| Not resident or second homeowner | 43 | 66.1 |
| Total | 65 | 100.0 |

Note: N is the number of responses.

Indicator 24: Percentage of people at the hot springs' destination suffering from anxiety and depression

The percentage of people suffering from mental health conditions, including anxiety and depression, in Metung is 9.4%, compared to the 8.8% for national average in Victoria and throughout Australia (Australian Bureau of Statistics, 2022b).

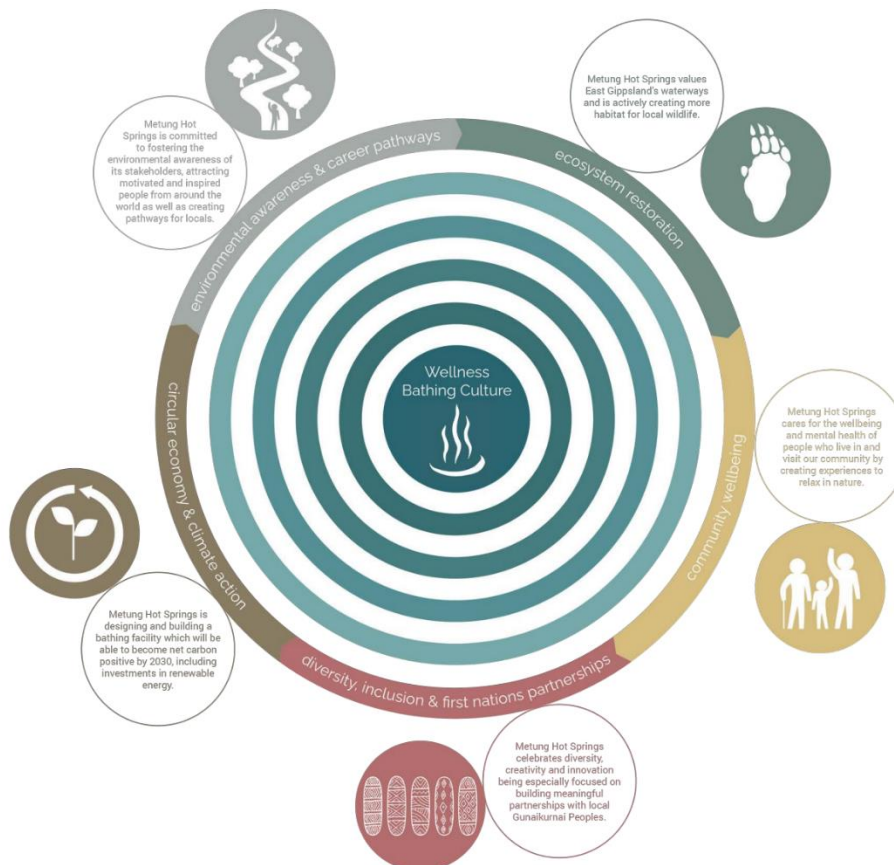
Theme: Bathing culture of the region

Indicator 25: Diversity and inclusion initiatives (e.g., People with disabilities/collaborations with First Nations people/local community group engagement.)

MHS has committed to engaging in Corporate Social Responsibility (CSR) initiatives, emphasising promoting diversity and inclusion. Among the various CSR activities, MHS has focused on charitable donations and reducing its carbon footprint. MHS is committed to positively impacting the environment and society while ensuring its business practices align with the highest ethical standards. Their CSR endeavours are integral to its overall strategy to promote sustainability and social responsibility.

MHS also recognised its responsibility to local communities and designed a regeneration model to create positive benefits for its stakeholders across East Gippsland and beyond (Metung Hot Springs, 2023-a). The model focuses on improving the quality of life in five interconnected pillars, as illustrated in *Image 7.4* (Metung Hot Springs, 2023-a).

Image 7.4 - Wellness bathing culture of Metung Hot Springs



As part of the five pillars, MHS focuses on building meaningful partnerships with local Indigenous people and creating jobs for the community.

Indicator 26: Number of partnerships and engagements with tourism facilities in the region

Metung Hot Springs has partnered with two experienced providers in Metung: Buchan Caves and Lakes Entrance Helicopters (Metung Hot Springs, 2023-b). Additionally, they have established affiliations with eight accommodation partners, namely 5knots, Bellevue, Esplanade, Country House Retreat, Jetty Road Retreat, Captains Cove, Mariner's Cove and Waterfront Apartments (Metung Hot Springs, 2023-c). As a result, Metung Hot Springs has established a total of ten partnerships with local businesses in Metung.

Socio-cultural impacts on the users/visitors of hot springs

Indicators 17 to 21, assessing the socio-cultural impacts on hot spring users and visitors, will not be measured at the time of the research.

Socio-cultural impacts on the community

Similarly, *Indicators 23, 25 and 26*, assessing the socio-cultural impacts of hot springs on the destination, will not be assessed due to the hot springs not yet operating.

Theme: Health benefits at a community level

Indicator 22: Average life span of residents at the destination compared to national averages

The ABS life expectancy report noted that the average life span of Phillip Island's residents was included in the average life expectancy for the rest of Victoria. Hence, the average life expectancy at the destination was estimated to be 79.5 years old for males and 84.1 for females. Overall, the average life span of the residents is estimated at 81.8 years old, which is relatively close to the national average of 83.2 years old (Australian Bureau of Statistics, 2023).

Indicator 24: Percentage of people at the hot springs' destination suffering from anxiety and depression

In 2021, 10.1% of the population of Phillip Island were diagnosed with mental health conditions, which include anxiety and depression (Australian Bureau of Statistics, 2021c). Compared to the national levels, after arthritis, mental health conditions were found to be the second long-term health condition diagnosed at the destination.

7.4.3.4 Cunnamulla Hot Springs, Queensland

Socio-cultural impacts on the users/visitors of hot springs

Indicators 17 to 21, assessing the socio-cultural impacts on hot spring users and visitors, are not relevant to Cunnamulla Hot Springs as this establishment is not yet operating.

Socio-cultural impacts on the community

Likewise, *Indicators 23, 25 and 26*, assessing the socio-cultural impacts of hot springs on the destination, will not be measured.

Theme: Health benefits at a community level

Indicator 22: Average life span of residents at the destination compared to national averages.

The average life span of residents in Cunnamulla was estimated to be the same as that of the rest of the population of Queensland, where females (84.8 years old) are expected to live longer than men (80.3 years old). In general, it is estimated that the population in the rest of Queensland will reach the age of 82.5 (Australian Bureau of Statistics, 2023).

Indicator 24: Percentage of people at the hot springs' destination suffering from anxiety and depression

According to the ABS census data, 7.1% of Cunnamulla's population suffers from mental health conditions, including depression and anxiety, in comparison with Queensland (9.6%) and Australia (8.8%) (Australian Bureau of Statistics, 2021a). This data is insignificant compared to the number of residents at the destination.

7.5 Discussion

The findings from Phase 2, which tested 26 indicators across four hot springs facilities in regional Australia, indicate several important points. Firstly, the ease of measuring and obtaining data varied among the indicators, with some being straightforward while others were more tedious. For example, economic indicators were easy to measure and to gather data compared to some of the environmental indicators such as GHG emissions, which will be further discussed in Chapter 8. This implies that certain indicators may prove more practical for future use.

Additionally, the comprehensive assessment of indicators within the hot springs destination indicates a holistic understanding of the conditions and characteristics of these ecosystems. This holistic approach provides insights into various aspects such as the ecosystem health, and visitor experience, thereby facilitating informed decision making for conservation and management initiatives.

Economic Impacts

The comparison between established hot springs (Peninsula Hot Springs) and newly developed facilities (Metung Hot Springs) revealed differences in visitor profiles and spending patterns. Both hot springs attracted visitors primarily for holidays, leisure, and recreation, with a significant proportion also visiting for the hot springs. However, the data showed that visitors to Metung Hot Springs spent more and had a longer average stay than those at Peninsula Hot Springs. This could be attributed to the glamping accommodation options and highlights a different visitor demographic and economic impact. It is worth noting that at the time of data collection, Peninsula Hot Springs had just added glamping as an additional accommodation option. Despite this, Peninsula Hot Springs, being an established business, still had a larger direct economic impact on the destination when compared to Metung Hot Springs.

The findings have shown that the Shire of Mornington Peninsula's average weekly income surpasses those of Phillip Island (Bass Coast Shire), Metung (East Gippsland) and Cunnamulla (Paroo Shire). This income discrepancy may stem from differences in economic activities and industries present in each area. Mornington Peninsula's more diverse economic base, which includes a variety of high-income generating industries could explain the higher income. In contrast, the number of tourism businesses in Metung and Phillip Island may account for the income disparity. Other socio-economic factors, such as education levels, employment rates and resource accessibility also contribute to income disparities between regions. For instance,

Cunnamulla may face challenges associated with a more limited economic base, such as lower employment opportunities and income levels. In addition, Cunnamulla's tourism sector may be less developed compared to other destinations, leading to lower income levels for residents.

It would be interesting to monitor how the income threshold for Cunnamulla and Phillip Island changes with the introduction of the hot springs.

Environmental Impacts

In comparing the GHG emissions and environmental practices of Peninsula Hot Springs and Metung Hot Springs, several key findings emerged, shedding light on the sustainability efforts and challenges faced by each facility.

Starting with GHG emissions, Peninsula Hot Springs exhibited a notable carbon footprint in 2019, emitting an estimated 2.60kg of carbon dioxide per visitor. This substantial emission level underscores the environmental impact associated with visitor activities at the facility. However, the inability to calculate the percentage of renewable energy usage for the financial year 2018/19, due to the lack of renewable energy sources like solar panels indicates a missed opportunity for reducing emissions. Despite this, Peninsula Hot Springs transitioned to more sustainable energy sources by installing solar panels in 2021. Similar challenges were faced for accurately calculating Metung Hot Springs GHG emissions due to the use of gas tanks for electricity and gas supply. This lack of data transparency raises concerns about the facility's emissions management practices and highlights the need for better tracking and reporting mechanisms.

In terms of waste management, Peninsula Hot Springs generated 0.59kg of solid waste to landfill per visitor in 2019, indicating a moderate level of waste generation. However, without further context on total waste production, it is challenging to assess the overall waste management practices. On the other hand, Metung Hot Springs generated a lower amount of solid waste per visitor in 2022 (0.13kg). This can be explained as they have fewer guests compared to Peninsula Hot Springs and they are a new facility. If the facility maintain a lower amount of waste per visitor in the future, this could suggest a positive step towards reducing environmental impact through waste reduction efforts.

Water usage is another important aspect of sustainability for hot spring facilities. Although the size of each hot spring varies, it is clear that Peninsula Hot Springs will consume a substantial quantity of hot geothermal water and cold groundwater.

As for their dedication to preserving biodiversity and the environment, both facilities showcase a strong commitment to conservation and environmental stewardship. Metung Hot Springs, in particular, has developed a regeneration plan that recognises the significance of sustainable practices and ecological restoration.

The results reveal valuable insights into the sustainability practices of Peninsula Hot Springs and Metung Hot Springs, highlighting areas of excellence and opportunities for growth. These findings can inform the development of future hot springs projects, with lessons learned from both facilities, such as their commitment to preserving biodiversity and implementing effective waste reduction strategies. As such, these initiatives can serve as a blueprint for incorporating sustainable practices into upcoming projects.

Socio-cultural Impacts

As observed in the four hot springs case studies, the socio-cultural impacts of hot springs in regional Australia offer insights into their influence on visitor experiences, community engagement, and overall well-being. A critical examination reveals both positive and areas for improvement.

Some of the positive impacts include enhanced well-being, visitor satisfaction and cultural and community engagement. The primary purpose of visiting these hot springs is to relax and unwind, leading to reported improvements in sleep, pain relief, and overall sense of well-being. These benefits contribute to the popularity of hot springs as destinations for rejuvenation and relaxation. Additionally, high levels of visitor satisfaction at Peninsula Hot Springs and Metung Hot Springs demonstrate successful visitor experiences and positive community relations.

Another positive impact observed is the promotion of cultural and community engagement. For example, Peninsula Hot Springs' partnership with local businesses and collaboration with First Nations people showcases a dedication to cultural preservation and community involvement, which contributes to the socio-cultural tapestry of the region. Similarly, Metung Hot Springs' participation in corporate social responsibility initiatives and partnerships with local businesses indicate a commitment to positive community relations.

Some areas for improvement observed are local resident engagement and mental health support. The low percentage of visitors identifying as residents from the visitor survey findings indicates a potential disconnect between the hot springs and the local community. By increasing local resident engagement and promoting tourism within the region, socio-economic

benefits and community involvement can be further enhanced. It is important to note that this data was gathered from responses to the visitor survey.

Another aspect that needs improvement is mental health support. The high levels of anxiety and depression reported at Phillip Island and Cunnamulla highlight the need for increased attention to mental health support services within these regions. Incorporating mental health resources and programs into hot springs facilities can better address visitor needs and promote holistic well-being. This is a lesson that can be learned from Peninsula Hot Springs and Metung Hot Springs, which have successfully integrated such programs into their facilities. Monitoring these trends in the long run will be interesting, especially as these two destinations will soon have a hot springs facility.

In conclusion, while hot springs in regional Australia offer significant socio-cultural benefits, this assessment shows that there is room for improvement in terms of local engagement and mental health support. By addressing these areas, hot springs can continue to contribute positively to visitor experiences and community well-being in the future.

The following chapter will further discuss the validity and reliability of the indicators and the findings in conjunction with the literature review.

7.6 Chapter Summary

In this chapter, the findings from the visitor survey for Peninsula Hot Springs and Metung Hot Springs were described and analysed. Secondary data was collected from the hot spring facilities or government websites. As Cunnamulla Hot Springs opened in February 2024 and Phillip Island Hot Springs is set to open in 2025, so the visitor survey could not assess most indicators. Hence, secondary data was sourced from government websites and tourism destination bodies to gather preliminary data. The following chapter will discuss the findings in conjunction with the literature review (Chapters 2 and 3) and the Delphi technique (Chapter 6) findings to provide practical recommendations on the implications of the developed indicators.

Chapter 8 - Discussion

8.1 Introduction

This chapter delivers a comprehensive discussion of the findings presented in Chapter 7. It tackles the third objective of this research study which is to evaluate the effectiveness of the indicators developed for Australian hot springs. Further, the evaluation is based on the indicator criteria of practicality, credibility and significance. The analysis aims to validate the developed indicators on the destination and its community. The discussion draws on all data gathered during this research, including the literature review of indicators and the assessment of the visitor survey. The chapter is divided into four sections. Section 8.2 outlines the reliability and validity of the method used to assess indicators. Sections 8.3, 8.4 and 8.5 each focus on a particular impact area: economic, environmental and socio-cultural. Section 8.6 highlights the study's limitations, while Section 8.7 provides recommendations based on the findings. This study aimed to devise indicators that were effective enough in assessing the economic, environmental and socio-cultural impacts of hot springs, utilising a comprehensive set of factors to evaluate their significance and implications. The findings provide important insights into the multifaceted nature of hot springs and their role in promoting sustainable tourism.

8.2 Reliability and Validity of the Visitor Survey

As discussed in Chapter 3, reliability and validity are two closely linked aspects but they do have distinct features. While some indicators may be reliable, they may not be valid. On the other hand, if an indicator is valid, it is more likely to be reliable (Sürücü and Maslakci, 2020). Reliability pertains to the consistency and stability of the data gathered, while validity relates to the accuracy and relevance of the data about the questions being investigated (Spencer and Sargeant, 2022). Assessing both is crucial to ensure that the study is trustworthy and produces accurate results that can be applied to the research topic. To construct validity, the visitor survey used in this research was pilot tested with eight experts in the hot springs and academic fields at Victoria University. Following the pilot test, some minor amendments were implemented, but it was generally agreed that the visitor survey was valid. Although *face validity* served as the initial measure to validate the survey, it did not guarantee that all aspects would be assessed. For this reason, additional validation measures were created.

During the visitor survey evaluation, experts were asked to assess the content to guarantee that each question's measurement scale adequately covered the anticipated range. This evaluation

made it possible for the experts to ensure the *content's validity*. However, it should be emphasised that the income-related question was removed from the survey since its measurement scale was inaccurate. Reliability is the ability to produce consistent results over time or across multiple observers, enabling the replication of data sets across different cases (Sürücü and Maslakci, 2020). The ability to rely on such consistent data is essential in many academic and business settings, where accuracy and consistency are highly valued. Ensuring that data can be replicated and consistent makes it possible to draw accurate conclusions and make informed decisions based on the information.

To ensure the reliability of this research, it is necessary to adopt a consistent measurement scale across all tests. Standardised criteria play a vital role in ensuring the accuracy and precision of outcome measurements identifying any changes or variations in results. In this study, reliability was assessed by measuring the stability of the scale (Jakada et al., 2020). Employing the same visitor survey across multiple locations proved to be a reliable method. After discussing the validity and reliability of the methods used to collect data, the following section discusses the economic, environmental and socio-cultural impacts of Australian hot springs on the destination and community.

8.3 Economic impacts of Australian hot springs on the destination

As discussed in Chapter 2, it was suggested that hot springs had the potential to contribute significantly to the economic progress of the regional destination in which they are located. By assessing the economic indicators in the four hot springs' destinations, direct and indirect impacts of their operations on the destination will be discussed in the following sections.

8.3.1 Direct Economic Impacts

The data suggests that all the indicators pertaining to direct economic impacts are quantifiable and measurable. As reviewed in Chapter 3, hot spring businesses can directly positively contribute to the economy of the destination by creating jobs, increasing visitors' expenditure, increasing the number of visitors to the destination and increasing overnight stays at the destination (Miller, 2001, Asmelash and Kumar, 2019, Agyeiwaah et al., 2017, World Tourism Organization, 2004). The visitor survey results for Peninsula Hot Springs and Metung Hot Springs generate a comprehensive overview of the economic performance of these destinations. These key indicators reveal the hot spring's contribution to the economy in terms of better employment rates, visitor expenditures, more overnight stays and a greater sense of destination attractiveness.

The data used to measure the direct economic impact of the hot springs was both accessible and relevant to the industry in regional Australia. Notably, Phillip Island Hot Springs and Cunnamulla Hot Springs were yet to open when the data for this study was being gathered. Nonetheless, the initial secondary data collected on these hot spring destinations will serve as a benchmark for future research. It will be interesting to observe the impact of hot springs on the economic development of these areas.

One of the limitations of aggregating this data for emerging hot springs, such as Phillip Island Hot Springs and Cunnamulla Hot Springs, was not feasible. The varying sizes and durations of operation of these facilities made it challenging to compare the data. Additionally, relying on self reported visitor expenditure data was not without its difficulties, potentially leading to bias and inaccuracies. Visitors may not have accurately reported their spending, resulting in discrepancies in the reported figures. However, by analysing these indicators over time and in comparison to regional and national trends, patterns and trends unique to hot springs may be identified.

8.3.2 Indirect Economic Impacts

Chapter 3 highlights the significance of average household income for the overall well-being of residents living in a given destination (Turvey et al., 2009). *Table 8.1* presents the average household income for four regional destinations: the Shire of Mornington Peninsula, Metung, Phillip Island and Cunnamulla. Notably, Metung, Phillip Island, and Cunnamulla demonstrate the average household income which is lower than the national average. Considering that these destinations either have or are planning to establish a new hot spring facility, it would be interesting to observe if this situation changes in the future, indicating any potential economic benefit of the hot spring facility on the destination.

Table 8.1 Average household income

| | | Average household income (\$) | National Averages (\$) | | |
|---------------------------------|-------------------------------|----------------------------------|------------------------|------------|-----------|
| | | | Victoria | Queensland | Australia |
| Regional Destination | Shire of Mornington Peninsula | \$ 1,755 | | | |
| | Metung | \$1,219 | \$1,759 | N/A | \$1,746 |
| | Phillip Island | \$1,175 | | | |
| | Cunnamulla | \$994 | N/A | \$1,675 | |
| | | | | | |

While analysing indirect economic impacts, certain indicators were relatively straightforward to measure due to the availability of data on government websites such as the 2021 Census data. However, accessing particular data such as the number of tourism businesses in a destination (*Indicator 9*), proved to be more challenging. Notably, smaller LGAs were able to access this data efficiently than their more prominent counterparts, which was a limitation of the study. Nevertheless, *Indicator 9* remains important in assessing the economic growth of the LGAs, and despite these limitations, the indirect economic indicators were deemed valid overall. *Table 8.3* concludes that all the indicators identified under economic impacts were valid.

8.4 Environmental impacts of Australian hot springs on the destination

Climate Change and Energy

As discussed in Chapter 2, sustainability is increasingly important in the tourism industry, as are practices that reduce the carbon footprint and improve energy efficiency (Pollock, 2019). The rate at which the expanding tourism industry contributes significantly to GHG emissions is alarming. International regulations and preventive measures have been implemented to mitigate these impacts. Measuring the GHG emissions of Australian hot springs on the destination is an important step for achieving sustainability and regeneration. While implementing environmental measures in existing spas might be daunting and expensive, for new spas, it can be a leading strategy (Bodeker and Cohen, 2008).

This research is limited to applying Scope 1 and 2 methods to measure GHG emissions. The Scope 3 methods have not been undertaken because it is difficult to access data from external parties, such as energy produced by accommodation businesses used by hot springs' visitors,

from liquid waste and land transportation. It is assumed that if these activities from Scope 3 emissions were included, the estimation of GHGs produced would be increased. Based on the available data, Peninsula Hot Springs produced 1396.14 tCO₂-e emissions in FY 2019, with an estimated 2.60kg of carbon dioxide produced per visitor. GHG emissions were not calculated for Metung Hot Springs because it is a new establishment that uses gas tanks and a generator. It is important to note that both businesses have recognised the importance of environmental sustainability in their daily procedures and practices and are working towards achieving their goals.

One of the primary limitations of this estimation is the lack of readily available emission factor data to calculate GHG emissions. As a result, it can be challenging for operators to access accurate information when assessing their GHG emissions per year. Additionally, the complexity of estimating GHG emissions can be daunting for operators. Furthermore, new hot springs facilities may not have the necessary data, which makes it challenging to compare them with established facilities. Despite these challenges, providing estimates and monitoring the impact of hot springs businesses each year is important to provide a benchmark. Only by doing so can businesses and destinations work better towards achieving a 'green' or environmentally friendly economy (Law et al., 2017).

To facilitate the data collection for estimating GHG emissions, it is recommended to collaborate with supply chain partners to gather relevant emissions data. For instance, most electricity bills now provide a breakdown of GHG emissions, which makes it easier for businesses to monitor. Moreover, in cases where direct measurement is not feasible, it is recommended to use emission factors and estimation methods provided by Clean Energy Regulator (2023), which is specific to Australia. For international estimates of GHG emissions, it is recommended to consult relevant sector-specific guidance for each country. In summary, estimating GHG emissions provides the necessary data and insights to drive informed decision-making, achieve sustainability goals and contribute to wider efforts for environmental regeneration and resilience.

One critical factor in reducing the impact of climate change is the use of renewable energy. Research indicate that the quantity of energy generated from renewable sources is a key metric in assessing progress towards a greener future (Jain, 2020). This includes sources such as solar, wind, hydro and geothermal energy which are renewable and environmentally alternations to non-renewable sources like coal, oil and natural gas. Although the energy consumption of

renewables for Peninsula Hot Springs were not quantified during the 2018/19 financial year because there was not enough data, it is important to note that the facility was effectively closed between 2020 and 2022 as a result of the COVID-19 pandemic. Nevertheless, the management of Peninsula Hot Springs demonstrated their commitment to sustainability by installing solar panels in 2021, which will help to address the energy needs of the facility and reduce its carbon footprint.

Regarding Metung Hot Springs, the percentage of renewable energy could not be estimated due to their use of a generator. However, they have also installed solar panels as energy source. While this indicator could not be evaluated at either location, it is suggested that future assessments obtain the necessary documentation to accurately measure its impacts. Improving data collection processes will be an important step for future evaluations. Given that both hot springs facilities have invested in renewable energy sources, highlighting their commitment to sustainability, it can be concluded that this indicator is very significant.

Waste

To evaluate the environmental impact of the rapid growth of hot spring developments across Australia and the influx of visitors in those destinations, the amount of solid waste to landfill per visitor was calculated. Peninsula Hot Springs generates 0.56 kg of solid waste per visitor, while Metung Hot Springs generates 0.13 kg of solid waste per visitor. It is, however, not possible to make a direct comparison between the two hot springs facilities, because they differ in size, visitor volume, and developmental stage. Nevertheless both establishments have implemented sustainable practices to reduce solid waste and conserve water. This information was acquired from their respective water assessment reports, which indicated that both facilities utilise geothermal and cold bore sourced water, primarily for bathing purposes. In accordance with the current environmental regulations, Peninsula Hot Springs and Metung Hot Springs are measuring their waste and water usage to uphold their commitment to sustainability and reduce pollution as much as possible. Although direct comparisons between the two facilities are not feasible due to differences in size, visitor numbers and development stage, both indicators are credible and relevant. It can be concluded that both facilities are taking tangible steps towards reducing their impact on the local environment.

Biodiversity

While most of the proposed environmental indicators were quantifiably measured, assessing biodiversity proved challenging. Chapter 7 summarised the commitments and contributions of Peninsula Hot Springs and Metung Hot Springs to ensuring biodiversity. The findings provided important insights into the complexity of measuring the impact of hot springs on biodiversity. Previous studies revealed that businesses are investing more resources to report detailed disclosures on their sustainability performance, which is encouraging as it indicates a growing awareness of their environmental impact and commitment to mitigate it (KPMG, 2020). The challenge for hot springs businesses will be monitoring progress through consistent reporting frameworks over time. Both hot spring facilities are already taking steps to disclose their commitments and contributions towards biodiversity, thereby contributing to the environment. According to the research question, the findings strongly suggest that the proposed environmental indicators significantly affect hot springs businesses, making them practical tools for measuring and monitoring environmental sustainability.

8.5 Socio-cultural impacts of Australian hot springs

The literature review in Chapters 2 and 3 suggested that hot springs could have positive socio-cultural impacts on the destination and its visitors. Chapter 7 provides evidence to support this claim, which will be discussed in the following sections.

8.5.1 On their users/visitors

The findings of Chapter 7 reveal the significant socio-cultural impacts of Australian hot springs on its visitors. The analysis highlighted that hot springs play a significant role in the socio-cultural fabric of the local communities, serving as important cultural landmarks for social interaction and relaxation. Visitor demographics showed that visitors were primarily domestic, with varying motivations for visiting the locations, such as health and wellness, cultural experiences and leisure activities. Furthermore, the findings demonstrate a noticeable improvement in visitors' sense of well-being after experiencing the hot springs, with a high level of satisfaction reported.

Measuring the sense of well-being is subjective, making it challenging to quantify. As a result, this indicator was explored using a self-monitored question asking visitors about their stress levels before and after visiting the hot spring. The findings show that the majority of the visitors reported feeling less stressed after their visit to the hot springs. This suggests that hot springs may have a positive impact on people's mental health and wellbeing. The study's results have

opened up possibilities for future research to explore correlations among different indicators, including levels of satisfaction and stress experienced before and after visiting the hot springs. This could help researchers better understand the factors that contribute to people's sense of wellbeing and provide important insights into how to improve mental health and overall quality of life. Overall, this study provides insights into the potential benefits of hot springs such as their encouragement of people's wellbeing and highlights the need for further research in this area.

Altogether, these indicators demonstrate positive outcomes in terms of the wellbeing of hot springs visitors, providing further evidence of their significance and value. *Table 8.3* displays this information. Moreover, the indicators are both easily measured and understood, as well as relevant and reliable. In conclusion, these indicators were easy to measure and understand, relevant and credible.

8.5.2 On the community

Chapter 7 presents a preliminary assessment of the socio-cultural impact of hot springs on the community. This study implemented distinct metrics to analyse the wellbeing of hot springs visitors such as the health benefits at a community level and the bathing culture of the destination. What was found in this study is that hot springs play an important role in the cultural identity of the destination. The bathing culture associated with hot springs has been an integral part of the community's history and identity. The Shire of Mornington Peninsula and the town of Moree are examples of this bathing culture. Strategic partnerships and collaboration with several suppliers strongly suggest the relationships that Peninsula Hot Springs and Metung Hot Springs have with their local communities.

The study evaluated the health of hot springs visitors at a community level by measuring the average life span of visitors, the number of residents visiting these locations and the percentage of people at the destination suffering from anxiety or depression. Although this approach is specific to the location of the hot spring, the data collected can be used over time to determine whether hot springs benefit their local community's health and wellbeing. Conducting such assessments in different hot spring destinations can reveal patterns in the long-term and help tackle any issues. Overall, the indicators provide insights on how hot springs help local communities' health, wellbeing and cultural identity. The indicators were found to be useful and relevant to the impacts being measured.

8.6 Regenerative impact of hot springs

The regenerative impacts of hot springs extend to the economy, the environment and on the quality of life of their visitors. The findings indicate that hot springs are instrumental in promoting economic growth in driving economic regeneration in regional Australia. The industry generates substantial revenue, supporting local businesses and creating employment opportunities. Additionally, hot springs contribute to the long-term economic growth of the destination in which they are located.

In terms of environmental regeneration, the study highlights the importance of hot springs as biodiversity hotspots. These ecosystems support a diverse range of plants and species, which are beneficial to local ecosystems and communities. Furthermore, the potential for using renewable energy offers a sustainable alternative to fossil fuels, reducing negative environmental impact. Similar challenges faced by sustainable tourism development, such as environmental degradation and socio-economic inequalities, persist in regenerative tourism. Addressing these issues requires ongoing efforts and adaptations to local contexts (Tham & Sharma, 2023).

Hot springs contribute to regenerative improvement in the quality of life through various mechanisms. Immersing in hot springs promotes relaxation, alleviates stress, and enhances overall well-being. Additionally, cultural experiences and connections with nature enrich the visitor experience, fostering a deeper appreciation for the local heritage and environment.

Critics argue that regenerative tourism can exploit local communities and resources in the name of sustainability. Ensuring that local communities genuinely benefit from tourism initiatives and are not just used as attractions is important (Dredge, 2022). Implementing regenerative tourism practices often faces resistance from stakeholders accustomed to traditional tourism models. Overcoming this resistance requires education, engagement, and demonstrating the long-term benefits of regenerative practices (Tham & Sharma, 2023)

The study underscore the regenerative potential of hot springs, highlighting their significance for economic development, environmental conservation, and visitor wellbeing. While the regenerative potential of hot springs is evident, it was essential to address the critical factors and challenges associated with regenerative tourism. Therefore the research contribute to a holistic understanding of the role of hot springs in addressing complex factors.

8.7 Recommendations for Hot Springs Indicator Tool

This section emphasises the key indicators that can be used to measure the impact of hot springs. While some of these indicators may present challenges in terms of measurement, developing them is a critical step in evaluating the socio-cultural, economic and environmental impacts of hot springs. These tools help monitor progress, identify areas for improvement and guiding decision-making towards sustainable and inclusive regenerative initiatives. After receiving feedback from experts, conducting a literature review, and analysing the results from Phase 2, the proposed indicators were refined. The selected indicators offer a comprehensive and meaningful assessment of hot springs' impact while being practical for monitoring purposes.

In Chapter 3, a discussion on the principles that guided the selection of indicators was presented. The following criteria were used:

- **Availability of data** – the data is easy to measure.
- **Relevance** – the indicators reflect the objectives and goals of the hot spring facility and provide meaningful information for decisions to be made.
- **Understandable** – the indicators are easy to use and understand and can be used as a benchmark for comparison in the future.
- **Validity** – the data provide meaningful and trustworthy information, accurate data and can be measured consistently.

Table 8.2 presents a comprehensive list of recommended indicators for measuring the socio-cultural, environmental and economic impacts of hot springs on communities and destinations. Although some indicators did not make the final list of recommendations, it is important to note that they would be reliable and valid if the data were accessible.

Table 8.2 Validity of the Indicators

| Impact | Indicators | Availability of data (Easy, Not easy or difficult, Difficult) | Relevance | Understandable | Valid |
|-----------------|---|--|------------------|-----------------------|--------------|
| Economic | 1. Number of visitors to the hot springs' facility | Easy | ✓ | ✓ | ✓ |
| | 2. Number of people employed by the hot springs' facility | Easy | ✓ | ✓ | ✓ |
| | 3. Number of visitors coming to the destination for the hot springs | Easy | ✓ | ✓ | ✓ |

| | | | | | |
|--|--|-----------------------|---|---|---|
| | 4. Overnight stays by visitors to hot springs | Easy | ✓ | ✓ | ✓ |
| | 5. Average spend per visitor at the hot springs' facility. | Easy | ✓ | ✓ | ✓ |
| | 6. Total amount spent in the destination by hot springs visitors | Easy | ✓ | ✓ | ✓ |
| | 7. Average household income in destination | Easy | ✓ | ✓ | ✓ |
| | 8. % Unemployment at the destination | Easy | ✓ | ✓ | ✓ |
| | 9. Number of tourism | Not easy or difficult | ✓ | ✓ | ✓ |

| | | | | | |
|---------------|---|-----------------------|---|---|---|
| | businesses in destination | | | | |
| | 10. Number of people attending activities, events and attractions at the destination, as well as visiting the hot springs | Not easy or difficult | ✓ | ✓ | ✓ |
| Environmental | 11. Greenhouse Gas emissions per visitor as a results of hot springs operations | Difficult | ✓ | ✓ | ✓ |
| | 12. Percentage of energy used from renewables | Difficult | ✓ | ✓ | |
| | 13. Amount of solid waste to landfill divided by | Not easy or difficult | ✓ | ✓ | ✓ |

| | | | | | |
|----------------|---|------|---|---|---|
| | number of visitors | | | | |
| | 14. Usage of water by hot springs' operators | Easy | ✓ | ✓ | ✓ |
| | 15. Commitment of hot springs business to support wildlife conservation | Easy | ✓ | ✓ | ✓ |
| | 16. Contribution to environmental improvement such as forest cover and/or land care either on-site or elsewhere | Easy | ✓ | ✓ | ✓ |
| Socio-cultural | 17. Purpose of visit | Easy | ✓ | ✓ | ✓ |
| | 18. Levels of anxiety and stress levels | Easy | ✓ | ✓ | ✓ |

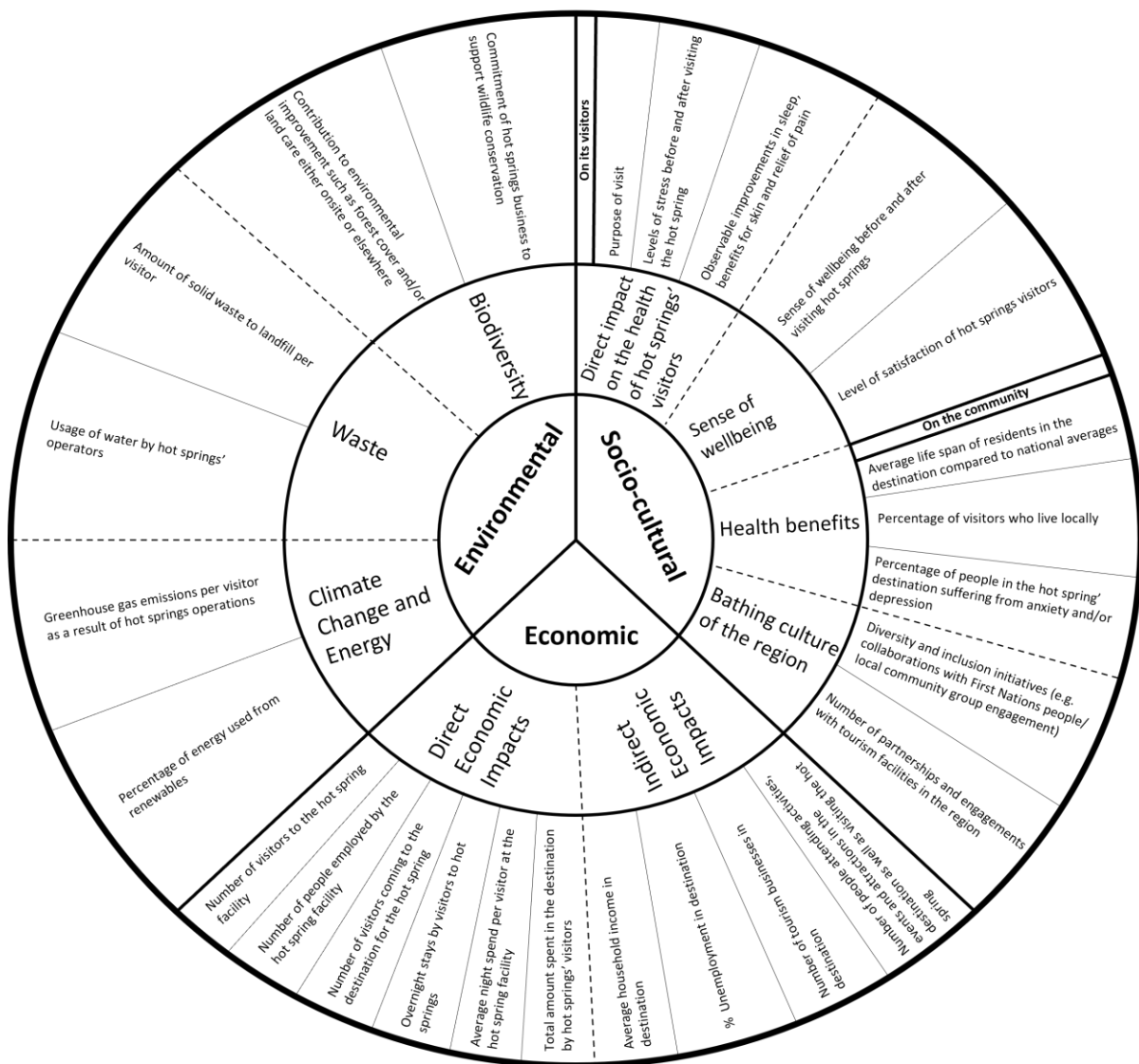
| | | | | | |
|--|---|-----------------------|---|---|---|
| | before and after the visit | | | | |
| | 19. Assessing improvement in sleep, benefits for skin and relief of pain | Easy | ✓ | ✓ | ✓ |
| | 20. <u>Physical and Emotional Well-being</u> Sense of well-being before and after visiting hot springs | Not easy or difficult | ✓ | ✓ | ✓ |
| | 21. <u>Level of satisfaction</u> Level of satisfaction of hot springs visitors/users | Easy | ✓ | ✓ | ✓ |

| | | | | | |
|--|---|------|---|---|---|
| | 22. Average life span of residents at the destination compared to national averages | Easy | ✓ | ✓ | ✓ |
| | 23. Percentage of visitors who live locally | Easy | ✓ | ✓ | ✓ |
| | 24. <u>Mental health benefits</u> Percentage of people at the hot springs' destination suffering from anxiety and depression | Easy | ✓ | ✓ | ✓ |
| | 25. Diversity and inclusion initiatives (e.g., People with | Easy | ✓ | ✓ | ✓ |

| | | | | | |
|--|--|------|---|---|---|
| | disabilities/collaborations with First Nations people/local community group engagement.) | | | | |
| | 26. Number of partnerships and engagements with tourism facilities in the region | Easy | ✓ | ✓ | ✓ |

Overall, the study has explained in detail the impact of hot springs on the local community's health, wellbeing and cultural identity. *Figure 8.1* showcases the recommended indicators in a visual “hot springs indicator tool”, derived from the research outcomes. The “hot springs indicator tool” presents a detail summary of the proposed indicators and its objective is to aid industry stakeholders in determining what metrics to assess when evaluating how well hot springs function for the region. It is recommended to consider the varying stages of hot springs development when measuring these indicators.

Figure 8.1 Hot Springs Indicator Tool



8.8 Limitations of the study

This section will address some of the main limitations encountered during this study. Using a case study approach can be challenging, especially when dealing with various hot springs at different stages of development. For example, while some hot springs like Moree Artesian Aquatic Centre and Peninsula Hot Springs are already established, others such as Metung Hot Springs are still developing, while Cunnamulla Hot Springs opened in February 2024 and Phillip Island Hot Springs is set to open in 2025. As a result the visitor survey was not relevant to all hot springs.

The COVID-19 pandemic was a significant limiting factor in this study. Many hot springs facilities were forced to close their doors during this period, making it challenging to distribute the questionnaire and visitor survey for both phases of the research and obtain responses for a specified period. Added to the pandemic, natural disasters and time constraints resulted in Moree Artesian Aquatic Centre withdrawing from the study during Phase 2.

The absence of seasonal variations during the course of this study did not hinder the research process. However, it is important to acknowledge that seasonality can pose a potential threat for future research, especially in longitudinal studies. Although seasonality was not a limitation in this study, it is, however, a potential threat for future research. These must be accounted for in longitudinal studies.

Access to data was also a significant challenge. The lack of comprehensive knowledge regarding the overall socio-cultural, economic and environmental impact of hot springs may limit research endeavours aimed at obtaining data. Highlighted here is the need for further research in this area to gain a deeper understanding of this niche market. Despite these limitations, increased awareness of the importance of hot springs to the health of visitors and the local community has helped overcome many challenges and expand our understanding of these unique natural features.

8.9 Chapter Summary

In summary, measuring hot springs' socio-cultural, economic and environmental impacts has emerged as a valuable contribution to knowledge on this subject. A visitor survey was used to evaluate the proposed indicators, and Chapter 8 presented the survey results, the validation process and recommended list of indicators. In addition to this, the chapter explored the study's constraints and provided solutions to some of the limitations that emerged when conducting this research. The following chapter, Chapter 9, will conclude the thesis by summarising the practical and theoretical insights obtained here. It will also review how indicators were established and evaluated in a case study analysis. Finally, a recap of the research's objectives will be documented and recommendations for future research objectives will be suggested for scholars to consider.

Chapter 9 Conclusion

9.1 Introduction

The aim of this chapter is to review the research aim and objectives, as stated in Chapter 1, and provide a summary of the key findings. Included here is a brief overview of the development and application of the indicators. The theoretical and practical contributions of this study, as well as opportunities for future research are discussed.

9.2 Review of the Research aim and objectives

This research explores the development of indicators designed to measure how the hot springs affected the community, environment and economy in regional Australia. Owing to the rising popularity of wellness tourism, experts, scholars and practitioners worldwide have shown a growing interest in this phenomenon. The industry has undergone substantial changes and experienced growth in the wake of the recent COVID-19 pandemic. Hot springs are an important component of the wellness industry, and the industry is rapidly expanding, with new hot spring projects in development, and attracting significant amounts of private and public investments.

However, a review of the literature has shown that there are still significant gaps in knowledge about hot springs tourism and its socio-cultural, economic and environmental impacts. To address these gaps, this study has developed the following research objectives:

- 1) Review the emergence of the Australian hot springs industry;
- 2) Develop an effective set of indicators as a tool to measure hot springs' socio-cultural, environmental and economic impacts and their potential regenerative benefits for the local communities; and
- 3) Apply the indicators to evaluate the economic, social and environmental impact of Australian hot springs in their local region and highlight the ways in which they can contribute to the regenerative improvement in the quality of life.

In Chapter 2, the first objective was addressed by examining the evolution of the wellness industry as a new tourism paradigm and the evolution of the Australian hot springs industry. The second objective explored different indicator schemes in the tourism industry (Chapter 3) to establish a robust set of indicators that can evaluate hot springs' socio-cultural, economic and environmental influence. It was achieved using the Delphi technique and this was further discussed in Chapter 6. This exploration concluded that the available indicator schemes were

not tailored to the distinctive features of hot springs. The third objective involved testing the developed indicators in hot springs located in regional Australia. This test was conducted through a visitor survey and collection of secondary data. The following section will summarise the development of the indicators and outline their application in Australian hot springs.

9.3 Summary of Key Findings

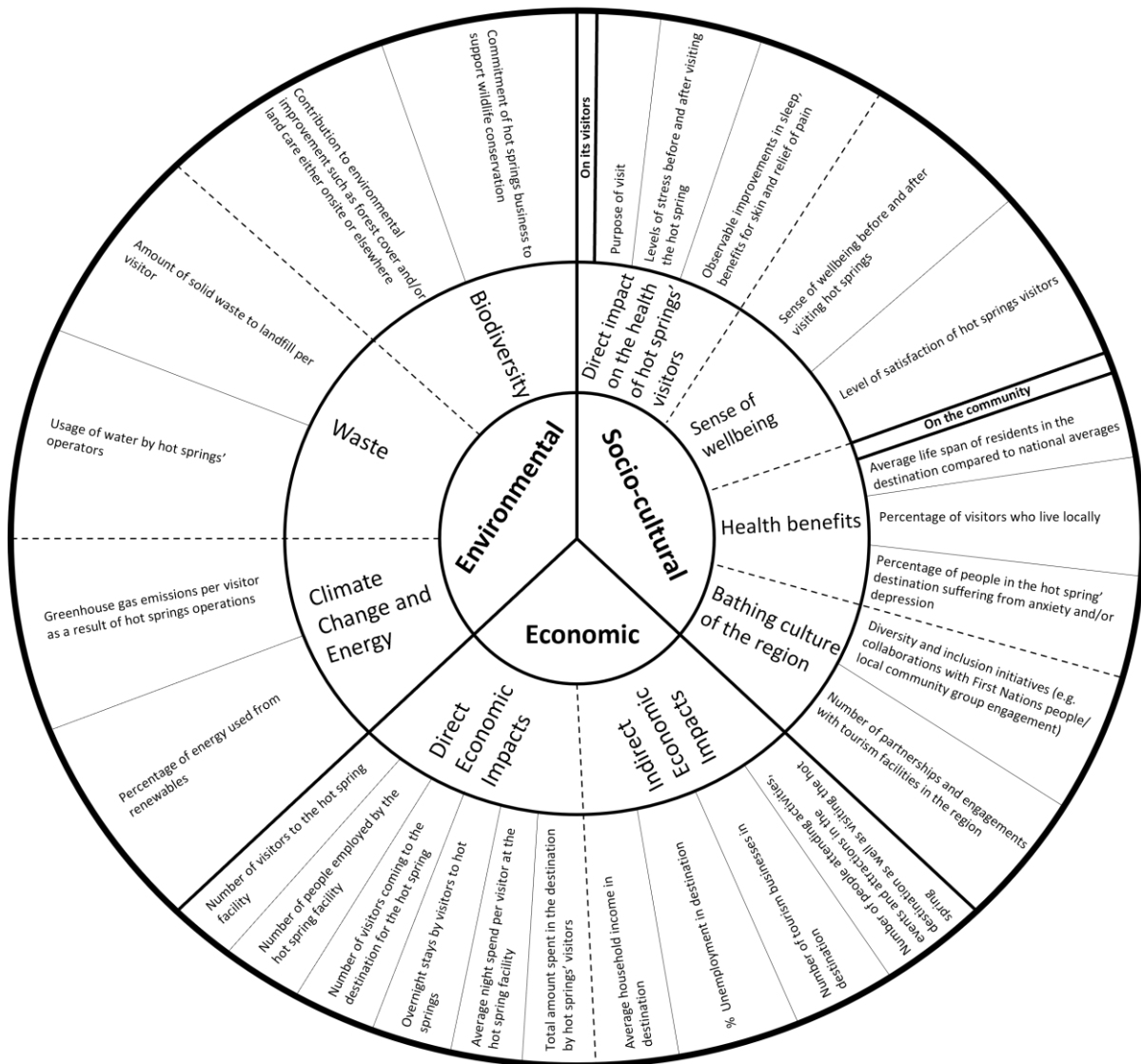
This section summarises the process of developing indicators specific to the hot springs industry and how it was tested in regional Australia. The first section outlines the development process and reiterates the importance of developing indicators to suit the unique needs of this industry. The second section summarises the testing phase conducted at specific places, these being Peninsula Hot Springs, Metung Hot Springs, Cunnamulla Hot Springs and Phillip Island Hot Springs.

9.3.1 Development of indicators using the Delphi technique

While reviewing various indicator schemes, none of the existing indicators focused on hot springs tourism or how they wielded an influence at the individual, corporate and community level. For this reason, it was important to involve stakeholders to understand this industry and its needs. The involvement of stakeholders was integral to the development of specific indicators for the hot springs industry. The Delphi technique, which entailed using qualitative questionnaires, was implemented to gather and analyse data. Although primarily used in tourism research for forecasting future outcomes (Hsu & Sandford 2007; Miller 2001), this method has proven effective in developing indicators through the collective input of experts.

After two rounds of this technique, the experts agreed on 26 indicators that measure hot springs' economic, environmental and socio-cultural impacts for their visitors, the local community and the overall destination. While the economic indicators were easily selected, selecting the environmental and socio-cultural indicators proved challenging, given the complex nature of hot springs. To ensure validity, the 26 indicators were assessed in hot spring facilities in regional Australia. A hot springs indicator tool was subsequently created to summarise the proposed indicators succinctly, as depicted in *Figure 9.1*.

Figure 9.1 Hot Springs Indicator Tool



9.3.2 Testing proposed indicators in Australian hot springs

The proposed indicators were tested in Peninsula Hot Springs, Metung Hot Springs, Phillip Island Hot Springs and Cunnamulla Hot Springs. Data was collected from a visitor survey and secondary sources. The visitor survey was administered to guests who visited Peninsula Hot Springs during the 2018/19 financial year and those who visited Metung Hot Springs during the 2022/23 financial year, taking note of their opening in November 2022. Secondary data was also sourced from the hot spring facilities, government reports and census data. For the upcoming projects, including Phillip Island Hot Springs and Cunnamulla, secondary data was prioritised through personal communications with tourism bodies at the destination and the owners or managers of hot springs facilities, as well as government sources.

Chapter 8 evaluated the effectiveness of the proposed indicators based on their practicability, credibility and significance. The study found that measuring the economic impacts of hot springs was both practical and feasible due to their ease of understanding and measurement. However, assessing the environmental impacts posed challenges, particularly in measuring greenhouse gas emissions. Socio-cultural indicators were generally easy to measure. The chapter also addressed the limitations encountered during the research and suggested ways to mitigate them.

9.4 Contribution to Knowledge

The following section outlines a range of theoretical and practical contributions to the knowledge generated by this research.

9.4.1 Theoretical contributions

Upon investigating various indicator schemes within the tourism field, it was concluded that no study has reported on developing indicators to measure hot springs' socio-cultural, economic, and environmental influences. The primary deficiency of the existing indicator schemes is their lack of relevance to the wellness and hot springs industry, resulting in an abundance of irrelevant indicators for stakeholders to sift through. Secondly, a lack of indicators to measure socio-cultural impacts was identified, which was further investigated in this research.

This study makes a valuable contribution to the existing literature by developing a universal set of indicators to measure how hot springs contribute to their localities. The Delphi technique served to develop indicators specific to the hot springs industry, acknowledging the importance of stakeholder collaboration. This collaborative approach not only ensures the relevance of the indicators but also fosters a sense of ownership and engagement among stakeholders, essential for the successful implementation of these metrics.

The research also explores the potential regenerative effects of hot springs on communities and destinations, adding to our understanding of this field. By focusing on the concept of regenerative tourism, this study contributes to a shift from sustainability to regeneration. This shift towards regenerative tourism is important in addressing the long-term impacts of tourism and ensuring the resilience of destinations. It advocates for tourism practices that actively improve local environments and communities, rather than merely sustaining them, thus promoting long-term resilience and well-being.

The research contributes to the theoretical understanding of visitor motivations by identifying unique psychological and sociocultural factors that drive the demand for wellness tourism. The insights gained into visitor motivations offer a deeper understanding of what drives visitors to hot spring destinations, thereby informing more effective marketing and management strategies for hot spring destinations.

The thesis also presents a comprehensive analysis of hot springs' socio-cultural, economic, and environmental impacts, focusing on four case studies in regional Australia. By integrating multidisciplinary perspectives, the proposed indicator framework offers an understanding of the complex interactions between hot spring development and the local community, economy, and ecosystems. This theoretical contribution provides actionable insights for policymakers, industry stakeholders, and community leaders to foster sustainable and regenerative development that maximises benefits while minimising negative impacts on the community, the environment, and the economy.

In summary, this study makes substantial theoretical contributions by providing a set of relevant and practical indicators for the hot springs industry, advocating for a shift towards regenerative tourism practices, and offering deeper insights into visitor motivations. These contributions enhance our understanding of the hot springs tourism sector and establish a foundation for future research and initiatives aimed at enhancing the sustainability and regenerative potential of tourism destinations.

9.4.2 Practical contributions

Based on the available research and to the best of the researcher's knowledge, this is the first research to have investigated the impacts of hot springs on the economy, the community and the environment. Therefore, developing a comprehensive assessment tool specifically tailored to measure the impacts of hot springs in regional Australia can assist tourism planning in the Shire of Mornington Peninsula, the towns of Metung, Cunnamulla and Phillip Island and other regions with hot springs which choose to collect the data. It will also inform hot springs stakeholders of their actions. The results also emphasise the importance of stakeholder collaboration in regenerative development.

The findings of this research underscores the importance of stakeholder collaboration in regenerative development. By involving a diverse range of stakeholders in the development process, the study ensures that the assessment tool is both relevant and practical. By highlighting successful examples and best practices, the research educates stakeholders on the

benefits of a collaborative approach, fostering a more integrated and community-focused tourism development process. Hence, this collaborative approach not only enhances the tool's applicability but also fosters a sense of ownership and engagement among stakeholders.

The data analysis also provided an opportunity to assess the impacts of well-established hot spring facilities, like Peninsula Hot Springs, and emerging ones, like Metung Hot Springs. The research also provides insights into upcoming hot spring projects like Cunnamulla Hot Springs and Phillip Island Hot Springs. By providing detailed case studies, the research offers benchmark for future assessments that can inform the development and management of hot springs facilities. This includes insights into operational practices, community engagement strategies, and environmental management approaches that have been proven successful across Australia.

Additionally, the research will also serve as a foundation for a longitudinal study on hot springs in Australia and around the world, on their regional impacts, and their contributions to regional development. By establishing a baseline of data and insights, this study paves the way for ongoing research that can track the long-term outcomes and effectiveness of hot springs as catalysts for regional development. As such, this research contributes to the industry's understanding and ability to assess its long-term outcomes.

In summary, this research makes significant practical contributions by providing a robust assessment tool for measuring the impacts of hot springs, highlighting the importance of stakeholder collaboration, and offering valuable insights into best practices and successful strategies. These contributions enhance the industry's ability to plan, develop, and manage hot spring facilities in a way that maximises their positive impacts on regional communities and environments.

9.5 Recommendations for Future Research

As the need to manage environmental, economic and socio-cultural tourism impacts evolves, research in this field will continue to expand and evolve. This section offers recommendations for future research, based on the findings of this study. Key areas of focus include exploring the socio-cultural impacts of hot springs, extending the application of hot springs indicators to other destinations, fostering regenerative tourism development, and conducting longitudinal studies.

Further research into socio-cultural impacts of hot springs

To further enrich the scope of this investigation, investigating deeper into the sociocultural implications of hot springs would be advantageous. Further examination of this phenomenon would facilitate a deeper and profound comprehension of how hot springs greatly improve overall well-being, both physical and mental, of those who visit them, and for the people who live in the local community. Furthermore, additional research could explore the role that hot springs play in shaping the regional identity and sense of belonging. It would also be valuable to investigate the correlations between various indicators to obtain a better understanding of this phenomenon.

Application of hot springs indicators to other hot springs destinations

The development of a set of indicators specific to hot springs tourism is one of the key contributions of this study. Further investigation of the developed indicators to other destinations would help in the assessment and reinforcement of the validity of the indicators. Conducting further case studies analyses would enhance these findings and provide a more comprehensive picture of how influential hot springs are. Furthermore, investigating multiple destinations would allow the results to be compared and contrasted, as well as the analysis of other underlying factors. This approach will help assess the applicability and reliability of the developed indicators and highlight universal trends as well as location-specific variations.

By extending the application of these indicators, researchers can gain a more comprehensive understanding of the influence of hot springs on different regions. Using data from multiple case studies can also help refine and adapt the indicators, ensuring they remain relevant and accurate across different regions and contexts. This process can help create a robust framework applicable globally, enhancing the ability of stakeholders to assess and manage hot spring tourism effectively.

Regenerative tourism development

Only limited resources are available on the topic of regenerative development in the tourism industry. As a result, this thesis could not conduct an in-depth investigation of the regenerative impacts of tourism on regional destinations. Therefore, future research could focus on exploring this trend in the context of wellness and hot springs tourism. Investigating how regenerative tourism practices can be applied to hot springs, including projects that restore and enhance local ecosystems and community well-being, would provide valuable insights.

Documenting and analysing successful examples of regenerative tourism projects in the hot springs industry can offer practical guidance and best practices for other destinations. These case studies can provide insights into innovative approaches that promote environmental restoration, community revitalisation, and long-term sustainability.

Longitudinal studies

The findings of this thesis offer significant perspectives on the socio-cultural, economic, and environmental impacts of hot springs in regional Australia. A longitudinal study can track changes over an extended period, offering insights into trends and patterns. By conducting a longitudinal study, researchers can better inform policymakers, hot springs owners, and destination managers, thereby enabling them to make well-informed decisions. These studies can provide a baseline of data and insights that pave the way for ongoing research, helping to track the long-term outcomes and effectiveness of hot springs as catalysts for regional development. Analysing data collected over multiple years can also help identify emerging trends and patterns, allowing stakeholders to anticipate future challenges and opportunities for the hot springs tourism industry.

9.6 Chapter Summary

In this chapter the research's aim and objectives were summarised, followed by an overview of the process of developing and testing indicators to measure the impacts of hot springs on socio-cultural, economic, and environmental factors. The credibility and relevance of these indicators were discussed, as well as the potential value of the hot springs indicator tool for destination managers and policymakers. The chapter also addressed the theoretical and practical contributions of this research, along with recommendations that future studies should consider. Ultimately, it is hoped that the hot springs indicator tool will be used in future research, providing a foundation for further exploration into wellness and hot springs tourism.

Reference List

- Aguiló, E, Rosselló, J & Vila, M 2017, 'Length of stay and daily tourist expenditure: A joint analysis', *Tourism management perspectives*, vol. 21, pp. 10-7.
- Agyeiwaah, E, McKercher, B & Suntikul, W 2017, 'Identifying core indicators of sustainable tourism: A path forward?', *Tourism management perspectives*, vol. 24, pp. 26-33.
- Ahmad, S, Wasim, S, Irfan, S, Gogoi, S, Srivastava, A & Farheen, Z 2019, 'Qualitative v/s. quantitative research-a summarized review', *Journal of Evidence Based Medicine and Healthcare*, vol. 6, 2828-32.
- Alharahsheh, HH & Pius, A 2020, 'A review of key paradigms: Positivism VS interpretivism', *Global Academic Journal of Humanities and Social Sciences*, vol. 2, no. 3, pp. 39-43.
- Aliyu, AA, Singhry, IM, Adamu, H & AbuBakar, MaM 2015, 'Ontology, epistemology and axiology in quantitative and qualitative research: Elucidation of the research philosphical misconception', in Proceedings of the Academic Conference: *Mediterranean Publications & Research International on New Direction and Uncommon*, vol. 2, pp. 1054-68.
- Alonso, AD & Liu, Y 2011, 'Visitor Centers, Collaboration, and the Role of Local Food and Beverage as Regional Tourism Development Tools: The Case of the Blackwood River Valley in Western Australia', *Journal of Hospitality & Tourism Research*, vol. 36, no. 4, pp. 517-36.
- Asker, S, Boronyak, L, Carrard, N & Paddon, M 2010, 'Effective community based tourism: A best practice manual', *Sustainable Tourism Cooperative Research Centre*, Griffith University QLD.
- Asmelash, AG & Kumar, S 2019, 'Assessing progress of tourism sustainability: Developing and validating sustainability indicators', *Tourism management*, vol. 71, pp. 67-83.
- Ateljevic, I 2020, 'Transforming the (tourism) world for good and (re) generating the potential 'new normal'', *Tourism Geographies: An International Journal of Tourism Space, Place and Environment*, vol. 22, pp. 467-475.
- Australian Bureau of Statistics 2021a, Cunnamulla, 2021 Census All persons QuickStats, viewed 24th September 2023, <<https://abs.gov.au/census/find-census-data/quickstats/2021/SAL30767>>.
- Australian Bureau of Statistics 2021b, Mornington Peninsula: 2021 Census All persons QuickStats, viewed 23th September 2023, <<https://abs.gov.au/census/find-census-data/quickstats/2021/LGA25340>>.

Australian Bureau of Statistics 2021c, Phillip Island 2021 Census All persons QuickStats, viewed 24th September 2023, <<https://abs.gov.au/census/find-census-data/quickstats/2021/205031091>>.

Australian Bureau of Statistics 2022a, ANZSCO - Australian and New Zealand Standard Classification of Occupations, viewed 1st November 2023, <<https://www.abs.gov.au/statistics/classifications/anzsco-australian-and-new-zealand-standard-classification-occupations/latest-release>>.

Australian Bureau of Statistics 2022b, Metung 2021 Census All persons QuickStats, viewed 23rd September 2023, <<https://www.abs.gov.au/census/find-census-data/quickstats/2021/UCL215055>>.

Australian Bureau of Statistics 2023, Life expectancy (2020-2022), viewed 25th November 2023, <<https://www.abs.gov.au/statistics/people/population/life-expectancy/latest-release#cite-window2>>.

Australian Bureau of Statistics 2021a, Local Government Areas: Australian Statistical Geography Standard (ASGS) Edition 3 Reference period July 2021 - June 2026, viewed 9th April 2023, <<https://www.abs.gov.au/statistics/standards/australian-statistical-geography-standard-asgs-edition-3/jul2021-jun2026/non-abs-structures/local-government-areas>>.

Australian Bureau of Statistics 2021b, Moree: 2021 Census All persons QuickStats, viewed 25th September 2023, <<https://abs.gov.au/census/find-census-data/quickstats/2021/110031195>>.

Australian Bureau of Statistics 2021c, Moree Plains: 2021 Census All persons QuickStats, viewed 25th September 2023, <<https://abs.gov.au/census/find-census-data/quickstats/2021/LGA15300>>.

Australian Bureau of Statistics 2021d, Mornington Peninsula: 2021 Census All persons QuickStats, viewed 23rd September 2023, <<https://abs.gov.au/census/find-census-data/quickstats/2021/LGA25340>>.

Australian Bureau of Statistics 2021e, Paroo, 2021 Census All persons QuickStats, viewed 24th September 2023, <<https://abs.gov.au/census/find-census-data/quickstats/2021/LGA35800>>.

Australian Bureau of Statistics 2021f, Phillip Island 2021 Census All persons QuickStats, viewed 24th September 2023, <<https://abs.gov.au/census/find-census-data/quickstats/2021/205031091>>.

- Australian Bureau of Statistics 2022a, East Gippsland, 2021 Census All persons QuickStats, viewed 24th September 2023, <<https://abs.gov.au/census/find-census-data/quickstats/2021/LGA22110>>.
- Australian Bureau of Statistics 2022b, Metung 2021 Census All persons QuickStats, viewed 23rd September 2023, <<https://www.abs.gov.au/census/find-census-data/quickstats/2021/UCL215055>>.
- Australian Bureau of Statistics 2020, Overseas Arrivals and Departures, Australia, viewed 1st December 2023, <<https://www.abs.gov.au/statistics/industry/tourism-and-transport/overseas-arrivals-and-departures-australia/dec-2019#:~:text=Visitors%20arriving%20in%20Australia%20in%202019%20%28original%20estimates%29.,million%20visitor%20arrivals%2C%20the%20highest%20year%20on%20record>>.
- Australian Trade and Investment Commission 2023, Thrive 2030 Strategy, Australian Government, Australia, viewed 1st December 2023, <<https://www.austrade.gov.au/en/how-we-can-help-you/programs-and-services/thrive-2030-strategy>>.
- Azman, I & Chan, K 2010, 'Health and spa tourism business: Tourists' profiles and motivational factors', Conference: *TTRA Europe Chapter (Health, Wellness & Tourism: Healthy Tourists, Healthy Business)*, Budapest, Hungary 2010, Travel and Tourism Research Association Europe 2010 Annual Conference, vol. 9, p. 24.
- Bagga, T, Vishnoi, SK, Jain, S & Sharma, R 2020, 'Medical tourism: treatment, therapy & tourism', *International Journal of Scientific Technology Research*, vol. 9, pp. 4447-53.
- Bagheri, F, Guerreiro, M, Pinto, P & Ghaderi, Z 2023, 'From Tourist Experience to Satisfaction and Loyalty: Exploring the Role of a Sense of Well-Being', *Journal of Travel Research*. doi: 10.1177/00472875231201509.
- Bai, M, Nugroho, I, Darmadji, D & Julitasari, E 2021, '*Community Participation in Tourism Development Initiatives in Upland Farming Areas: Evidence From Mengeruda Hot Spring Tourism, Flores, Indonesia*', in proceedings of the *3rd International Conference on Innovation in Education, Science and Culture, ICIESC 2021, 31 August 2021, Medan, North Sumatera Province, Indonesia*, viewed 2nd February 2023, <https://www.researchgate.net/publication/356396395_Community_Participation_in_

- Tourism_Development_Initiatives_in_Upland_Farming_Areas_Evidence_From_Mengeruda_Hot_Spring_Tourism_Flores_Indonesia>.
- Bakkes, JA 1994, 'An overview of environmental indicators: state of the art and perspectives'.
- Ball, HL 2019, 'Conducting Online Surveys', *Journal of Human Lactation*, vol. 35, no. 3, pp. 413-7.
- Baškarada, S & Koronios, A 2018, 'A philosophical discussion of qualitative, quantitative, and mixed methods research in social science', *Qualitative Research Journal*, vol. 18, no. 1, pp. 2-21.
- Bass Coast Shire 2016. Bass Coast Shire Council Natural Environment Strategy 2016 to 2026 Australia: Bass Coast Shire Council, viewed 24th September 2023, <<https://www.basscoast.vic.gov.au/assets/general-downloads/Strategies/ED16-71681-2016-05-04-Natural-Environment-Strategy-2016-26-adopted-by-Council-April-2016.pdf>>.
- Bass Coast Shire 2021. Healthy Communities Annual Action Plan 2021-2022 South Gippsland and Bass Coast. Australia, viewed 24th September 2023, <<https://www.basscoast.vic.gov.au/assets/general-downloads/Community-Health-and-Wellbeing/Healthy-Communities-Plan-Annual-Action-Plan-2021-2022-Final.pdf>>.
- Bathing Australia 2023, Phillip Island Hot Springs, viewed 24th September 2023, <<https://www.bathing.org/phillip-island-hot-springs>>.
- Beardsmore, G, Davidson, C, Ricard, L, Pujol, M, Larking, A & Bendall, B 2020, 'Current directions for geothermal energy development in Australia', in Proceedings *World Geothermal Congress*, Reykjavik, Iceland, 26 April-2 May.
- Bekhet, AK & Zauszniewski, JA 2012, 'Methodological triangulation: An approach to understanding data', *Nurse Researcher*, vol. 20, pp. 40-43.
- Béland, D & Zarzeczny, A 2018, 'Medical tourism and national health care systems: an institutionalist research agenda', *Globalization and Health*, vol. 14, no. 1, p. 68.
- Bellato, L, Frantzeskaki, N & Nygaard, CA 2023, 'Regenerative tourism: a conceptual framework leveraging theory and practice', *Tourism Geographies*, vol. 25, no. 4, pp. 1026-46.
- Bendegul, O & Heather, L-K 2022, *Wellness Management in Hospitality and Tourism*, Goodfellow Publishers, Oxford.
- Benedetto, AV & Millikan, LE 1996, 'Mineral water and spas in the United States', *Clinics in Dermatology*, vol. 14, no. 6, pp. 583-600.

- Bockstaller, C & Girardin, P 2003, 'How to validate environmental indicators', *Agricultural systems*, vol. 76, no. 2, pp. 639-53.
- Bodeker, G & Cohen, M 2008, *Understanding the Global Spa Industry : Spa Management*, Elsevier Science & Technology, Amsterdam.
- Borges, LC & Revez, J 2019, 'Pragmatic paradigm in information science research: a literature review', *Qualitative and Quantitative Methods in Libraries*, vol. 8, no. 2, pp. 179-88.
- Bossel, H 2002, 'Assessing viability and sustainability: a systems-based approach for deriving comprehensive indicator sets', *Conservation ecology*, vol. 5, no. 2.
- Brake, L 2020, 'Development, management and rehabilitation of water bores in the Great Artesian Basin, 1878-2020', *The Proceedings of the Royal Society of Queensland*, vol. 126, pp. 153-75.
- Buettner, D & Skemp, S 2016, 'Blue Zones: Lessons From the World's Longest Lived', *American Journal of Lifestyle Medicine*, vol. 10, no. 5, pp. 318-21.
- Bureau of Meteorology, Australia Government 2023, Average annual & monthly sunshine duration, , viewed 24th September 2023, <http://www.bom.gov.au/jsp/ncc/climate_averages/sunshine-hours/index.jsp?period=an#maps>.
- Burghelea, C, Uzlău, C & Ene, CM 2016, 'Comparative indicators of sustainable tourism', *Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development*, vol. 16, no. 3, pp. 77-80.
- Burns, RP & Burns, R 2008, *Business research methods and statistics using SPSS*, Sage, Los Angeles.
- Business Victoria 2021, Mornington Peninsula, Regional Tourism Summary, Year ending December 2021, viewed 24th September 2023, <[https://www.morningtonpeninsulatourism.org/Portals/3/Mornington_Peninsula_Regional_Summary_Dec-2021_RTSA-2019-20%20\(1\).pdf?ver=23jGj4S8Ysij2eNxSPT7Hw%3d%3d](https://www.morningtonpeninsulatourism.org/Portals/3/Mornington_Peninsula_Regional_Summary_Dec-2021_RTSA-2019-20%20(1).pdf?ver=23jGj4S8Ysij2eNxSPT7Hw%3d%3d)>.
- Cacciapuoti, S, Luciano, MA, Megna, M, Annunziata, MC, Napolitano, M, Patruno, C, Scala, E, Colicchio, R, Pagliuca, C & Salvatore, P 2020, 'The role of thermal water in chronic skin diseases management: a review of the literature', *Journal of Clinical Medicine*, vol. 9, no. 9, p. 3047.

- Calero, C & Turner, LW 2020, 'Regional economic development and tourism: A literature review to highlight future directions for regional tourism research', *Tourism Economics*, vol. 26, no. 1, pp. 3-26.
- Cave, J & Dredge, D 2020, 'Regenerative tourism needs diverse economic practices', *Tourism Geographies: An International Journal of Tourism Space, Place and Environment*, vol. 22, pp. 503-513.
- Chee, DA 1995, 'Indigenous people's connection with Kwatye (water) in the Great Artesian Basin', *Department of Environment and Natural Resources*, viewed 12th August 2022, <<https://globalwellnessinstitute.org/wp-content/uploads/2018/12/2014-Indigenous-People-Connection-with-Kwatye-Dean-Ah-Chee.pdf>>.
- Chen, C-J & Li, W-C 2020, 'A study on the hot spring leisure experience and happiness of Generation X and Generation Y in Taiwan', *Asia Pacific Journal of Tourism Research*, vol. 25, no. 1, pp. 39-51.
- Chen, K-H, Chang, F-H & Wu, C 2013, 'Investigating the wellness tourism factors in hot spring hotel customer service', *International Journal of Contemporary Hospitality Management*, vol. 25, no. 7, pp. 1092-114.
- Chen, K-Y 2014, 'Improving importance-performance analysis: The role of the zone of tolerance and competitor performance. The case of Taiwan's hot spring hotels', *Tourism Management*, vol. 40, pp. 260-72.
- Cheung, KS & Li, L-H 2019, 'Understanding visitor-resident relations in overtourism: Developing resilience for sustainable tourism', *Journal of Sustainable Tourism*.
- Choi, Y, Kim, J, Lee, C-K & Hickerson, B 2015, 'The role of functional and wellness values in visitors' evaluation of spa experiences', *Asia Pacific Journal of Tourism Research*, vol. 20, no. 3, pp. 263-79.
- Choudhary, B & Qadir, A 2021, 'Impact of COVID-19 on wellness and spa industry', *International Journal of Spa and Wellness*, vol. 4, no. 2-3, pp. 193-203.
- Clark-Kennedy, J & Cohen, M 2017, 'Indulgence or therapy? Exploring the characteristics, motivations and experiences of hot springs bathers in Victoria, Australia', *Asia Pacific Journal of Tourism Research*, vol. 22, no. 5, pp. 501-11.
- Clean Energy Regulator, Australian Government 2023, viewed 5th September 2023, <<https://www.cleanenergyregulator.gov.au/NGER/About-the-National-Greenhouse-and-Energy-Reporting-scheme/Greenhouse-gases-and-energy#n2>>.
- Cohen, M & Bodeker, G (Eds) 2008, *Understanding the global spa industry*, Routledge, London.

- Cohen, M 2020, 'Hydrothermal facilities: essential services in the age of pandemics', *International Journal of Spa and Wellness*, vol. 3, no. 1, pp. 60-5.
- Cohen, M 2020, 'Turning up the heat on COVID-19: heat as a therapeutic intervention', *Pub Med*, vol. 9, p. 292.
- Coll-Barneto, I & Fusté-Forné, F 2023, 'Understanding Environmental Actions in Tourism Systems: Ecological Accommodations for a Regenerative Tourism Development', *Journal of Tourism, Sustainability and Well-being*, vol. 11, no. 4, pp. 239-53.
- Costa, J. 2021. Metung Hot Springs redevelopment expected to open to tourists next summer. ABC Gippsland, viewed 5th September 2023, <<https://www.abc.net.au/news/2021-03-12/metung-hot-springs-to-open-before-next-summer/13221426>>.
- Creswell, JW & Creswell, JD 1994, *Research design*, Sage, Thousand Oaks, California.
- Creswell, JW & Poth, CN 2016, *Qualitative inquiry and research design: Choosing among five approaches*, 4th ed, Sage Publications, Los Angeles.
- Cristian-Constantin, D, Radu-Daniel, P, Daniel, P, Georgiana, CL & Igor, S 2015, 'The role of SPA tourism in the development of local economies from Romania', *Procedia Economics and Finance*, vol. 23, pp. 1573-7.
- Crotty, M 1998, *The foundations of social research: Meaning and perspective in the research process*, Sage Publications, London.
- Cunnamulla Tourism 2023-a, Cunnamulla Hot Springs, viewed 25th September 2023, <<https://cunnamullatourism.com.au/cunnamulla-hot-springs/>>.
- Cunnamulla Tourism 2023-b, Getting there, viewed 25th September 2023, <<https://cunnamullatourism.com.au/visitor-information/getting-here/>>.
- Cunnamulla Tourism 2023-c, The Visitor Information Centre, viewed 25th September 2023, <<https://cunnamullatourism.com.au/visitor-information/visitor-information-centre/>>.
- Cupchik, G 2001, 'Constructivist realism: An ontology that encompasses positivist and constructivist approaches to the social sciences', in *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research*, vol. 2, no. 1, art. 7.
- Dale, VH & Beyeler, SC 2001, 'Challenges in the development and use of ecological indicators', *Ecological indicators*, vol. 1, no. 1, pp. 3-10.
- Dalkey, N & Helmer, O 1963, 'An experimental application of the Delphi method to the use of experts', *Management Science*, vol. 9, no. 3, pp. 458-67.

- Dauti, MB, Dauti, R, Krasniqi, M & Nishiqli, D 2021, 'The Perceptions of Residents and Businesses towards the Sustainable Development of Tourism', *Journal of Environmental Management and Tourism*, vol. 12, no. 1, pp. 121-33.
- Dean, D, Novianti, S & Noor, AA 2020, 'The International and Domestic Tourists Behavior in Australia: Quality vs. Quantity Issue in Regional Tourism Development Perspective', *International Journal of Applied Business Research*, vol. 2, no. 1, pp. 46-57.
- Decrop, A 1999, 'Triangulation in qualitative tourism research', *Tourism Management*, vol. 20, no. 1, pp. 157-61.
- Deloitte Access Economics 2021, 'The value of tourism', viewed 21st June 2022, <<https://www.deloitte.com/au/en/services/economics/perspectives/value-of-tourism.html>>.
- Deng, W 2007, 'Using a revised importance–performance analysis approach: The case of Taiwanese hot springs tourism', *Tourism Management*, vol. 28, no. 5, pp. 1274-84.
- Denizci Guillet, B & Kucukusta, D 2016, 'Spa market segmentation according to customer preference', *International Journal of Contemporary Hospitality Management*, vol. 28, no. 2, pp. 418-34.
- Denzin, NK (Ed.) 2006, *Sociological methods: a sourcebook*, Aldine Transaction, Piscataway.
- 2010, 'Moments, mixed methods, and paradigm dialogs', *Qualitative Inquiry*, vol. 16, no. 6, pp. 419-27.
- Denzin, NK & Lincoln, YS 1995, 'Transforming Qualitative Research Methods: Is It a Revolution?', *Journal of Contemporary Ethnography*, vol. 24, no. 3, pp. 349-58.
- Destination Phillip Island 2023, Phillip Island Visitation Growth in Spend and Overnight Stays, viewed 25th September 2023, <<https://www.visitphillipisland.com.au/destination-phillipisland/research>>.
- Dillette, AK, Douglas, AC & Andrzejewski, C 2021, 'Dimensions of holistic wellness as a result of international wellness tourism experiences', *Current Issues in Tourism*, vol. 24, no. 6, pp. 794-810.
- Dimitrovski, DD, Todorović, AT & Valjarević, AD 2012, 'Rural tourism and regional development: Case study of development of rural tourism in the region of Gruža, Serbia', *Procedia Environmental Sciences*, vol. 14, pp. 288-97.
- Dredge, D 2022, 'Regenerative tourism: Transforming mindsets, systems and practices', *Journal of Tourism Futures*, vol. 8, no. 3, pp. 269-81.

- Dunn, HL 1959, 'High-level wellness for man and society', *American Journal of Public Health and the Nation's Health*, vol. 49, no. 6, pp. 786-92.
- Dwyer, L 2018, 'Saluting while the ship sinks: the necessity for tourism paradigm change', *Journal of Sustainable Tourism*, vol. 26, no. 1, pp. 29-48.
- Dwyer, L, Gill, A & Seetaram, N 2012, *Handbook of Research Methods in Tourism: Quantitative and Qualitative Approaches*, Edward Elgar Publishing Limited, Cheltenham, Gloucestershire, United Kingdom.
- Dwyer, L 2023, 'Tourism degrowth: Painful but necessary', *Sustainability*, vol. 15, no. 20, p. 14676.
- East Gippsland Shire Council 2021. "Well placed for wellbeing" partnering for healthier and more connected communities in East Gippsland 2021-2025, viewed 18th December 2023, < https://assets-global.website-files.com/5f10ce18aa01d050c26b7c5e/6524dccb765e5e75de56cfe7_Well%20Placed%20for%20Well%20Being%20Plan%20-%20EGSC_WEB.pdf>.
- East Gippsland Shire Council 2022. East Gippsland Economic Development Strategy, 2022 – 2032, viewed 18th December 2023, < https://global-uploads.webflow.com/5f10ce18aa01d050c26b7c5e/6465cb663e80d1f8b11a189e_Economic%20Development%20Strategy%20-%20EGSC_DIGITAL.pdf>.
- East Gippsland Shire Council 2023. Environmental Sustainability Strategy Annual Report 2022-23. East Gippsland, Australia, viewed 18th December 2023, < https://assets-global.website-files.com/5f10ce18aa01d050c26b7c5e/656e7761bce1430045767dad_Environmental%20Sustainability%20Strategy%20-%20Annual%20Report%202022-23%20-%20Final.pdf>.
- Ekmekcioglu, C, Strauss-Blasche, G, Feyertag, J, Klammer, N & Marktl, W 2000, 'The effect of balneotherapy on ambulatory blood pressure', *Alternative Therapies in Health and Medicine*, vol. 6, no. 6, pp. 46-53.
- Elkins, P, Gupta, J & Boileau, P 2019, *Global Environment Outlook: GEO-6: Healthy Planet, Healthy People*, Cambridge University Press.
- Erfurt, P 2021, *The Geoheritage of Hot Springs. Geoheritage, Geoparks and Geotourism*. Springer Nature, Cham, Switzerland.
- Erfurt, P 2021a, 'The Conservation of Hot Springs', in P Erfurt (ed.), *The Geoheritage of Hot Springs*, Springer International Publishing, Cham, pp. 91-118, doi: 10.1007/978-3-030-60463-9_4.

- 2021b, 'Hot Springs: A General Perspective', in *The Geoheritage of Hot Springs*, Springer, pp. 1-16.
- Erfurt, P 2011, 'An assessment of the role of natural hot and mineral springs in health, wellness and recreational tourism', PhD Thesis, James Cook University.
- Erfurt-Cooper, P & Cooper, M 2009, *Health and wellness tourism: Spas and hot springs. Aspects of Tourism*. Channel View Publications. Bristol.
- Erfurt, P 2021, 'Hot Springs: A General Perspective', in *The Geoheritage of Hot Springs*, Springer, pp. 1-16.
- Erfurt-Cooper, P 2010, 'The importance of natural geothermal resources in tourism', in *Proceedings World Geothermal Congress 2010 Bali, Indonesia, 25-29 April*, pp. 1-10.
- 2011, 'Geotourism in volcanic and geothermal environments: playing with fire?', *Geoheritage*, vol. 3, no. 3, pp. 187-93.
- European Union 2016, *The European Tourism Indicator System: ETIS toolkit for sustainable destination management*, Publications Office, Luxembourg.
- Fallah, M & Ocampo, L 2021, 'The use of the Delphi method with non-parametric analysis for identifying sustainability criteria and indicators in evaluating ecotourism management: the case of Penang National Park (Malaysia)', *Environment Systems and Decisions*, vol. 41, no. 1, pp. 45-62.
- Farrell, A & Hart, M 1998, 'What does sustainability really mean?: The search for useful indicators', *Environment: science and policy for sustainable development*, vol. 40, no. 9, pp. 4-31.
- Flick, U 1992, 'Triangulation revisited: strategy of validation or alternative?', *Journal for the Theory of Social Behaviour*, vol. 22, no. 2, pp. 175–197.
- Flyvbjerg, B 2011, 'Case study', *The Sage handbook of qualitative research*, vol. 4, pp. 301-16.
- Font, X, Torres-Delgado, A, Crabolu, G, Palomo Martinez, J, Kantebacher, J & Miller, G 2023, 'The impact of sustainable tourism indicators on destination competitiveness: The European Tourism Indicator System', *Journal of Sustainable Tourism*, vol. 31, no. 7, pp. 1608-30.
- Fossey, E, Harvey, C, McDermott, F & Davidson, L 2002, 'Understanding and evaluating qualitative research', *Australian & New Zealand Journal of Psychiatry*, vol. 36, no. 6, pp. 717-32.
- Frosch, WA 2007, "“Taking the waters”—springs, wells, and spas', *The FASEB Journal*, vol. 21, no. 9, pp. 1948-50.

- Garrod, B & Fyall, A 2005, 'Revisiting Delphi: the Delphi technique in tourism research', in W Ritchie & P Burns (Eds.), *Tourism research methods: Integrating theory with practice*, CAB International, Wallingford, pp. 85-98.
- Gasparini, ML & Mariotti, A 2023, 'Sustainable tourism indicators as policy making tools: Lessons from ETIS implementation at destination level', *Journal of Sustainable Tourism*, vol. 31, no. 7, pp. 1719-37.
- Gatersleben, B & Griffin, I 2017, 'Environmental Stress', in G Fleury-Bahi, E Pol & O Navarro (eds), *Handbook of Environmental Psychology and Quality of Life Research*, Springer International Publishing, Cham, pp. 469-85, doi: 10.1007/978-3-319-31416-7_25.
- Gebretsadik, A 2023, 'Effect of Balneotherapy on Skin Lesion at Hot Springs in Southern Ethiopia: A Single-Arm Prospective Cohort Study', *Clinical, Cosmetic and Investigational Dermatology*, vol. 16, pp. 1259-68.
- Gillani, D 2021, 'Can and" should" Qualitative Research Be Value-Free? Understanding the Epistemological Tussle between Positivists and Interpretivists', *Journal of Political Studies*, vol. 28, no. 1.
- Global Spa Summit 2010, Spas and the Global Wellness Market: Synergies and Opportunities, SRI International, viewed 27th January 2022, <<https://globalwellnessinstitute.org/wp-content/uploads/2018/06/Spas-and-the-Global-Wellness-Market-Final-4.25.2010.pdf>>.
- Global Wellness Institute 2018, 2018 Global Wellness Economy Monitor, viewed 11th January 2022, <<https://globalwellnessinstitute.org/industry-research/2018-global-wellness-economy-monitor/>>.
- 2021, The Global Wellness Economy: Looking Beyond COVID, viewed 5th August 2023, <https://globalwellnessinstitute.org/wp-content/uploads/2021/11/GWI-WE-Monitor-2021_final-digital.pdf>.
- 2023, The 2023 Global Wellness Economy Monitor, viewed 17th January 2024, <<https://globalwellnessinstitute.org/the-2023-global-wellness-economy-monitor/>>.
- 2023, Wellness Tourism, Miami, Florida, viewed 26th September 2023, <<https://globalwellnessinstitute.org/what-is-wellness/what-is-wellness-tourism/>>.
- Goeldner, CR & Brent Ritchie, JR 2009, *Tourism: principles, practices, philosophies*, 11th ed., John Wiley, Hoboken, New Jersey.

- Goldblatt, B. 2022. *Climate Change, Inequality and Discrimination Law: The Example of Swimming Pool Access in Moree*, Inequality and Discrimination Law: The Example of Swimming Pool Access in Moree (March 5, 2022).
- Gomes, C. S. F., Fernandes, S, J. V., Fernandes, F. V. & Silva, J. B. P. 2021. Salt Mineral Water and Thalassotherapy. In: Gomes, C. & Rautureau, M. (eds.) *Minerals latu sensu and Human Health: Benefits, Toxicity and Pathologies*. Cham: Springer International Publishing.
- Goodland, R 1995, 'The concept of environmental sustainability', *Annual review of ecology and systematics*, vol. 26, no. 1, pp. 1-24.
- Griggs, P 2013, '‘Taking the Waters’: Mineral Springs, Artesian Bores and Health Tourism in Queensland, 1870–1950', *Queensland Review*, vol. 20, no. 2, pp. 157-73.
- Grix, J 2004, *The foundations of research*, Palgrave Macmillan, New York.
- Guba, EG & Lincoln, YS 1994, 'Competing paradigms in qualitative research', *Handbook of Qualitative Research*, vol. 2, no. 163-194, p. 105.
- Gudmundsson, H 2003, 'The policy use of environmental indicators-learning from evaluation research', *The Journal of Transdisciplinary Environmental Studies*, vol. 2, no. 2, pp. 1-12.
- Gustafson, DH, Delbecq, AL & Van de Ven, AH 1986, *Group techniques for program planning-a guide to nominal group and Delphi processes*, Green Briar Press, Middleton, Wisconsin.
- Gustafsson, J 2017, *Single case studies vs. multiple case studies: A comparative study*, viewed 25th May 2021, <<https://www.diva-portal.org/smash/get/diva2:1064378/FULLTEXT01.pdf>>.
- Hall, CM 2009, 'Degrowing tourism: Décroissance, sustainable consumption and steady-state tourism', *Anatolia*, vol. 20, no. 1, pp. 46-61.
- 2012, *Medical Tourism : The Ethics, Regulation, and Marketing of Health Mobility*, Taylor & Francis Group, London, United Kingdom.
- Hall, CM, Voigt, C, Brown, G & Howat, G 2011, 'Wellness tourists: in search of transformation', *Tourism Review*, vol. 66, no. 1/2, pp. 16-30.
- Handler, I & Kawaminami, J 2023, 'Why do Japanese people visit hot springs during a pandemic? A psychographic segmentation analysis', *Journal of Outdoor Recreation and Tourism*, vol. 41, p. 100530.
- Hart, SL 1997, 'Beyond greening: strategies for a sustainable world', *Harvard business review*, vol. 75, no. 1, pp. 66-77.

- Hashimoto, A 2002, 'Tourism and sociocultural development issues', *Tourism and development: Concepts and issues*, pp. 202-30.
- Hassan, ZA, Schattner, P & Mazza, D 2006, 'Doing A Pilot Study: Why Is It Essential?', *Malaysian Family Physician: the official journal of the Academy of Family Physicians of Malaysia*, vol. 1, no. 2-3, pp. 70-3.
- Hasson, F, Keeney, S & McKenna, H 2000, 'Research guidelines for the Delphi survey technique', *Journal of Advanced Nursing*, vol. 32, no. 4, pp. 1008-15.
- Higgins-Desbiolles, F 2010, 'The Elusiveness of Sustainability in Tourism: The Culture-Ideology of Consumerism and its Implications', *Tourism and Hospitality Research*, vol. 10, no. 2, pp. 116-29
- 2018, 'Sustainable tourism: Sustaining tourism or something more?', *Tourism Management Perspectives*, vol. 25, pp. 157-60.
- Hiller, J 2016, 'Epistemological foundations of objectivist and interpretivist research', in KM Murphy and BL Wheeler (Eds.), *Music Therapy Research*, 3rd ed., Barcelona Publishers, New Braunfels, pp. 99-127.
- Hinsdale, G 1913, 'Mineral Springs: Their Analyses, Classification, Therapeutic Uses, and Newer Methods of Application; With Special Reference to American Springs', *Transactions of the American Clinical and Climatological Association*, vol. 26, pp. 64-94.
- Hiwasaki, L 2006, 'Community-based tourism: A pathway to sustainability for Japan's protected areas', *Society and Natural Resources*, vol. 19, no. 8, pp. 675-92.
- Holman, N 2009, 'Incorporating local sustainability indicators into structures of local governance: a review of the literature', *Local environment*, vol. 14, no. 4, pp. 365-75.
- Hoole, RJ 2000, 'The development of Lilani Hot Springs: an analysis of socio-economic and environmental impacts', *Master of Science thesis, Department of Geography, University of Natal, Pietermaritzburg*, South Africa.
- Hsu, C-C & Sandford, BA 2007, 'The Delphi technique: making sense of consensus', *Practical Assessment, Research, and Evaluation*, vol. 12, no. 1, p. 10.
- 2019, 'The Delphi technique: making sense of consensus', *Practical Assessment, Research, and Evaluation*, vol. 12, art. 10, doi: 10.7275/pdz9-th90.
- Hughes, G 2002, 'Environmental indicators', *Annals of tourism research*, vol. 29, no. 2, pp. 457-77.
- Hunter, C 1997, 'Sustainable tourism as an adaptive paradigm', *Annals of Tourism Research*, vol. 24, no. 4, pp. 850-67.

- Hussain, A & Haley, M 2022, 'Regenerative tourism model: challenges of adapting concepts from natural science to tourism industry', *Journal of Sustainability and Resilience*, vol. 2, no. 1, art. 4.
- Hussain, A 2021, 'A future of tourism industry: Conscious travel, destination recovery and regenerative tourism', *Journal of Sustainability and Resilience*, vol. 1, no. 1, art. 5.
- Ivars-Baidal, JA, Vera-Rebollo, JF, Perles-Ribes, J, Femenia-Serra, F & Celdrán-Bernabeu, MA 2023, 'Sustainable tourism indicators: what's new within the smart city/destination approach?', *Journal of Sustainable Tourism*, vol. 31, no. 7, pp. 1556-82.
- Jacquette, D 2014, *Ontology*, Routledge, London.
- Jain, D. 2020. *Renewable Energy: Powering a Safer Future*. Renewable Energy, 1.
- Jakada, M. B., Kassim, S. I., Hussaini, A., Mohammed, A. I. & Rabi'u, A. 2020, *Construct validity and reliability of individual work performance questionnaire*. Ilorin Journal of Human Resource Management, vol. 4, pp. 155-164.
- Jennings, G 2001, *Tourism research*, Wiley Australia Tourism Series, John Wiley & Sons, Milton, Qld.
- Jones, J & Hunter, D 1995, 'Qualitative research: consensus methods for medical and health services research', *British Medical Journal*, vol. 311, no. 7001, pp. 376-80.
- Kamata, H & Misui, Y 2015, 'Why do they choose a spa destination? The case of Japanese tourists', *Tourism Economics*, vol. 21, no. 2, pp. 283-305.
- Kaushik, V & Walsh, CA 2019, 'Pragmatism as a research paradigm and its implications for social work research', *Social Sciences*, vol. 8, no. 9, p. 255.
- Kaurav, RPS, Baber, R, Chowdhary, N & Kapadia, S 2015, 'Destination performance: Importance of redefining DMOs', *Asia-Pacific Journal of Innovation in Hospitality and Tourism (APJIHT)*, vol. 4, pp. 1-18.
- Kaynak, E, Bloom, J & Leibold, M 1994, 'Using the Delphi technique to predict future tourism potential', *Marketing Intelligence & Planning*, vol. 12, no. 7, pp. 18-29.
- Kelly, LM & Cordeiro, M 2020, 'Three principles of pragmatism for research on organizational processes', *Methodological Innovations*, vol. 13, no. 2.
- Kim, E, Chiang, L & Tang, L 2017, 'Investigating wellness tourists' motivation, engagement, and loyalty: In search of the missing link', *Journal of Travel & Tourism Marketing*, vol. 34, no. 7, pp. 867-79.
- Klemenkov, S, Davydova, O, Zh E. Klemenkova & Makushkin, AK 1995, 'The effect of carbon dioxide baths on the physical work capacity and extrasystole of patients with

- ischemic heart disease and stable stenocardia', *Voprosy Kurortologii, Fizioterapii, i Lechebnoi Fizicheskoi Kultury*, no. 4, pp. 3-5.
- Koc, E & Boz, H 2014, 'Triangulation in tourism research: A bibliometric study of top three tourism journals', *Tourism Management Perspectives*, vol. 12, pp. 9-14.
- Koh, S, Jung-Eun Yoo, J & Boger Jr, CA 2010, 'Importance-performance analysis with benefit segmentation of spa goers', *International Journal of Contemporary Hospitality Management*, vol. 22, no. 5, pp. 718-35.
- Koncul, N 2012, 'Wellness: A new mode of tourism', *Economic research-Ekonomska istraživanja*, vol. 25, no. 2, pp. 503-34.
- Koskinen, V & Wilska, T-A 2019, 'Identifying and understanding spa tourists' wellness attitudes', *Scandinavian Journal of Hospitality and Tourism*, vol. 19, no. 3, pp. 259-77.
- Koskinen, V 2019, 'Spa tourism as a part of ageing well', *International Journal of Spa and Wellness*, vol. 2, no. 1, pp. 18-34.
- KPMG 2020. KPMG Survey of Sustainability Reporting 2020, The time has come, viewed 18th October 2023, < <https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2020/11/the-time-has-come.pdf>>.
- Kucukusta, D & Denizci Guillet, B 2016, 'Lifestyle segmentation of spa users: A study of inbound travelers to Hong Kong', *Asia Pacific Journal of Tourism Research*, vol. 21, no. 3, pp. 239-58.
- Kulkarni, S 2008, *Spa and health tourism*, Book Enclave, Jaipur, India.
- Kusumaningrum, DA & Wachyuni, SS 2020, 'The shifting trends in travelling after the COVID 19 pandemic', *International Journal of Tourism & Hospitality Reviews*, vol. 7, pp. 31-40.
- Lambert, S & Jenni 2011, *Australia's great thermal way, Australia's Great Thermal Way*, viewed 13th June 2022, < <https://greatthermalway.com/>>.
- Land, KC 1971, 'On the definition of social indicators', *The American Sociologist*, pp. 322-5.
- Law, A, De Lacy, T, Lipman, G & Jiang, M 2016, 'Transitioning to a green economy: the case of tourism in Bali, Indonesia', *Journal of Cleaner Production*, vol. 111, pp. 295-305.
- Law, A, DeLacy, T & McGrath, GM 2017, 'A green economy indicator framework for tourism destinations', *Journal of Sustainable Tourism*, vol. 25, no. 10, pp. 1434-55.

- Lee, C-F & King, B 2006, 'Assessing destination competitiveness: An application to the hot springs tourism sector', *Tourism and Hospitality Planning & Development*, vol. 3, no. 3, pp. 179-97.
- 2009, 'A determination of destination competitiveness for Taiwan's hot springs tourism sector using the Delphi technique', *Journal of vacation marketing*, vol. 15, no. 3, pp. 243-57.
- Lee, CF & King, BE 2008, 'Using the Delphi method to assess the potential of Taiwan's hot springs tourism sector', *International Journal of tourism research*, vol. 10, no. 4, pp. 341-52.
- Lee, TH, Jan, F-H & Liu, J-T 2021, 'Developing an indicator framework for assessing sustainable tourism: Evidence from a Taiwan ecological resort', *Ecological indicators*, vol. 125, p. 107596.
- Leedy, P & Ormrod, J 2012, *Practical research*, 10th ed., Pearson, Boston, MA.
- Leiper, N 1979, 'The framework of tourism: Towards a definition of tourism, tourist, and the tourist industry', *Annals of tourism research*, vol. 6, no. 4, pp. 390-407.
- Lemos, ADdC & Giacomucci, A 2002, 'Green procurement activities: some environmental indicators and practical actions taken by industry and tourism', *International Journal of Environment and Sustainable Development*, vol. 1, no. 1, pp. 59-72.
- Lew, A. A. 1987. *A framework of tourist attraction research*. *Annals of Tourism Research*, vol. 14, pp. 553-575.
- Lin, C-H 2014, 'Effects of cuisine experience, psychological well-being, and self-health perception on the revisit intention of hot springs tourists', *Journal of Hospitality & Tourism Research*, vol. 38, no. 2, pp. 243-65.
- Linstone, HA & Turoff, M 1975, *The delphi method*, Addison-Wesley Reading, MA.
- Liu, X, Fu, Y & Li, J 2019, 'The effect of on-site experience and place attachment on loyalty: Evidence from Chinese tourists in a hot-spring resort', *International Journal of Hospitality & Tourism Administration*, vol. 20, no. 1, pp. 75-100.
- Lo, A, Wu, C & Tsai, H 2015, 'The impact of service quality on positive consumption emotions in resort and hotel spa experiences', *Journal of Hospitality Marketing & Management*, vol. 24, no. 2, pp. 155-79.
- Loureiro, SMC, Almeida, M & Rita, P 2013, 'The effect of atmospheric cues and involvement on pleasure and relaxation: The spa hotel context', *International Journal of Hospitality Management*, vol. 35, pp. 35-43.

- Lund, J 2000, 'Taking the waters introduction to balneology', *Geo-Heat Center Quarterly Bulletin*, vol. 21, no. 3, pp. 2-5.
- Lundberg, DE 1972, 'Why Tourists Travel', *Cornell Hotel and Restaurant Administration Quarterly*, vol. 12, no. 4, pp. 64-70.
- Lunt, N, Smith, R, Exworthy, M, Green, ST, Horsfall, D & Mannion, R 2011, *Medical Tourism: Treatments, Markets and Health System Implications: A scoping*. OECD, Directorate for Employment, Labour and Social Affairs.
- Maarouf, H 2019, 'Pragmatism as a supportive paradigm for the mixed research approach: Conceptualizing the ontological, epistemological, and axiological stances of pragmatism', *International Business Research*, vol. 12, no. 9, pp. 1-12.
- Majeed, S & Gon Kim, W 2023, 'Emerging trends in wellness tourism: A scoping review', *Journal of Hospitality and Tourism Insights*, vol. 6, no. 2, pp. 853-73.
- Majeed, S, Lu, C, Majeed, M & Shahid, MN 2018, 'Health resorts and multi-textured perceptions of international health tourists', *Sustainability*, vol. 10, no. 4, p. 1063.
- Mak, AH, Wong, KK & Chang, RC 2009, 'Health or self-indulgence? The motivations and characteristics of spa-goers', *International Journal of Tourism Research*, vol. 11, no. 2, pp. 185-99.
- Mancini Jr, S, Piccinetti, A, Nappi, G, Mancini, S, Caniato, A & Coccheri, S 2003, 'Clinical, functional and quality of life changes after balneokinesis with sulphurous water in patients with varicose veins', *VASA. Zeitschrift fur Gefasskrankheiten*, vol. 32, no. 1, pp. 26-30.
- Markee, N 2013, 'Emic and etic in qualitative research', *The encyclopedia of applied linguistics*, pp. 404-27.
- Mathur, P & Shekhawat, RS 2017, 'Use of Delphi Technique to decide Sustainability Criteria', *Amity Research Journal of Tourism, Aviation and Hospitality*, vol.2, no.1, pp. 54-64.
- Mayer, AL 2008, 'Strengths and weaknesses of common sustainability indices for multidimensional systems', *Environment International*, vol. 34, no. 2, pp. 277-91.
- McNeil, KR & Ragins, EJ 2005, 'Staying in the spa marketing game: Trends, challenges, strategies and techniques', *Journal of Vacation Marketing*, vol. 11, no. 1, pp. 31-9.
- Melkert, M & Vos, K 2010, 'A comparison of quantitative and qualitative approaches: Complementarities and trade-offs', *Cultural Tourism Research Methods*, pp. 33-40. CABI Digital Library.

- Metung BTA 2018, Local Businesses, viewed 24th September 2023, <<https://metung.com/business-directory>>.
- Metung Hot Springs 2023, About us, viewed 27th September 2023, <<https://www.metunghotsprings.com/about-us>>.
- Metung Hot Springs 2023-a, Regeneration, viewed 27th September 2023, <<https://www.metunghotsprings.com/regeneration>>.
- Metung Hot Springs 2023-b, See and bathe, viewed 27th September 2023, <<https://www.metunghotsprings.com/offerings/see-and-bathe>>.
- Metung Hot Springs 2023-c, stay and bathe, viewed 27th September 2023, <<https://www.metunghotsprings.com/offerings/stay-and-bathe>>.
- Mi, C, Chen, Y, Cheng, C-S, Uwanyirigira, JL & Lin, C-T 2019, 'Exploring the determinants of hot spring tourism customer satisfaction: Causal relationships analysis using ISM', *Sustainability*, vol. 11, no. 9, p. 2613.
- Migiros, S & Magangi, B 2011, 'Mixed methods: A review of literature and the future of the new research paradigm', *African Journal of Business Management*, vol. 5, no. 10, pp. 3757-64.
- Mihók, P & Marčeková, R 2022, 'Considerations on spa, spa tourism and some related terms definitions and positioning', *International Journal of Spa and Wellness*, vol. 5, no. 3, pp. 320-9.
- Miller, G 2001, 'The development of indicators for sustainable tourism: results of a Delphi survey of tourism researchers', *Tourism management*, vol. 22, no. 4, pp. 351-62.
- Miller, G & Torres-Delgado, A 2023, 'Measuring sustainable tourism: a state of the art review of sustainable tourism indicators', *Journal of Sustainable Tourism*, pp. 1-14.
- Moldan, B, Janoušková, S & Hák, T 2012, 'How to understand and measure environmental sustainability: Indicators and targets', *Ecological indicators*, vol. 17, pp. 4-13.
- Mooventhan, A & Nivethitha, L 2014, 'Scientific evidence-based effects of hydrotherapy on various systems of the body', *North American Journal of Medical Sciences*, vol. 6, no. 5, pp. 199-209.
- Moree Artesian Aquatic Centre. 2023.-a. Artesian Wellness Bathing, viewed 18th August 2023, <<https://www.moreeartesianaquaticcentre.com.au/artesian-bathing/artesian-wellness-bathing>>.
- Moree Artesian Aquatic Centre. 2023.-b. Moree Artesian Aquatic Centre is the Artesian water oasis, viewed 18th August 2023, <<https://www.moreeartesianaquaticcentre.com.au/contact-us/about-us>>.

Moree Plains Shire Council 2021. Economic Development, Strategy and Action Plan 2021-2031, viewed 18th August 2023, < <https://www.mpsc.nsw.gov.au/hot-topics/docman/economic-development/1856-moree-plains-economic-development-strategy-and-action-plan/file>>.

Moreira, CO & Santos, N 2020, 'Tourism qualitative forecasting scenario building through the Delphi Technique', *Cuadernos de Turismo*, no. 46, pp. 423-57.

Morgan, DL 2014, 'Pragmatism as a paradigm for social research', *Qualitative Inquiry*, vol. 20, no. 8, pp. 1045-53.

Mornington Peninsula Regional Tourism 2023, Visitor Economy Workforce Positioning Statement, viewed 25th September 2023, <https://www.morningtonpeninsulatourism.org/Portals/3/MP%20Workforce%20Positioning%20Statement%20310723_1.pdf#:~:text=The%20visitor%20economy%20is%20one%20of%20the%20largest,of%20nearly%2013%2C000%20to%20around%2018%2C000%20by%202032>.

Mornington Peninsula Regional Tourism Board 2022, Tourism Visitor Economy, viewed 20th November 2023, <https://www.morningtonpeninsulatourism.org/Portals/3/2022%20-%20MP%20-%20Visitor%20Journey.pdf> [Accessed 20/11 2023].

Mornington Peninsula Shire 2021a, Council and Wellbeing Plan 2021 -2025, viewed 20th November 2023, <<https://www.mornpen.vic.gov.au/About-Us/Strategies-Plans-Policies/Council-and-Wellbeing-Plan>>.

Mornington Peninsula Shire 2021b, Key Health & Wellbeing Data, viewed 20th November 2023 < <https://www.mornpen.vic.gov.au/About-Us/About-Our-Region/Health-and-Wellbeing-Profile>>.

Mornington Peninsula Shire 2023, Mornington Peninsula Business Survey.

Mornington Peninsula Shire 2023, Environment, viewed 20th November 2023, <<https://www.mornpen.vic.gov.au/Environment>>.

Mornington Peninsula Shire 2023, Shire Facts, viewed 20th November 2023, <<https://www.mornpen.vic.gov.au/About-Us/About-Our-Region/Shire-Facts>>.

Mornington Peninsula Shire 2023, Southern Peninsula Indigenous Flora & Fauna Association, viewed 20th November 2023, <<https://www.spiffa.org.au/coastal-alkaline-scrub-evc-858.html>>.

Morris, N 2018, "As drought bites, Cunnamulla's population has dropped 40 per cent, but not everyone is leaving", *ABC Southern Qld*, viewed 19th October 2023,

<<https://www.abc.net.au/news/rural/2018-12-14/outback-town-of-cunnamulla-population-down-40-per-cent/10610796>>.

- Mueller, H & Kaufmann, EL 2001, 'Wellness tourism: Market analysis of a special health tourism segment and implications for the hotel industry', *Journal of Vacation Marketing*, vol. 7, no. 1, pp. 5-17.
- Murphy, M, Black, N, Lamping, D, McKee, C, Sanderson, C, Askham, J & Marteau, T 1998, 'Consensus development methods, and their use in clinical guideline development', *Health Technology Assessment (Winchester, England)*, vol. 2, no. 3, pp. i-iv, 1-88.
- Mutuku, C. 2013. *Tourism Destinations. Definitions, Changes and Trends*, Willford Press.
- Myers, JE, Sweeney, TJ & Witmer, JM 2000, 'The wheel of wellness counseling for wellness: A holistic model for treatment planning', *Journal of Counseling & Development*, vol. 78, no. 3, pp. 251-66.
- National Health and Medical Research Council 2023, National Statement on Ethical Conduct in Human Research, viewed 27th October 2023 <<https://www.nhmrc.gov.au/about-us/publications/national-statement-ethical-conduct-human-research-2023#download>>.
- Negrușă, AL & Coroș, MM 2016, 'Destination management organizations' (DMOS') roles and performance—literature review', Romania, pp. 267-74.
- Newman, I 2000, 'A Conceptualization of Mixed Methods: A Need for Inductive/Deductive Approach to Conducting Research'. Paper presented at the *Annual Meeting of the American Educational Research Association* (New Orleans, LA, April 24-25).
- Niemeijer, D & De Groot, RS 2008, 'A conceptual framework for selecting environmental indicator sets', *Ecological indicators*, vol. 8, no. 1, pp. 14-25.
- Nilsen, BT 2013, 'The role of the body and body ideals in the production and consumption of spa experiences', *Scandinavian Journal of Hospitality and Tourism*, vol. 13, no. 3, pp. 139-52.
- Ojima, S & Ohishi, M 2023, 'Effects of hot spring bathing on cardiac and vascular function', *Hypertension Research*, vol. 46, no. 7, pp. 1705-6.
- Okoli, C & Pawlowski, SD 2004, 'The Delphi method as a research tool: an example, design considerations and applications', *Information & Management*, vol. 42, no. 1, pp. 15-29.
- Oliver, MD, Baldwin, DR & Datta, S 2018, 'Health to wellness: A review of wellness models and transitioning back to health', *The International Journal of Health, Wellness and Society*, vol. 9, no. 1, pp. 41-56.

- Owen, C 2007, 'Regenerative tourism—Re-placing the design of ecotourism facilities', *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, vol. 3, no. 2, pp. 175-81.
- Özhalbant, E & Alvarez, MD 2020, 'A socio-cultural perspective on yoga tourism', *Tourism Planning & Development*, vol. 17, no. 3, pp. 260-74.
- Paige, JC, Soullière, LE & Harrison, LS 1988, *Out of the vapors: a social and architectural history of Bathhouse Row: Hot Springs National Park*, Arkansas, US Department of the Interior, National Park Service.
- Palinkas, LA, Horwitz, SM, Green, CA, Wisdom, JP, Duan, N & Hoagwood, K 2015, 'Purposeful sampling for qualitative data collection and analysis in mixed method implementation research', *Administration and Policy in Mental Health and Mental Health Services Research*, vol. 42, no. 5, pp. 533-44.
- Parish, LC & Witkowski, JA 1994, 'Dermatologic balneology: the American view of waters, spas, and hot springs', *Journal of the European Academy of Dermatology and Venereology*, vol. 3, no. 4, pp. 465-7.
- Park, YS, Konge, L & Artino, AR 2020, 'The positivism paradigm of research', *Academic Medicine*, vol. 95, no. 5, pp. 690-4.
- Paroo Shire Council 2022. Annual Report 2021-2022, viewed 21st September 2023, <<https://www.paroo.qld.gov.au/council/council-publications/reports-and-publications>>.
- Passali, D, Gabelli, G, Passali, GC, Mösges, R & Bellussi, LM 2017, 'Radon-enriched hot spring water therapy for upper and lower respiratory tract inflammation', *Polish Journal of Otolaryngology*, vol. 71, no. 4, pp. 8-13.
- Patterson, I & Balderas-Cejudo, A 2022, 'Baby boomers and their growing interest in spa and wellness tourism', *International Journal of Spa and Wellness*, vol. 5, no. 3, pp. 237-49.
- Patton, MQ 2014, *Qualitative research & evaluation methods: Integrating theory and practice*, Sage Publications, Los Angeles.
- Pedersen Zari, M 2009, *Towards a sustainable future: Adopting a regenerative approach to development: a summary document*. Publication document No. ME 915. Ministry for the Environment, New Zealand Government, viewed 28th July 2022, <https://www.researchgate.net/publication/261476510_Towards_a_sustainable_future_Adopting_a_regenerative_approach_to_development>
- Peninsula Hot Springs 2023,-a. About us, viewed 24th September 2023, <<https://www.peninsulahotsprings.com/about-us>>.

- Peninsula Hot Springs 2023,-b. Partnerships with purpose viewed 24th September 2023, <<https://www.peninsulahotsprings.com/partnerships-with-purpose>>.
- Peninsula Hot Springs 2023,-c. Peninsula Hot Springs Group, viewed 24th September 2023, <<https://www.peninsulahotsprings.com/peninsula-hot-springs-group>>.
- Peris-Ortiz, M & Álvarez-García, J (Eds.) 2014, *Health and wellness tourism: Emergency of new market segment*. Springer International Publishing Switzerland.
- Pernecky, T 2007, 'Immersing in ontology and the research process: Constructivism the foundation for exploring the (in) credible OBE', in I Ateljevic, A Pritchard & N Morgan (Eds.), *The critical turn in tourism studies*, Routledge, London, pp. 211-26.
- Pessot, E, Spoladore, D, Zangiacomì, A & Sacco, M 2021, 'Natural resources in health tourism: a systematic literature review', *Sustainability*, vol. 13, no. 5, p. 2661.
- Piatto Clerici, A, Murphy, C & Castanheira Almeida, NM 2023, 'The future of wellness tourism after COVID-19', *European Spatial Research and Policy*, vol. 30, no. 1, pp. 103-122.
- Pinos Navarrete, A & Shaw, G 2021, 'Spa tourism opportunities as strategic sector in aiding recovery from Covid-19: The Spanish model', *Tourism and Hospitality Research*, vol. 21, no. 2, pp. 245-50.
- Plath, D 2006, 'Evidence-based practice: Current issues and future directions', *Australian Social Work*, vol. 59, no. 1, pp. 56-72.
- Pollock, A 2019, 'Flourishing beyond sustainability: The promise of a regenerative tourism'. *Presentation to ETC Workshop in Krakow*, February 6th, viewed 16th November 2023, <https://etc-corporate.org/uploads/2019/02/06022019_Anna_Pollock_ETCKrakow_Keynote.pdf>
- .
- Pope, E. 2018. *Tourism and wellbeing: transforming people and places*. *International Journal of Spa and Wellness*, vol. 1, pp. 69-81.
- Potts, T 2010, 'The natural advantage of regions: linking sustainability, innovation, and regional development in Australia', *Journal of Cleaner Production*, vol. 18, no. 8, pp. 713-25.
- Powell, C 2003, 'The Delphi technique: myths and realities', *Journal of advanced nursing*, vol. 41, no. 4, pp. 376-82.
- Powell, O, Silcock, J & Fensham, R 2015, 'Oases to oblivion: The rapid demise of springs in the south-eastern Great Artesian Basin, Australia', *Groundwater*, vol. 53, no. 1, pp. 171-8.

- Punnett, BJ, Ford, D, Galperin, BL & Lituchy, T 2017, 'The emic-etic-emic research cycle', *AIB Insights*, vol. 17, no. 1, p. 3.
- Ramos, V & Untong, A 2016, 'Spa tourism', in J Jafari & H Xiao (eds), *Encyclopedia of Tourism*, Springer International Publishing, Cham, pp. 886-8, doi: 10.1007/978-3-319-01384-8_185.
- Ranjit, M 2022, 'Hot and mineral spring water for health benefits', in *Hot Springs in Nepal: Health Benefits and Geothermal Applications*, Springer, Cham, pp. 161-87.
- Rasoolimanesh, SM, Ramakrishna, S, Hall, CM, Esfandiari, K & Seyfi, S 2023, 'A systematic scoping review of sustainable tourism indicators in relation to the sustainable development goals', *Journal of Sustainable Tourism*, vol. 31, no. 7, pp. 1497-517.
- Richards, G & Munsters, W 2010, *Cultural tourism research methods*, CABI, Wallingford, Oxfordshire, United Kingdom.
- Richardson, J. I. & Fluker, M. 2008. *Understanding and managing tourism*, 2nd ed. Pearson Education Australia, French's Forest, New South Wales.
- Ritchie, BW, Burns, PM & Palmer, CA 2005, *Tourism research methods: integrating theory with practice*, CABI, Wallingford, Oxfordshire, United Kingdom.
- Roberts, S & Tribe, J 2008, 'Sustainability indicators for small tourism enterprises—An exploratory perspective', *Journal of Sustainable Tourism*, vol. 16, no. 5, pp. 575-94.
- Roberts, S 2023, 'Socio-cultural sustainability and small tourism businesses', *Tourism & Hospitality Research*, vol. 23, no. 3, pp. 298-311.
- Robinson, P, Heitmann, S & Dieke, PU (Eds.) 2011, *Research themes for tourism*, CABI Digital Library, viewed 18th March 2021, <<https://www.cabidigitallibrary.org/doi/book/10.1079/9781845936846.0000>>.
- Rosin, U & Gombault, A 2021, 'Venice in crisis: The brutal marker of covid-19', *International Journal of Arts Management*, vol. 23, no. 2, pp. 75-88.
- Rowe, G & Wright, G 1999, 'The Delphi technique as a forecasting tool: issues and analysis', *International Journal of Forecasting*, vol. 15, no. 4, pp. 353-75.
- Rowley, J 2002, 'Using case studies in research', *Management Research News*, vol. 25, pp. 16-27.
- Saarinen, J 2021, 'Is being responsible sustainable in tourism? Connections and critical differences', *Sustainability*, vol. 13, no. 12, p. 6599.
- Saraniemi, S. & Kylänen, YLÄNEN, M. 2011. *Problematizing the concept of tourism destination: An analysis of different theoretical approaches*. *Journal of Travel Research*, vol. 50, pp. 133-143.

- Scotland, J 2012, 'Exploring the philosophical underpinnings of research: Relating ontology and epistemology to the methodology and methods of the scientific, interpretive, and critical research paradigms', *English Language Teaching*, vol. 5, no. 9, pp. 9-16.
- Seale, C 1999, 'Quality in qualitative research', *Qualitative Inquiry*, vol. 5, no. 4, pp. 465-78.
- Sharma, A (Ed.) 2019, *Sustainable Tourism Development: Futuristic Approaches*, Apple Academic Press, Oakville, Ontario, Canada.
- Shofner, JH & Rogers, WW 1963, 'Hot Springs in the 'Seventies'', *The Arkansas Historical Quarterly*, vol. 22, no. 1, pp. 24-48.
- Sinclair, MT 1998, 'Tourism and economic development: A survey', *The journal of development studies*, vol. 34, no. 5, pp. 1-51.
- Smeets, E & Weterings, R 1999, 'Environmental indicators: Typology and overview', European Environment Agency, viewed 12th February 2023, <http://www.geogr.uni-jena.de/fileadmin/Geoinformatik/projekte/brahmatwinn/Workshops/FEEM/Indicators/EEA_tech_rep_25_Env_Ind.pdf>.
- Smith, EV 1978, 'Four issues unique to socio-cultural indicators', *Social Indicators Research*, vol. 5, pp. 111-20.
- Smith, M & Kelly, C 2006, 'Wellness tourism', *Tourism Recreation Research*, vol. 31, no. 1, pp. 1-4.
- Smith, M & Puczko, L 2008, *Health and Wellness Tourism*, Elsevier/Butterworth-Heinemann, Amsterdam.
- Smith, M & Puczko, L 2015, 'More than a special interest: defining and determining the demand for health tourism', *Tourism Recreation Research*, vol. 40, no. 2, pp. 205-19.
- Smith, MK & Puczko, L 2016, *The Routledge handbook of health tourism*, Taylor & Francis, London.
- Smith, SLJ 2010, *Practical tourism research*, CAB International, Wallingford, Oxfordshire, United Kingdom.
- Soiferman, LK 2010, 'Compare and Contrast Inductive and Deductive Research Approaches', viewed 15th October 2021, <<https://files.eric.ed.gov/fulltext/ED542066.pdf>> .
- Soltani, M, Moradi Kashkooli, F, Souri, M, Rafiei, B, Jabarifar, M, Gharali, K & Nathwani, JS 2021, 'Environmental, economic, and social impacts of geothermal energy systems', *Renewable and Sustainable Energy Reviews*, vol. 140, p. 110750.
- Sors, JC 2001, 'Measuring progress towards sustainable development in Venice: a comparative assessment of methods and approaches', viewed 19th January 2022, <<https://www.econstor.eu/bitstream/10419/155179/1/NDL2001-016.pdf>>.

- Spencer, DM & Sargeant, EL 2022, 'The use of indicators to measure the sustainability of tourism at cultural heritage sites: A critical review', *Tourism Recreation Research*, pp. 1-14.
- Stănciulescu, GC, Diaconescu, GN & Diaconescu, DM 2015, 'Health, spa, wellness tourism. What is the difference', *Knowledge Horizons–Economics*, vol. 7, no. 3, pp. 158-61.
- Steiner, CJ & Reisinger, Y 2006, 'Ringling the fourfold: A philosophical framework for thinking about wellness tourism', *Tourism Recreation Research*, vol. 31, no. 1, pp. 5-14.
- Steup, M & Neta, R 2005, 'Epistemology', in *Stanford Encyclopedia of Philosophy*, viewed 17th March 2022, <<https://plato.stanford.edu/ENTRIES/epistemology/>>.
- Stevens, F, Azara, I & Michopoulou, E 2018, 'Local community attitudes and perceptions towards thermalism', *International Journal of Spa and Wellness*, vol. 1, no. 1, pp. 55-68.
- Sthapit, E, Björk, P & Coudounaris, DN 2023, 'Towards a better understanding of memorable wellness tourism experience', *International Journal of Spa and Wellness*, vol. 6, no. 1, pp. 1-27.
- Stidham, M, Olsen, C, Toman, E, Frederick, S, McCaffrey, S & Shindler, B 2014, 'Longitudinal social science research in natural resource communities: lessons and considerations', *Society & Natural Resources*, vol. 27, no. 10, pp. 1104-8.
- Streimikiene, D, Svagzdiene, B, Jasinskas, E & Simanavicius, A 2021, 'Sustainable tourism development and competitiveness: The systematic literature review', *Sustainable development*, vol. 29, no. 1, pp. 259-71.
- Sürücü, L. & Maslakci, A. 2020. *Validity and reliability in quantitative research*. *Business & Management Studies: An International Journal*, vol. 8, pp. 2694-2726.
- Swarbrooke, J 1999, *Sustainable tourism management*, Cabi, viewed 11th February 2022, <https://books.google.com.au/books?hl=en&lr=&id=1WQtIOqVT3gC&oi=fnd&pg=PP8&dq=Swarbrooke,+J+1999,+Sustainable+tourism+management,+&ots=GXL53gCRpK&sig=aTIFDIWzr8CieGMGE1SdR4t7_g0&redir_esc=y#v=onepage&q=Swarbrooke%2C%20J%201999%2C%20Sustainable%20tourism%20management%2C&f=false>.
- Sykes, M 2019, *The Great Victorian Bathing Trail*: A blueprint for a Victorian hot springs and bathing tourism strategy*. Victorian Industry Tourism Council, viewed 24th September 2023, <<https://www.datocms-assets.com/55775/1646975662-the-great-vic-bathing-trail.pdf>>.

- Sykes, M 2022, Metung Hot Springs. Regeneration Plan, viewed 24th September 2023, <<https://www.datocms-assets.com/71904/1673403015-2022-5-24-mehs-regen-action-plan-summary-version.pdf>>.
- Takeda, M, Nakamura, H, Otsu, H, Mimori, K, Maeda, T & Managi, S 2023, 'Hot spring bathing practices have a positive effect on mental health in Japan', *Heliyon*, vol. 9, no. 9, e19631.
- Tanguay, GA, Rajaonson, J & Therrien, M-C 2013, 'Sustainable tourism indicators: Selection criteria for policy implementation and scientific recognition', *Journal of Sustainable Tourism*, vol. 21, no. 6, pp. 862-79.
- Tham, A & Sharma, B 2023, 'Regenerative Tourism: Opportunities and Challenges', *Journal of Responsible Tourism Management*, vol. 3, no. 1, pp. 15-23.
- The Australian Trade and Investment Commission 2023, Tourism and the visitor economy, viewed 22nd September 2023, <<https://www.globalaustralia.gov.au/industries/tourism-and-visitor-economy>>.
- Tiwari, S 2022, 'Perception and lived experience on health effects of natural hot spring water bath', *International Journal of Community Medicine and Public Health*, vol. 9, no. 1, pp. 39-44.
- Toda, M, Makino, H, Kobayashi, H & Morimoto, K 2006, 'Health effects of a long-term stay in a spa resort', *Archives of Environmental & Occupational Health*, vol. 61, no. 3, pp. 131-7.
- 2008, 'Health benefits for women staying with their husbands during a long-term trip to a hot springs spa', *Archives of Environmental & Occupational Health*, vol. 63, no. 1, pp. 37-40.
- Torres-Pruñonosa, J, Raya, JM, Crespo-Sogas, P & Mur-Gimeno, E 2022, 'The economic and social value of spa tourism: The case of balneotherapy in Maresme, Spain', *PloS One*, vol. 17, no. 1, p. e0262428.
- Tourism and Events – Information for Victoria’s Tourism Industry 2023, Regional Research, viewed 24th September 2023, <<https://tourism.vic.gov.au/research-and-insights/regional-research>>.
- Tourism Australia 2022, Future of Global Tourism Demand Australia viewed 14th August 2023, <<https://www.tourism.australia.com/content/dam/digital/corporate/documents/future-of-demand/tourism-australia-global-future-of-tourism-demand-research-public-report.pdf>>.

- 2023, Signature Experiences of Australia, viewed 15th February 2023, <<https://www.tourism.australia.com/en/resources/industry-resources/industry-programs/signature-experiences-of-australia.html>>.
- Tourism Moree 2019, Moree Plains Shire, Destination Management Plan 2019 – 2024, viewed 25th September 2023, <<https://www.mpsc.nsw.gov.au/publications-documents/council-meetings-ordinary-council-meeting/2022/05-may/2143-1-attachment-4-tourism-moree-revised-dmp-action-plan-2022/file>>.
- Tourism Research Australia 2022, National Visitor Survey Methodology, viewed 25th January 2023, <<https://www.tra.gov.au/en/domestic/national-visitor-survey-methodology>>.
- Tourism Research Australia 2022, State of the industry: Australia's tourism sector in 2022, Australian Trade and Investment Commission, viewed 25th September 2023, <<https://www.tra.gov.au/en/economic-analysis/state-of-the-industry.html>>.
- Tourism Research Australia 2019, Local Government Area Profiles, viewed 25th September 2023, <<https://www.tra.gov.au/en/regional/local-government-area-profiles.html>>.
- Tourism Research Australia 2023a, Regional Tourism Satellite Account, viewed 25th November 2023, <<https://www.tra.gov.au/en/economic-analysis/tourism-satellite-accounts/regional-tourism-satellite-account#accordion-095f0aeb35-item-b34c1cf58c>>.
- Tourism Research Australia 2023b, Tourism Businesses in Australia, viewed 25th November 2023, <<https://www.tra.gov.au/en/economic-analysis/tourism-businesses> [Accessed 25/11/2023 2023]>.
- Tourism Tasmania 2023, Tasmanian Visitor Survey 2023/2024, viewed 25th January 2023, <<https://www.tra.gov.au/en/domestic/national-visitor-survey-methodology#:~:text=National%20Visitor%20Survey%20methodology%201%20The%20method%20of,7%20More%20information%20...%208%20Contact%20us%20>>.
- Tribe, J 2008, 'Tourism: A critical business', *Journal of Travel Research*, vol. 46, no. 3, pp. 245-55.
- Tsung Hung, L, Fen-Hauh, J & Jui-Tu, L 2021, 'Developing an indicator framework for assessing sustainable tourism: Evidence from a Taiwan ecological resort', *Ecological Indicators*, vol. 125, no. 4, p. 107596
- Tumbaga, JRA, Hipolito, MC & Gabriel, AG 2021, 'Community participation toward biodiversity conservation among protected areas in Pangasinan, Philippines', *Environment, Development and Sustainability*, vol. 23, pp. 4698-714.

- Turvey, A, Knight, J & Wosnitza, B 2009, 'Regional economic indicators', *Economic & Labour Market Review*, vol. 3, pp. 55-68.
- Turvey, A., Knight, J. & Wosnitza, B. 2009. *Regional economic indicators*. *Economic & Labour Market Review*, vol. 3, pp. 55-68.
- United Nations 2020, *The Sustainable Development Goals Report*, New York, viewed 23rd January 2023, <<https://unstats.un.org/sdgs/report/2020/The-Sustainable-Development-Goals-Report-2020.pdf>>.
- United Nations Environment Programme 2022a, *Monitoring progress*, viewed 23rd January 2023, <<https://www.unep.org/explore-topics/sustainable-development-goals/what-we-do/monitoring-progress>>.
- 2022b, *UNEP in 2022*, viewed 23rd January 2023, <<https://www.unep.org/resources/annual-report-2022>>.
- UNWTO 2013, 'Sustainable tourism for development guidebook', *World Tourism Organization, European Commission*, Madrid.
- UNWTO 2022, *UNWTO World Tourism Barometer*, viewed 17th March 2022, <https://webunwto.s3.eu-west-1.amazonaws.com/s3fs-public/2022-01/220118-Barometersmall.pdf?_PBIQdr4u_qM0w56.l0NpfGPzylGu6Md>.
- Vada, S, Filep, S, Moyle, B, Gardiner, S & Tuguinay, J 2023, 'Welcome back: Repeat visitation and tourist wellbeing', *Tourism Management*, vol. 98, p. 104747.
- Vaidya, B & Nakarmi, S 2020, 'A qualitative study of patients' beliefs and perception on medicinal properties of natural hot spring bath for musculoskeletal problems', *Journal of Environmental and Public Health*, vol. 2020.
- Van Teijlingen, ER & Hundley, V 2001, 'The importance of pilot studies', *Nursing Standard*, vol. 16, no. 40, pp. 33-36.
- Veal, AJ 2017, *Research methods for leisure and tourism*, Pearson UK, London, United Kingdom.
- Victoria State Government 2023, *Tourism and Events: Information for Victoria's tourism industry*. Regional Research, viewed 23rd September 2023, <<https://tourism.vic.gov.au/research-and-insights/regional-research>>.
- Virani, A, Wellstead, AM & Howlett, M 2020, 'Where is the policy? A bibliometric analysis of the state of policy research on medical tourism', *Global health research and policy*, vol. 5, no. 1, pp. 1-16.
- Visit Phillip Island 2023, *Phillip Island 101*, viewed 29th September 2023, <<https://www.visitphillipisland.com.au/discover/phillip-island-101>>.

- Voigt, C & Pforr, C 2013, *Wellness Tourism : A Destination Perspective*, Taylor & Francis Group, London, United Kingdom.
- Voigt, C, Brown, G & Howat, G 2011, 'Wellness tourists: in search of transformation', *Tourism review*, vol. 66, no. 1/2, pp. 16-30.
- Vu, TTN 2021, 'Understanding validity and reliability from qualitative and quantitative research traditions', *VNU Journal of Foreign Studies*, vol. 37, no. 3.
- Vystoupil, J, Šauer, M & Bobková, M 2017, 'Spa, spa tourism and wellness tourism in the Czech Republic', *Czech Journal of Tourism*, vol. 6, no. 1, pp. 5-26.
- Wang, J-H, Feng, H & Wu, Y 2020, 'Exploring key factors of medical tourism and its relation with tourism attraction and re-visit intention', *Cogent social sciences*, vol. 6, no. 1, p. 1746108.
- Wang, P-C, Song, Q-C, Chen, C-Y & Su, T-C 2023, 'Cardiovascular physiological effects of balneotherapy: focused on seasonal differences', *Hypertension Research*, vol. 46, no. 7, pp. 1650-61.
- Wang, W-C & Lin, C-H 2021, 'A Model for Sustainable Tourism Development of Hot Spring Destinations Following Poverty Alleviation: Understanding the Tourists' Perspective', *Sustainability*, vol. 13, no. 17, p. 9856, doi: 10.3390/su13179856.
- Waterwise Queensland 2021, 'How did Aboriginal peoples manage their water resources' (Queensland Government), viewed 31st May 2021, <https://www.resources.qld.gov.au/__data/assets/pdf_file/0007/1408282/aboriginal-peoples-manage-water-resources.pdf>.
- Wells, EC, Lehigh, GR & Vidmar, AM 2020, 'Stakeholder engagement for sustainable communities', *The Palgrave Handbook of Global Sustainability*, pp. 1-13.
- Whittlesea, E, Becken, S, Jago, L & Pham, T 2019, A New Indicator Framework for Australia's Visitor Economy, *Griffith Institute for Tourism, Griffith University, Australia*, viewed 9th February 2022, <https://www.griffith.edu.au/__data/assets/pdf_file/0031/1363396/GIFT-Indicator-Framework-FINAL-Report-18.10.19.pdf>.
- Williams, C 2007, 'Research methods', *Journal of Business & Economics Research (JBER)*, vol. 5, no. 3.
- Wondirad, A & Ewnetu, B 2019, 'Community participation in tourism development as a tool to foster sustainable land and resource use practices in a national park milieu', *Land Use Policy*, vol. 88, p. 104155.

- World Tourism Organization 1996, What tourism managers need to know: A practical guide to the development and use of indicators of sustainable tourism, WTO, viewed 11th August 2022, < <https://www.e-unwto.org/doi/book/10.18111/9789284401505>>.
- 2004, Indicators of Sustainable Development for Tourism Destinations A Guidebook (English version), World Tourism Organization, viewed 11th August 2022, < <https://www.e-unwto.org/doi/book/10.18111/9789284407262>>.
- World Tourism Organization. 2023. Glossary of Tourism Terms, viewed 24th September 2023, <<https://www.unwto.org/glossary-tourism-terms#D>>.
- World Tourism Organization 2019, 'International Tourism Highlights 2019 Edition', viewed 16th February 2022, <<https://www.unwto.org/publication/international-tourism-highlights-2019-edition>>.
- 2023, *Tourism on track for full recovery as new data shows strong start to 2023*, viewed 28th July 2023, <<https://www.unwto.org/news/tourism-on-track-for-full-recovery-as-new-data-shows-strong-start-to-2023>>.
- n.d *Sustainable Development* viewed 14th October 2023, <<https://www.unwto.org/sustainable-development>>.
- World Tourism Organization; *European Travel Commission 2018*, Exploring Health Tourism – Executive Summary, Madrid, viewed 25th September 2023, doi: 10.18111/978928442030.8.
- Xin, S, Tribe, J & Chambers, D 2013, 'Conceptual research in tourism', *Annals of Tourism Research*, vol. 41, pp. 66-88.
- Yin, RK 2003, 'Designing case studies', *Qualitative Research Methods*, vol. 5, no. 14, pp. 359-86.
- Zajac, D 2021, 'Inhalations with thermal waters in respiratory diseases', *Journal of Ethnopharmacology*, vol. 281, p. 114505.
- Zhuang, X, Yao, Y & Li, J 2019, 'Sociocultural impacts of tourism on residents of world cultural heritage sites in China', *Sustainability*, vol. 11, no. 3, p. 840.

INFORMATION TO PARTICIPANTS INVOLVED IN RESEARCH

You are invited to participate

You are invited to participate in a research project entitled **Measuring and assessing the socio-cultural, environmental and economic impacts of hot springs: Case study hot springs in regional Australia.**

This project is being conducted by a student researcher Gaele Hugues Gregoire Joson as part of a PhD study at Victoria University under the supervision of Dr. Joanne Pyke and Professor Terry DeLacy from the College of Business and Mr. Charles Davidson from Peninsula Hot Springs.

Project explanation

The aim of the proposed research is to explore the socio-cultural, environmental, and economic impacts of Australian Hot Springs in regional destinations and to identify how these impacts can be measured. This will be achieved through investigating the emergence of the hot springs industry in Australia, to develop a set of indicators as tool to measure the impacts of hot springs and to provide a base line for longitudinal measurement of hot springs operations both in Australia and globally.

The indicators will be developed through the use of the Delphi technique (Dalkey & Helmer 1963) and will be tested in up to ten hot spring destinations across regional Australia. The aim is to refine a universal set of indicators which will be valid for any hot springs' sites, enable comparison between hot springs developments and provide a benchmark for performance measurement.

What will I be asked to do?

The Delphi technique is used to gather trustworthy information from a panel of experts in the field of research through a series of questionnaires. Up to four questionnaires will be sent on successive rounds which will take approximately 30 minutes each time to respond to. The questionnaire will be sent by email where you will have up to 3 weeks to respond, at a time and date convenient to you. The responses to the questionnaire should be sent back via email. Between rounds, responses will be communicated to help formulate questionnaires for the next round until consensus is met. You are encouraged to deeply reflect on the questions or/and scenarios and provide an honest opinion.

What will I gain from participating?

Your valuable input in this research will help develop a set of indicators to measure the impacts of hot springs. With your participation, this study could set the benchmark to develop a universal set of indicators specific to hot springs.

How will the information I give be used?

The information received will be only used for the purpose of the research.

What are the potential risks of participating in this project?

There are no potential risks for any participants at this stage.

How will this project be conducted?

This research will comprise of two phases where firstly the Delphi technique will be used to develop an indicator set specific to hot springs and secondly the developed indicators will be used and tested in up to ten hot springs developments in regional Australia. Including a case study approach will support the findings in the testing phase hence contributing to the industry.

Who is conducting the study?

Researcher:

Gaelle Hugues Gregoire Joson – PhD candidate

Email: marie.huguesgregoirejoson@live.vu.edu.au

Supervisors:

Principal Supervisor

Dr. Joanne Pyke, Victoria University; College of Business.

Email: joanne.pyke@vu.edu.au

Associate Supervisor

Prof. Terry DeLacy, Victoria University; College of Business.

Email: terry.delacy@vu.edu.au

Industry Supervisor

Adjunct Professor. Charles Davidson, Chairman, founder and Creative Director of Peninsula Hot Springs.

Email: charles.davidson@peninsulahotsprings.com

Any queries about your participation in this project may be directed to the Chief Investigator listed above.

If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, VIC, 8001, email researchethics@vu.edu.au or phone (03) 9919 4781 or 4461.



CONSENT FORM FOR PARTICIPANTS INVOLVED IN RESEARCH

INFORMATION TO PARTICIPANTS:

Due to your expertise and knowledge of hot springs planning and operations, I would like to invite you to be a part of a panel of experts to inform a study "Measuring and assessing the socio-cultural, environmental, and economic impacts of hot springs: Case study hot springs in regional Australia".

The aim of the proposed research is to explore the socio-cultural, environmental, and economic impacts of Australian Hot Springs in regional destinations and to identify how these impacts can be measured. This will be achieved through investigating the emergence of the hot springs industry in Australia, to develop a set of indicators as tool to measure the impacts of hot springs and to provide a base line for longitudinal measurement of hot springs operations both in Australia and globally.

The indicators will be developed by a series of questionnaires. It is hoped that you will be able to participate in each of the questionnaires that will inform the indicators. Combining the expertise of the expert panel, the aim is to refine a universal set of indicators which will be valid for any hot springs' sites, enable comparison between hot springs developments and provide a benchmark for performance measurement.

As a participant, you will be asked questions about the emergence of hot springs industry and its impacts on communities, environment, and the economy. The questionnaire will take approximately 30 minutes.

There is no risk for you to participate in this project and the information received will only be used for the purpose of this research.

CERTIFICATION BY PARTICIPANT

I,
of

certify that I am at least 18 years old* and that I am voluntarily giving my consent to participate in the study: **“Measuring and assessing the socio-cultural, environmental and economic impacts of hot springs: Case study hot springs in regional Australia”** being conducted at Victoria University by Gaelle Hugues Gregoire Joson.

I certify that the objectives of the study, together with any risks and safeguards associated with the procedures listed hereunder to be carried out in the research, have been fully explained to me by Gaelle Hugues Gregoire Joson and that I freely consent to participation involving the below mentioned procedures:

- Participating in a series of in-depth questionnaires (up to 4 questionnaires) using the Delphi technique which will be sent across four time periods.

I certify that I have had the opportunity to have any questions answered and that I understand that I can withdraw from this study at any time and that this withdrawal will not jeopardise me in any way.

I have been informed that the information I provide will be kept confidential.

Signed:

Date:

Any queries about your participation in this project may be directed to:

Researcher:

Gaelle Hugues Gregoire Joson – PhD candidate

Email: marie.huguesgregoirejoson@live.vu.edu.au

Supervisors:

Principal Supervisor

Dr. Joanne Pyke, Victoria University; College of Business.

Email: joanne.pyke@vu.edu.au

Associate Supervisor

Prof. Terry DeLacy, Victoria University; College of Business.

Email: terry.delacy@vu.edu.au

Industry Supervisor

Mr. Charles Davidson, founder and CEO of Peninsula Hot Springs.

Email: charles.davidson@peninsulahotsprings.com

If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, VIC, 8001, email Researchethics@vu.edu.au or phone (03) 9919 4781 or 4461.

Appendix C: Round 1 – Delphi Technique

Expert panel using the Delphi Technique

Round 1

Background of the research

The growth in interest in the wellness paradigm has emerged due to its aims to promote the health and well-being of individuals and communities as complementary to the traditional medical model of health care which aims to treat, rather than prevent illness. Prompted by this interest, 'wellness tourism' is now a major and global growth industry. Hot springs are an important element of the sector and have always been present in Australia. They are also a rapidly emerging sector of the visitor economy with the development of multiple new hot springs currently in the planning and development phases. Given its stage of development, it is timely to measure the potential and impacts of this growth on communities, economies and the environment, however relevant indicators for measurement are currently lacking in the literature. The aim of the research is to address this gap and develop a set of indicators to measure and assess the socio-cultural, economic and environmental impacts of hot springs.


Indicators have been described by the World Tourism Organisation as a way of measuring a change of progress towards achieving a specific outcome. The importance of developing indicators is to provide a baseline for businesses and destinations to measure and assess their performance and impacts on the economy, communities and the environment. Indicators that are specific to hot springs businesses will provide a unique, valid and reliable tool to measure their progress in the future. The goal of this research is to develop indicators to measure the impacts of hot springs which will be then tested in multiple hot springs destinations. While this research is undertaken in Australia, the aim is that they can be usefully applied globally.


This research will apply the Delphi technique which will call on the knowledge of experts to advise on indicators appropriate to hot springs as a tourism attraction. The Delphi technique was developed by Norman Dalek and Olaf Helmer in 1950's. This method involves the dissemination of a series of staged in-depth questionnaires to a panel of experts. Indicators will be based on initial expert advice which will be further developed after further consultation. There may be up to four rounds of consultation depending on the number of responses received or until consensus is met.

As an expert in the field of hot springs and/or indicator development, you are invited to respond to this questionnaire. Your input will assist in the development of a universal set of indicators specific to the measurement of hot springs businesses.

The researcher:

Gaëlle HUGUES GREGOIRE JOSON: PhD Candidate

 0431 890 138

 marie.huguesgregoirejoson@live.vu.edu.au

Supervisors:


Principal Supervisor

Dr. Joanne Pyke, Victoria University; College of Business.

 joanne.pyke@vu.edu.au


Associate Supervisor

Prof. Terry Delacy, Victoria University; College of Business.

 terry.delacy@vu.edu.au

Industry Supervisor

Prof. Charles Davidson, Founder, Chairman and Creative Director of Peninsula Hot Springs Group.

 charles.davidson@peninsulahotsprings.com

Consent and Confidentiality

Please confirm the following before starting the questionnaire:

- I agree to take part in the study.
- I have read the information about the study.
- I understand that I can withdraw from the study at any time.

I understand that I can contact the researcher at any point if any issue arises.

This research questionnaire [\(has been reviewed and approved\)](#) by Victoria University Human Research Ethics Committee.

The survey will take around 20 minutes to complete.

Your participation to this research project will be anonymous and your contact details will only be known by the researcher, Gaelle Hugues Gregoire Joson.

Defining key terms

The following questions refer to socio-cultural, economic and environmental impacts.

By socio-cultural impacts, I refer to the impacts that hot springs have on visitors or the local community. These impacts might relate to improved health and quality of life for example. Key measures might include factors such as longevity, subjective wellbeing and health and quality of life.

By economic impacts, I refer to the contribution of tourism/visitor activity to the economy of the region. This includes the potential economic benefits linked to hot springs' businesses and to the destination in which hot springs are located. The kind of measures I am looking at are visitor spending, employment rates and related economic changes to the destination in which the hot springs are located.

By environmental impacts, I refer to the effect of hot springs on the ecosystem. The kind of measures I am looking at are climate change and greenhouse gas (GHG) emissions, water usage, air/noise pollution, crowding, impact on biodiversity and rejuvenation or regeneration of the ecosystem.

Importance of Hot Springs and its impacts

Each of the following open-ended questions addresses various components of the importance of hot springs and its potential impacts in a destination. Please provide as many suggestions as you can.

1) If you are an owner or manager of a hot springs facility, what type of hot springs is it?

Private

Public

Both

N/A

Other

2) What contributions do you consider that hot springs make to the destination in which they are located?

3) a) What are the 3 most appropriate indicators you would use to measure the socio-cultural impacts of hot springs on its users/visitors?

b) What data or information would you use to measure the socio-cultural impact indicators you mentioned in 3a)?

4) a) What are the 3 most appropriate indicators you would use to measure the socio-cultural impacts of hot springs on a destination?

b) What data or information would you use to measure the socio-cultural indicators you mentioned in 4a)?

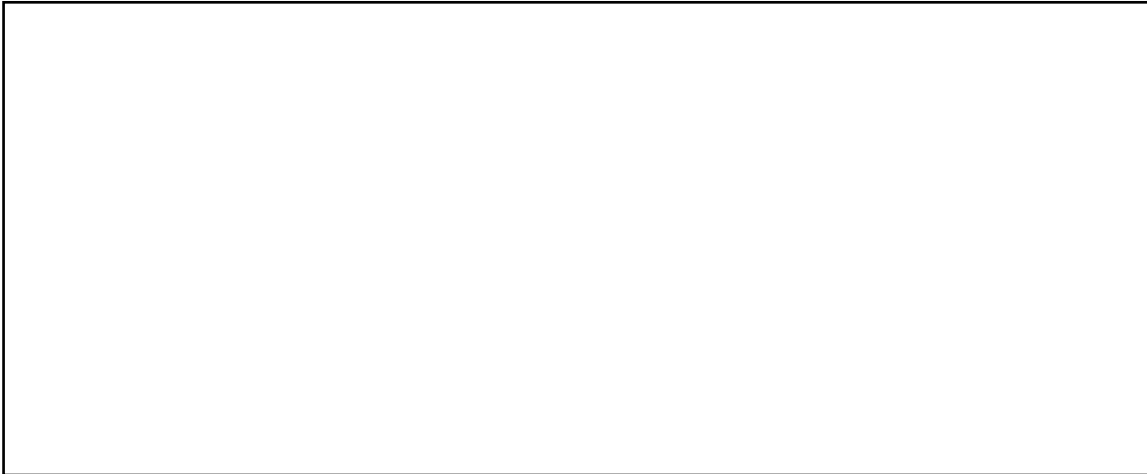
5) a) What are the 3 most appropriate indicators that you would use to measure the environmental impacts of hot springs on the destination?

b) What data or information would you use to measure environmental impact indicators you mentioned in 5a)?

6) a) What are the 3 most appropriate indicators that you would use to measure the economic impacts of hot springs on the destination.

b) What data or information would you use to measure economic indicators you mentioned in question 6a)?

7) If you have any additional comments or suggestions, please comment below:

A large, empty rectangular box with a thin black border, intended for users to provide additional comments or suggestions.

Thank you for your participation

Appendix D: Round 2 – Delphi technique

Round 2

Instructions

In Round 2, you are asked to rate and comment on a series of potential indicators to assess and measure the socio cultural, economic, and environmental impacts of hot springs on its users/visitors and the community. These potential indicators were informed by the relevant literature and your responses from the survey conducted in Round 1 during March, April and May 2021.

They are grouped under three sections:

- 1) Potential economic indicators
- 2) Potential environmental indicators, and
- 3) Potential socio-cultural indicators.

There are 31 potential indicators to rate. Please rate each one, and if you desire, state your opinions on the potential indicators.

A 5-point Likert scale (Not at all important, Low importance, Neutral, Slightly Important, Extremely important) is used for rating the answers, please choose only one score of the importance scale for each question.

Thanks for participating in our survey. We appreciate your feedback.

It will take approximately 10 minutes to complete.

Click the next button to get started.

Name:

Section 1 a) **Direct Economic Impacts:** Hot springs businesses have a direct economic impact on the community, its users/visitors and on the destination itself.

Please rate the following potential direct economic indicators and how it will be measured by importance. Comments (if any) on your rating.

| | Not important | Low importance | Neutral | Slightly important | Extremely important |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. Number of visitors to the hot springs' facility Measurement - Visitor Survey | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Average spend per visitor at the hot spring's facility Measurement - Economic Analysis from survey done by hot springs operators | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. Number of people employed in the hot springs facility Measurement - Annual report of hot springs' businesses | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. Number of visitors coming to the destination as a results of hot springs Measurement - Visitor Survey | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. Overnight stays as a results of hot springs Measurement - Visitor Survey | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

6. Total amount spent in the destination as a result of hot springs **Measurement** - Visitor Survey



7. Number of people employed as a result of hot springs **Measurement** - Economic Analysis



Section 1 b) **Indirect Economic Impacts:** Hot springs generate considerable indirect economic impact within their local region. The indirect economic impacts of hot springs on the region could be the average household income, the unemployment rate and number of businesses in the region. Please rate the following potential indirect economic indicators and how it will be measured by importance. Comments (if any) on your rating.

| | Not important | Low importance | Neutral | Slightly important | Extremely important |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 8. Average household income in destination Measurement - Local Government statistics | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9. % Unemployment in destination Measurement - Local Government statistics | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 10. Number of businesses in destination Measurement - Local Government statistics | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 11. Number of people attending activities, events and attractions in the destination as a result of hot springs Measurement - Community Survey | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Section 2 **Climate Change and Energy:** With the emergence of hot springs operators, it is important to assess its impact on climate change and how energy is being optimised and used. Potential environmental indicators were established to measure Greenhouse Gas (GHG) emissions as a result of hot springs, the aim of hot springs' operators to achieve a Net 0 by 2050 and the percentage of energy used. These indicators will support hot springs operators to track their environmental footprints.

Please rate the following potential environmental indicators and how it will be measured by importance. Comments (if any) on your rating.

| | Not important | Low importance | Neutral | Slightly important | Extremely important |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 12. Green House Gas (GHG) emissions per visitor as a results of hot springs operations Measurement - GHG emissions calculation from energy assessment by operator | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 13. Aims for Net 0 by 2050 Measurement - Plans towards this goal by hot springs operators | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 14. Percentage of energy used from renewables – Use of geothermal heat as energy Measurement - % of solar, wind, hydro energy, geothermal used by hot springs operators | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Waste: Monitoring waste is critical for hot springs' operators as it is a field for recreation and tourism. It will help assess the effectiveness of the waste reduction, amount of fresh water used per visitor and commitment to recycling.

Please rate the following potential environmental indicators and how it will be measured by importance. Comments (if any) on your rating.

| | Not important | Low importance | Neutral | Slightly important | Extremely important |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 15. Amount of solid waste to landfill divided by number of visitors Measurement - Waste assessment by hot springs operators | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 16. Commitment to circular economy (Recycling) Measurement - Objective of hot springs operators | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 17. Fresh water used per visitor Measurement - Waste assessment by hot springs operators | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Biodiversity: The active preservation, restoration and regeneration of the ecosystem are critically important for hot springs' operators and the industry. Assessing and measuring biodiversity involves the activities done by hot springs businesses to support wildlife, the programs towards offsetting carbon and any funding being done towards the regeneration of the ecosystem.

Please rate the following potential environmental indicators and how it will be measured by importance. Comments (if any) on your rating.

| | Not important | Low importance | Neutral | Slightly important | Extremely important |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <p>18. Positive aims of hot springs business around supporting wildlife</p> <p>Measurement - Objective of hot springs operators</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>19. Programs for forest covers</p> <p>Measurement - Reports on commitment taken by hot springs operators</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>20. Contribution (funding) to forest cover either onsite or elsewhere)</p> <p>Measurement - Reports on commitment taken by hot springs operators</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Section 3: **Direct impact on the health of hot springs' users and visitors:** The regular use of hot springs has been proven to have a direct impact on the benefits. Please rate the following potential socio-cultural indicators and how it will be measured by importance. Comments (if any) on your rating. health of its users/visitors. The aim of this indicator is to assess the correlation between regular use of hot springs with mental health and physical health

| | Not important | Low importance | Neutral | Slightly important | Extremely important |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 21. Purpose of visit Measurement - Visitor survey | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 22. Levels of anxiety and stress levels prior and post visit (Measure blood pressure prior and post visit) Measurement - Self assessment by visitor survey | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 23. Assessing improvement in sleep, benefits on skin and symptom relief of pain Measurement - Visitor survey | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Sense of wellbeing: Hot springs has often been advertised as promoting a sense of wellbeing and relaxation. The aim is to find any potential relationship between the use of hot springs and its users' sense of wellbeing prior and post visit.

Please rate the following potential socio-cultural indicators and how it will be measured by importance.

Comments (if any) on your rating.

| | Not important | Low importance | Neutral | Slightly Important | Extremely important |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 24. Sense of wellbeing after visiting hot springs Measurement - Visitor survey: Measure wellbeing using stress scales | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 25. Number of hot springs visitors/users satisfied of their experience Measurement - Visitor survey: Measuring hot springs visitors/ users' experiences using Net Promoter Score | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Socio-cultural Impacts at a community level

Health benefits at a community level: Hot springs has a socio-cultural impact on the local community in which they are located. It is important to assess whether or not hot springs has contributed towards community wellbeing, health and enhanced quality of life of its local residents. Please rate the

following potential socio-cultural indicators and how it will be measured by importance. Comments (if any) on your rating.

| | Not important | Low importance | Neutral | Slightly important | Extremely important |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 26. Average life span of residents in the destination compared to national averages Measurement - Local Government statistics | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 27. Percentage of locals using the hot springs in the region in a year Measurement - Visitor survey/ Local Government statistics | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 28. Percentage of people in the hot springs destination to go to hospital compared to other destinations Measurement - Community survey/ Local Government statistics | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

29. Percentage of people
in the hot springs'
destination suffering from
anxiety and destination

Measurement - Local
government statistics



Bathing culture of the region: With hot springs in the region, it is important to understand how bathing culture is represented in the region and how well hot springs' businesses are involved in the region.

Please rate the following potential socio-cultural indicators and how it will be measured by importance. Comments (if any) on your rating

| | Not important | Low importance | Neutral | Slightly important | Extremely important |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <p>30. Diversity and inclusion initiatives (people with disabilities/indigenous (Activities of hot springs around diversity) Measurement - Annual report/policies of hot springs businesses - CSR activities</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>31. Number of partnerships and engagement with tourism facilities in the region Measurement - Hot springs' partners survey</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Appendix E: Visitor Survey

Dear visitor,

You are invited to participate in this visitor survey which is designed to help identify the impacts of hot springs on the community, its users/visitors and on the destination in which the hot springs are located. This project is to explore the socio-cultural, environmental, and economic impacts of Australian Hot Springs in regional destinations and to identify how these impacts can be measured.

It will take approximately 10 minutes to complete.

Your participation in this study is completely voluntary. However, if you feel uncomfortable answering any questions, just ignore that question and go to the next question.

Your survey responses will be strictly confidential.

The deadline to complete the survey is the **15th of October 2022**.

Thank you for your time. Click on the **arrow** to continue.

1. Are you a resident of the **Shire of the Mornington Peninsula**?

Yes (1)

No (2)

Skip To: Q10 If Q1 = Yes

2. Do you own a second home in the **Shire of the Mornington Peninsula**?

Yes (1)

No (2)

Prefer not to say (3)

Skip To: Q4 If Q2 = Yes

3. How many times have you visited the **Shire of the Mornington Peninsula** in the past year?

- Once (4)
- 2 times (5)
- 3 times (6)
- 4 - 8 times (7)
- More than 8 times (8)

4. What was the main reason for visiting the **Shire of the Mornington Peninsula**? Please select as many options as possible that apply.

- Holidays, leisure and recreation (1)
- Visiting friends and relatives (2)
- Education and training (3)
- Health and medical care (4)
- Shopping (6)
- Transit (13)
- A special event (festival/entertainment/sport) (14)
- Employment (15)
- Business or professional (16)

Other, Please specify (17)

5. On your most recent visit/s to the **Shire of the Mornington Peninsula**, how long did you stay?

Day trip only (1)

1 night (2)

2 nights (6)

3 nights (7)

4 nights (8)

5 nights (9)

6 nights (10)

more than 7 nights, please specify how many nights (5)

6. In what type of accommodation did you stay overnight?

- Hotel/resort (1)
 - Rented apartment/unit (2)
 - Motel/guesthouse (3)
 - Airbnb/house rental (4)
 - Caravan Park/Camping/Glamping (5)
 - Friends' property (6)
 - Family holiday home (8)
 - Other accommodation, please specify (7)
-

7. How many people (including yourself) are/were in your immediate travelling party?

- One – only me (1)
 - Two (2)
 - Three (3)
 - Four (4)
 - Five or more, please specify (5)
-

8. During your visit, approximately how much money (in AUD) did your immediate party travel spend on travel and daily living expenses within the ***Shire of the Mornington Peninsula***?

Transportation (including fuel if a private car) : _____ (1)

Accommodation : _____ (2)

Package travel, package holidays and package tours : _____ (3)

Recreation, culture and sporting activities : _____ (4)

Shopping : _____ (5)

Wellness activities (spas, massages) : _____ (6)

Food + Beverages : _____ (7)

Total : _____

9. How likely are you to recommend visiting the *Shire of the Mornington Peninsula* to a friend or colleague?

0 (0)

1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

7 (7)

8 (8)

9 (9)

10 (10)

10. How many times have you visited Peninsula Hot Springs in the past year?

- Once (4)
- 2 times (5)
- 3 times (6)
- 4-8 times (7)
- More than 8 times (8)

11. What was the main reason for visiting **Peninsula Hot Springs**? Please select as many options as possible that apply.

- To relax and unwind (1)
 - Activity with friends and family (6)
 - To experience and discover what the hot springs has to offer (7)
 - A romantic/recreational time with my partner or close friend (8)
 - For health purposes (e.g. to relieve pain) (9)
 - To meet people (10)
 - Other, please specify (5)
-

12. During your visit, approximately how much money (in AUD) did you personally spend on daily expenses within **Peninsula Hot Springs**?

Entrance fee : _____ (11)

Accommodation : _____ (2)

Shopping - gift shop : _____ (5)

Wellness activities (spa treatments, activities) : _____ (6)

Food + Beverages : _____ (7)

Total : _____

13. How many people from your immediate travel group went to **Peninsula Hot Springs**?

One - only me (1)

Two (2)

Three (3)

Four (4)

Five or more, please specify (5)

14. Other than visiting **Peninsula Hot Springs**, what other key activities, events and/or attractions did you attend in the **Shire of the Mornington Peninsula**? Please specify.

17. Which of the following observable improvement in your health did you experience after visiting the hot springs? Please select as many options as possible that apply.

- Better sleep (1)
 - General skin improvement (2)
 - Relief of joint pain (arthritis) (3)
 - Feeling relaxed (4)
 - None (6)
 - Other, please specify (5)
-

18. How likely are you to recommend **Peninsula Hot Springs** to a friend or colleague?

0 (0)

1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

7 (7)

8 (8)

9 (9)

10 (10)

19. What is your gender?

Male (1)

Female (2)

Non-binary (3)

Prefer not to say (4)

20. What is your age group?

18 - 29 years old (1)

30 - 39 years old (2)

40 - 49 years old (3)

50 - 59 years old (4)

60 or more years old (5)

Prefer not to say (6)

21. What is your occupation?

22. Please state your annual income in AUS dollars

- Under \$18, 200 a year (1)
- \$ 18,201 to \$37, 000 a year (2)
- \$ 37, 001 to \$ 90,000 a year (3)
- \$ 90, 001 to \$ 180, 000 a year (4)
- Over \$180, 000 (5)

23. Postcode (or country name if outside of Australia)

24. What languages do you speak or use at home?

- English (1)
- Mandarin (2)
- Arabic (3)
- Cantonese (4)
- Vietnamese (5)
- Italian (6)
- Hindi (7)
- Other, Please specify (8) _____

End of Survey

We thank you for your time spent taking this survey.

Your response has been recorded.