PERCEPTIONS AND PREPAREDNESS OF THE TOURISM WORKERS LINKED TO CLIMATE CHANGE AND COVID-19 IN BARBADOS

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A Thesis Submitted in Partial Fulfillment of the Requirements
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การรับรู้และเตรียมพร้อมของผู้ประกอบการท่องเที่ยวต่อสภาพภูมิอากาศที่เปลี่ยนแปลงและการแพร่ระบาดของการระบาดของโรคติดเชื้อไวรัสโคโรนา 2019 ในประเทศบาร์เบโดส

น.ส.นาตาชา พริสซิลลา เมเยอร์

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นาตาชา พริสซิลลา เมเยอร์ :

การรับรู้และเตรียมพร้อมของผู้ประกอบการท่องเที่ยวต่อสภาพภูมิอากาศที่เปลี่ยนแปลงและการแพร่ระบาดของการระบาดของโรคติดเชื้อไวรัสโคโรนา 2019 ในประเทศบาร์เบโดส. (PERCEPTIONS AND PREPAREDNESS OF THE TOURISM WORKERS LINKED TO CLIMATE CHANGE AND COVID-19 IN BARBADOS) อ.ที่ปรึกษาหลัก : ผศ. ดร.สุทธิรัตน์ กิตติพงษ์วิเศษ

อุตสาหกรรมการท่องเที่ยวนับเป็นภาคส่วนสำคัญต่อการพัฒนาเศรษฐกิจในประเทศเขตทะเลแคริบเบียน รวมถึงเกาะบาร์เบโดส ดังนั้น แนวคิดการท่องเที่ยวที่ยั่งยืนนับเป็นหลักการสำคัญที่สนับสนุนเป้าหมายการพัฒนาที่ยั่งยืน เช่นเดียวกับที่ปรากฏไว้ในแผนแม่บทการท่องเที่ยว (พ.ศ. 2556-2524) ของบาร์เบโดส วัตถุประสงค์ของการวิจัยนี้คือ การสำรวจมุมมองของแรงงานและผู้มีส่วนได้ส่วนเสียที่มีต่อประเด็นความยั่งยืนด้านการท่องเที่ยวโดยเฉพาะผลกระทบจากการแพร่ระบาดของ COVID-19 และการเปลี่ยนแปลงสภาพภูมิอากาศ และศึกษาความสัมพันธ์ระหว่างปัจจัยส่วนบุคคลที่มีผลต่อการรับรู้และการรับมือของผลกระทบจากภัยเสี่ยงดังกล่าว สำหรับวิธีการศึกษาวิจัย ได้แก่ การสำรวจด้วยแบบสอบถามของพนักงานภาคการท่องเที่ยว 430 คน (n=403) ร่วมกับการสัมภาษณ์แบบกึ่งโครงสร้างกับกลุ่มผู้มีส่วนได้ส่วนเสียด้านการท่องเที่ยว 10 คน ผลการศึกษาพบว่า การรับรู้และการตระหนักด้านผลกระทบของการเปลี่ยนแปลงสภาพภูมิอากาศและ COVID-19 มีผลโดยตรงต่อระดับการเตรียมความพร้อม เนื่องจากผู้ตอบแบบสอบถามบางคนขาดความรู้ในหัวข้อดังกล่าวจึงไม่ทราบวิธีในการเตรียมพร้อมรับมือต่อความเสี่ยงดังกล่าว ผู้ตอบแบบสอบถามส่วนใหญ่เห็นด้วยว่าการเปลี่ยนแปลงสภาพภูมิอากาศเพิ่มโอกาสการเกิดเหตุการณ์สภาพอากาศที่รุนแรง ประมาณร้อยละ 38 ของผู้ตอบแบบสอบถามไม่เห็นด้วยกับการเตรียมรับมือกับปัญหาการเปลี่ยนแปลงสภาพภูมิอากาศในการทำงาน สำหรับมุมมองเกี่ยวกับวิกฤต COVID-19 พบว่า ประมาณครึ่งหนึ่งของผู้ตอบแบบสอบถามมีการรับรู้ความเสี่ยงระดับสูงต่อ COVID-19 แม้ว่าผู้ตอบแบบสอบถามส่วนใหญ่เชื่อว่า COVID-19 ส่งผลกระทบต่ออุตสาหกรรมการท่องเที่ยวในบาร์เบโดสมากกว่าการเปลี่ยนแปลงสภาพภูมิอากาศ แต่บางส่วนของผู้ตอบแบบสอบถาม (ร้อยละ 1-18) ระบุว่ามีพร้อมที่จะจัดการกับปัญหาการระบาดของ COVID-19 ในการทำงาน ขณะเดียวกัน ผลวิเคราะห์สถิติด้วยวิธี Kruskal-Wallis และ Mann-Whitney พบว่าไม่มีความแตกต่างอย่างมีนัยสำคัญระหว่างเพศและกลุ่มอายุของผู้ตอบแบบสอบถามกับปัจจัยด้านการเตรียมความพร้อมต่อการเปลี่ยนแปลงสภาพภูมิอากาศและ COVID-19 นอกจากนี้ผลการสัมภาษณ์ของผู้มีส่วนได้ส่วนเสียพบว่าปัญหาการเปลี่ยนแปลงสภาพภูมิอากาศและ COVID-19 นับเป็นประเด็นสำคัญต่ออุตสาหกรรมการท่องเที่ยวในบาร์เบโดส โดยข้อเสนอแนะของการศึกษาครั้งนี้ ได้แก่ การส่งเสริมให้ภาคนโยบายให้ข้อมูลและความรู้และกลไกความร่วมมือที่เกี่ยวข้องในการจัดการความเสี่ยงของภัยต่างๆ ระหว่างผู้มีส่วนร่วมทุกภาคส่วน เนื่องจาก ข้อจำกัดทางการเข้าถึงทรัพยากรและโอกาสต่างๆของเกาะบาร์เบโดส การพัฒนาอุตสาหกรรมการท่องเที่ยวจึงมีส่วนสำคัญในการส่งเสริมการพัฒนาอย่างยั่งยืนในภาคส่วนอื่นได้ทางหนึ่ง

สาขาวิชา	สิ่งแวดล้อม การพัฒนา และความยั่งยืน	ลายมือชื่อนิสิต .....
ปีการศึกษา	2564	ลายมือชื่อ อ.ที่ปรึกษาหลัก .....

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The tourism industry is one of the main economic earners in the Caribbean and such is the same for the island of Barbados. With the focus on sustainable development goals and overall sustainability, tourism sustainability is at the forefront of discussions pertaining to sustainable development. The Tourism Master Plan (2013-2024) has taken it a step further and equated tourism sustainability to environmental sustainability. The aim of this research was therefore to explore the perceptions of workers and stakeholders on tourism sustainability in relation to COVID-19 and climate change, whether factors such as demographics can affect these perceptions and provide informed recommendations based on the results. A mixed-method approach was applied where 403 frontline tourism workers took a virtual survey and semi-structured interviews were conducted with 10 tourism stakeholders. Key findings indicate that perceptions and awareness on the topics of both climate change and COVID-19 do directly affect levels of preparedness as some responders noted a lack of knowledge on the subjects made them unaware of what to be prepared for. Most of the respondents agreed that climate change increases the probability of extreme weather events. Approximately, 38% showed disagreement that they are preparing to deal with climate change related issues in their work. Regarding to their perception on COVID-19 crisis, more than 50% of the respondents strongly agreed that they are in a high-risk group for COVID-19. Although most of the respondents believe that COVID-19 will continue to have a greater impact on the tourism industry in Barbados than climate change, very few respondents (1-18%) strongly agreed and agreed that they are prepared to deal with COVID-19 pandemic related issues in their work. The results of Kruskal-Wallis test and Mann-Whitney test found that there were no significant differences between preparedness actions for climate change and COVID-19 with regards to gender and age groups of the respondents. Besides, the key results of stakeholder interviews (n=10) revealed that stakeholders were informed to the extent of knowing the areas that affected their position within the industry directly. Recommendations include policies towards better information dissemination to all involved parties and constant interaction and cooperation. As a small island developing state Barbados has limited resources and opportunities, developing a sustainable tourism industry can serve to foster sustainable development practices in other sectors across the island.

Field of Study:	Environment, Development and Sustainability	Student's Signature .....
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CHAPTER 1

INTRODUCTION

1.1 Problem statement

Barbados, an island located 3°10' north of the equator, and 59°32' west of the Prime Meridian, is the easternmost island of the Lesser Antilles in the Caribbean and spans an area of 430km^2. According to World Bank data, as of 2020, Barbados has a population of 287,371. Similar to many of its Caribbean brothers and sisters (particularly those of the Lesser Antilles), Barbados is highly dependent on the tourism industry. In 2020, according to data provided by the United Nations Development Programme (UNDP), travel and tourism contributed 17.7% to the Gross Domestic Product (GDP) of Barbados and accounts for 33% of the island's workforce. The World Travel and tourism council (WTTC) however, suggest that the actual contributions to GDP are closer to 31% rather than 17%. This decrease can be attributed to the COVID-19 pandemic which stilted travel all over the world due to lockdowns, border closures, etc.

Ultimately, it can be determined through these figures that the tourism industry is of great economic and social importance to the island and even contributes to its economic development (Potter, 1983). This is why the recent COVID-19 pandemic, and the looming negative effects of climate change are a matter of concern to the industry, the island and its people on a whole.

1.1.2 Climate Change

Evidence of these climate impacts can be noted year by year, particularly during the Atlantic Hurricane season. Almost every year in recent times the National Oceanic and Atmospheric Administration predicts an active hurricane season which has held true and also become increasingly worse over the last few years. The most devastating storm in recent times in the region was Hurricane Dorian, a category 5 level hurricane which sat on the islands of the Bahamas for two days. The devastation from that storm led to an estimated $3.4 billion US dollars in damages and 74 deaths in the Bahamas

alone. A smaller, but also worrying impact of climate change to Barbados and other islands in the Caribbean is the effect the warmer waters have had on the coral surrounding the islands. Warmer waters, due to climate change, have led to the bleaching of the coral and coral deaths. This effect goes beyond simply aesthetics (as tourists enjoy snorkelling to view the coral), it is also a matter of safety as coral reefs also serve to protect coastlines from erosion and as a buffer to storms. Additionally, the warmer waters have also led to a rise in sea levels which puts islands, in particular, at risk. Islands such as Barbados which has a generally flat topography are at great risk to rises in sea levels. However, the stability and fragility of this industry has been called into question numerous times. By its geographic location alone, the island of Barbados is at risk every year due to natural disasters during the hurricane season. In this year alone Barbados was hit by its first hurricane in 65 years, a “freak storm” which cause insurmountable damage and large amounts of ashfall due to the eruption of a volcano on a neighbouring island.

1.1.3 COVID-19

The COVID-19 pandemic has dealt a direct blow to the tourism industry globally. Thus, islands in the Caribbean like Barbados, have been heavily impacted due to the lockdowns within our own countries and in the countries of visitors. This resulted in heavy restrictions in travel and consequently many businesses (hotels, restaurants, guide tours, etc.) in the tourism industry closing its doors simply because there were no tourists to cater to. As of November 2021, Barbados has undergone two lockdowns, most recent in February 2021 and has been subject to curfews to limit the movement of persons. The true unforeseen challenge of the virus in the initial stages appeared in the fight to get persons vaccinated. The reluctance appeared to be high initially among citizens to get vaccinated, even among those working in the tourism industry and unlike other neighbouring nations, vaccinations were not mandatory. Fast forward to June 2021 when the first 3 cases of the Delta variant of the coronavirus were confirmed on island. Cases were now spiking to levels even higher than those which caused the two former lockdowns however the island was grappling with the financial burden and could not afford another lockdown. The Delta variant has since waged war on the

island's population and caused the worst surge in cases since the beginning of the pandemic as can be seen in Figure 1.1.

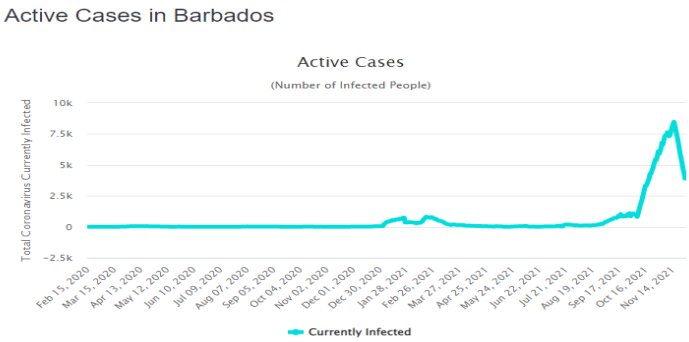

Figure 1.1 Active Coronavirus Cases in Barbados (Worldometer, 2021)

1.2 Research Background

The question of the sustainability of the tourism industry is rooted in the history of the Caribbean region and the development of the industry in the region as it is known today. The current, widely applied tourism model in Barbados (and much of the Caribbean) is that of "the Sun, Sea and Sand model" which dates back to the 1890s. With the abolishment of slavery in the 1830s of the British Caribbean islands and the rise of the use of steam engines, this facilitated easier, faster and cheaper water travel. Tourists from European and American countries grew interest in travelling to these beautiful islands that they heard so much about from former plantation owners and others.

The Sun, Sea and Sand model in the Caribbean can be traced back to one man, Lorenzo Baker. Baker owned the United Fruit Company which shipped bananas from the coast of Jamaica to the eastern seaboard of the United States of America. Baker came up with the idea to fill his empty ship heading to Jamaica with tourists (where they would experience five days at sea) and upon landing enjoy a hotel holiday in Port Antonia in Jamaica. Baker even went on to build his own hotel which boasted 150 rooms, an unprecedented number for that time. Having previously been colonised by

the British, Barbados' largest tourism market stems from England who have dubbed the island "Little England" due to the many similarities in architecture left during the period of colonisation and the sense of familiarity they have with certain aspects of the culture again inherited from that time. These tourists normally venture to the island shores of Barbados to enjoy the sun, sea, sand for which it is known and cannot find back home.

However, while persons may be aware of the topic of climate change, there is a question as to whether there is the understanding of the importance of the impacts of climate change particularly to the tourism industry in Barbados and why there is need for better education and understanding on the topic. The currently existing "Climate Change Unit" in the government of Barbados, operates under the Ministry of Agriculture and Food Security and mainly deals with the impacts of climate change with respect to agriculture on the island. This of course ignores many other important aspects in relation to the current and potential impacts of the climate crisis on the island. However, there is in existence the Ministry of Environment and Natural Beautification, who, as part of its mission aims to promote the sustainable use of the island's natural resources as well as education and sensitisation on the topic of climate. However, the question still remains whether Barbadians understand the meaning of climate change.

Regarding to COVID-19 outbreak, although the initial stilting of the vaccination drive was due to being unable to source available vaccines as a small island developing state in the race for vaccines, as previously stated, the initial reluctance on the part of citizens to get vaccinated has negatively affected this movement. The slow vaccination process has also been linked to the rapid spread of the Delta variant on the island which has also been blamed for the rapid rise in cases and the increased rate of deaths. Apart from the statistics collected on cases and deaths related to the virus, there has not been a study on the thoughts or perceptions of the people on the virus and/or the vaccine on the island.

This thesis therefore seeks to explore the thoughts and opinions on the sustainability of the tourism industry of those most directly affected by it, the men and women who currently work within the industry. This question is definitely a matter of importance and concern to these individuals as it directly affects their livelihood and consequently the economic livelihood of the island as whole. Also, conversely how

these thoughts and opinions of workers in the industry in turn affect the sustainability of the industry itself in relation to climate change and the COVID-19 pandemic. This research is necessary to add to ongoing studies in the area of climate change and COVID-19 in relation to the island of Barbados as studies in these areas are still severely lacking. Adding to the research helps to create a database of information which can be used by stakeholders to make informed decisions.

1.3 Research Objectives

Overall, the aim of this research is to explore the perceptions and preparedness of tourism workers on the sustainability of the tourism industry in Barbados in relation to the COVID-19 pandemic and climate change. Specific objectives are the following:

- To explore how demographic factors affect the perception and preparedness of the tourism workers to deal with COVID-19 and climate change.
- To determine how the perception and awareness of tourism workers directly affect preparedness of tourism industry to deal with COVID-19 and climate change.
- To provide recommendations to stakeholders in the tourism sector on the topic of sustainability with regard climate change and COVID-19.

1.4 Research Questions

The research questions then therefore are the following:

- Are there any relationships between demographic factors and preparedness of the tourism workers to deal with COVID-19 and climate change?
- Are Tourism industry workers in Barbados knowledgeable on the topics of climate change and COVID-19? To what extent?
- How this knowledge, or lack thereof, colours their perceptions on the sustainability of the tourism industry related to climate change and COVID-19 in Barbados?

- What recommendations can be made to policy makers and related stakeholders to deal with climate change impacts and also better adapt to this new normal and effectively develop a sustainable tourism industry?

1.5 Research Objectives and Questions Linkages

As shown in Table 1.1, the linkages between the research objectives and research questions are displayed.

Table 1.1: Research Objectives and Questions Linkages

Objective	Question
To explore how demographic factors affect the preparedness of the tourism workers to deal with COVID-19 and climate change	Are there any relationships between demographic factors and preparedness of the tourism workers to deal with COVID-19 and climate change?
To determine how the perception and awareness of tourism workers directly affect preparedness of tourism industry to deal with COVID-19 and climate change.	Are Tourism industry workers in Barbados knowledgeable on the topics of climate change and the COVID-19? What extent?
	How this knowledge, or lack thereof, colours their perceptions on the sustainability of the tourism industry related to climate change and COVID19 in Barbados?
To provide recommendations to stakeholders in the tourism sector on the topic of sustainability with regard climate change and COVID-19.	What recommendations can be made to policy makers and related stakeholders to deal with climate change impacts and also better adapt to this new normal and effectively develop a sustainable tourism industry?

1.6 Contributions to sustainability

The 1987 Brundtland commission of the United Nations defined sustainability as: “meeting the needs of the present without compromising the ability of future generations to meet their own needs”. A sustainable tourism industry by comparison is one which has longevity without comprising other industries for its continued existence. This research aims to identify how knowledge and awareness (or lack thereof) of these concepts can affect the sustainability of the industry. Also, by extension to determine what would be needed to achieve and practice sustainable tourism within the context of the island of Barbados.

1.7 Scope of study

The focus of this study will be in Barbados, however, due to the proximity of the other islands and the similarities in cultures, tourism industry structures, etc., the outcomes may very well be applicable to the other islands in Caribbean region, emphasising the importance of the research. The research targets tourism industry workers of eligible working age whether from the public or private sector. As most of the tourism entities are located on the west coast of the island (due to calmer beaches on the west coast), most of the data will be collected from industry workers who operate on the west coast.

CHAPTER 2
LITERATURE REVIEW

2.1 Climate change situations in Barbados

In the most recent Conference of the Parties 26 (COP26) in Glasgow, Scotland, talk of climate change and the frequently echoed need to limit global temperature rise to 1.5 degrees resurfaced. The need for this limitation ((Masson-Delmotte et al., 2018); (Tollefson, 2018) has been marked across academics and fields but also noted is how it has been affecting and even changing plant and animal life (Gramling, 2018); (Warren et al., 2018) and even our very health (Ebi et al., 2018); (Maibach et al., 2019); (McGushin et al., 2018). Of particular note in this most recent meeting is the rise of voices concerning the issues experienced by small island developing states (SIDS) such as Barbados and how these issues disproportionally affect SIDS, echoing the portended claim of "climate apartheid" by United Nations expert Philip Alston. A situation where smaller, less developed countries would suffer more due to their size, lack of economic stability and more from climate change despite contributing very little to the actual problem of it. Hence, the disappointment with the final outcome of COP26. As stated by the UN chief António Guterres, COP26, ended on a note of "compromise" and involved more political volleying with regard to climate issue whereas affirmative action is currently necessary. There is much work still to be done, the frustrations of which are expressed in Figure 2.1 below where agreements are made but not followed and without repercussions to the same.

Despite being at the frontline of the negative effects of climate change, the Caribbean along with the countries of Latin America contribute less than 10% of the total greenhouse gas emissions worldwide (Bárcena et al., 2010). International climate finance, an underlined matter of importance outlined within the Paris Agreement aimed to have richer countries raise money ($100 billion annually) to bestow to developing nations to put into effect climate mitigation measures. Unfortunately, this goal was not met. Barbados along with other nations across the world have made the pledge to achieve the seventeen sustainable development goals by 2030 and of importance to this

particular study are goals three – Good Health and Well-being, and thirteen – Climate Change. However, it is recognised that due to the existing interlinkages between the SDG's, to achieve one there is need to achieve all. Small island developing states like Barbados, have recognised and noted the effects of climate change and the pandemic within their landscapes and economies and realise the time for action is now. Policies and actions such as the single use plastic ban enacted on January 1, 2020 and the Roofs to Reefs Programme, a collaborative national resilience plan of which its aim is to address matters such as financial resilience and climate resilience collaboratively rather than separately, as one affects the other and are linked, similar to that of the SDG's. As small nations, action should be taken collaboratively to ensure progress and success. Of note to SIDS in particular, the lack of knowledge sharing and collaboration between parties have proven detrimental to progress in the area of climate change and mitigation (Mackay et al., 2019); (Rao & McNaughton, 2019). The freeness and awareness of the knowledge and the sharing of the knowledge would therefore have a direct impact on the outcome of actions taken.

Figure 2.1: Angry Earth (Czanner, 2021)

The already noted changes in SIDS attributed to climate change include but are not limited to: the increased levels of sargassum seaweed washing up on the shores of beaches due to warmer waters (Louime et al., 2017) which at those high levels

negatively affect the ecosystem of the shores and is accompanied by a rather displeasing odour. The large amounts of sargassum seaweed collected on shore has been a reality to Barbados' shores every year (except 2013) from 2011 to present. The rise in sea levels has also been attributed to warmer waters for which the IPCC (2007) projects at least a 0.18m increase or even as much as 0.59m which could lead to the disappearance or destruction of many coastal communities of which changes in the coastal infrastructure have already been witnessed. The changes in the coastal infrastructure also were experienced in Barbados which heralded the need for the Coastal Risk Management Programme (CRMP)[1]. The CRMP was a project partially funded by the Inter-American Development Bank (IDB) in collaboration with the Barbados Coastal Zone Management Unit and the Government of Barbados. The programme comprised of three components: Coastal Risk Assessment Monitoring and Management, Coastal Infrastructure and Institutional Sustainability for Coastal Zone Management.

While many scholars still debate whether climate change has a direct effect on the frequency of storms, it has been directly attributed to the intensity of those storms (Mann & Emanuel, 2006); (Holland & Bruyère, 2014); (Woodward & Samet, 2018) which is also noted by the intense storms recorded within the last decade during the Atlantic hurricane seasons. These and so much more have already been noted and impacted SIDS all over the world, Barbados included. In June, 2021, the island experienced what was labelled a "freak storm" during which 490 lightning strikes were recorded per minute and a total of 46,290 lightning strikes were recorded throughout the duration of the storm[2]. In addition, in July, 2021, Barbados was hit by its first hurricane (Elsa) in 65 years. Therefore, the results of climate change are very much present and operating in many different ways on the island.

2.2 COVID-19 pandemic in Barbados

The introduction of the COVID pandemic at the end 2019 along with the climate change woes only served to make an already desperate situation so much worse. From 2019 to present, countries across the world have experience wave upon wave of COVID-19 infections as the virus continuously mutates resulting in the deaths of over

five million people worldwide thus far. Barbados as of 16 December 2021 has recorded 255 deaths and unfortunate steep rise in the number of cases due to the introduction of the Delta variant as can be seen in Figure 2.2. The race to secure vaccines, ventilators, personal protective equipment and the like, once again favoured first world and developed countries, leaving developing countries to scramble to secure these items or to wait until they were restocked or donated.

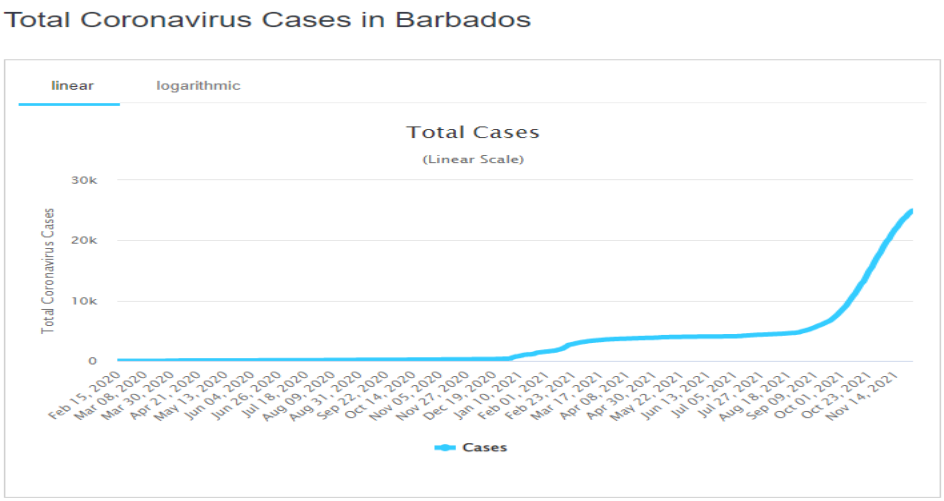

Figure 2.2: Total Coronavirus Cases in Barbados (Worldometer, 2021)

2.3 Significance of tourism industry

According to the Central Bank of Barbados, the tourism sector represents 17.5% of the island's Gross Domestic Product (GDP). However, the World Travel and Tourism Council (WTTC) estimates the actual contribution to be about 31% of the GDP as well as supports 33% of the island's jobs and this is in the formal sector. Climate change and the COVID-19 pandemic in relation to the sustainability of the tourism industry of the island therefore directly affects the livelihood of a large percentage of the island's people. Attempts at recovery forecasts of the tourism industry have shown the COVID-19 pandemic as a matter not easily dealt with due to the ever-evolving nature of the virus (Škare et al., 2021); (Zhang et al., 2021) thus rendering the tourism

industry unstable. For SIDS in the Caribbean like Barbados who depend greatly on tourism as a source of economic income, this presents a serious problem. The IDB has reported potential double digit decreases in Barbados' Gross Domestic Product (GDP) owing to the effects of COVID-19 on the tourism industry, one of the island's highest economic earners.

2.4 Theoretical contributions

In understanding what made the tourism industry in Barbados into what it is today, we need to first understand how it got there and why it stagnated (Figure 2.3). The Caribbean region has become synonymous with tourism, beautiful beaches and warm weather by tourists all over the world. Barbados, along with many of the other islands in the Caribbean have adopted the Sun, Sea and Sand model of tourism, encouraging tourists to come to enjoy the weather, beautiful beaches, etc. However, our tourism history has deep-seated roots in colonialism. Although all of the Caribbean islands were not colonised at the same time or by the same colonisers, the earliest colonisation in the region was in the 15th century and the latest to end their colonisation was in the 19th century (Lambert, 2017). Under colonisation, the islands were used as a means to support the industries of their colonial rulers as a form of "Colonial Division of Labour" (FRIEDMA & McMichael, 1989). Following the abolishment of slavery and many an island seeking independence, these islands found it difficult to compete with their first world international counterparts and experienced unbalanced predicaments under the constructs of neoliberalism. First coined in English by French economist Charles Gide, neoliberalism is the concept of a free market policy. That is, there are few or even non-existent regulations and other barriers to trade. At the surface level this may sound like fair and equal treatment as everyone within the free market is operating under the same rules, however, not all are operating from the same position or level of privilege as clearly illustrated in Figure 2.4 where different views (benefits) are afforded based on the differences in positions.

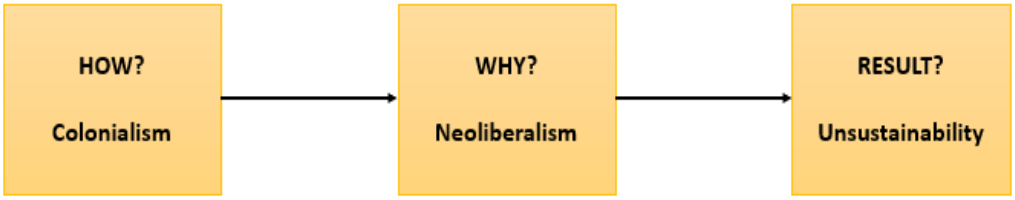

Figure 2.3: The Process

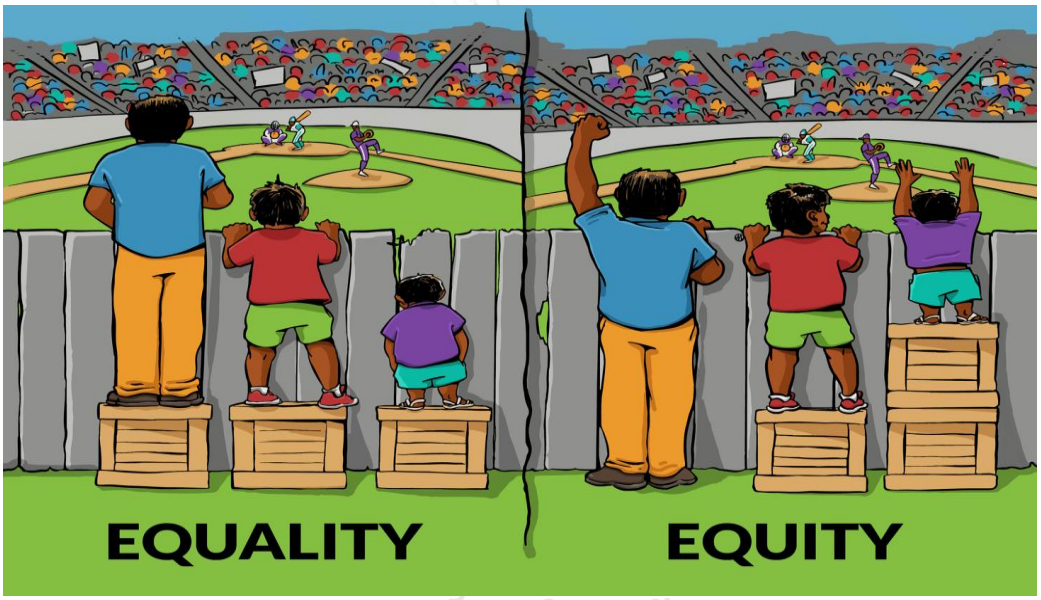

Figure 2.4: Equality, equity (n.d.)

This of course made for a difficult situation for Caribbean islands (particularly those without an access to oil). Loans were offered by agencies like the International Monetary Fund (IMF) and the World Bank in an effort to further develop the tourism industries of these islands, however, as formerly colonised islands operating within a free market against global superpowers, loans were taken to unfortunately pay other loans. Wong, (2015) noted in his paper on topic of continued colonial tourism remarked that neoliberalism made it easy for international corporations to take advantage of the weaknesses in the tourism industry on the islands. A side effect of this is tourism leakages. Studies have shown that as much as eighty percent of the money spent by tourists on the islands do not remain in the local economy but is moved by the

international agencies who own the hotels, cruises, resorts, etc. (UNEP). Gmelch (2012), further goes on to explain the concept of leakage as that which is left behind in the island after the international firms remove their earnings. According to the colonial tourism, Wong, (2015) noted that the very policies put in place by some of the islands keep them in that colonial state of being due to the dependency on tourism.

The effects of climate change and the COVID-19 pandemic have thrust into the spotlight the fragility of the tourism industry. If individuals are unable or unwilling to travel, you have no tourists and therefore no tourism. Added to this, another unfortunate outcome witnessed as a result of COVID-19 is the rise in xenophobia (Reny & Barreto, 2022); (Zeng et al., 2020); (Esses & Hamilton, 2021). This affects the human rights of tourists which would decrease the likelihood of them travelling to a place in which they feel threatened or unsafe. The very sustainability of the tourism industry therefore is dependent upon willingness and ability of its stakeholders to keep the industry running. The effects of climate change have placed under threat the very things (weather, beaches, etc.) which are used to attract tourists to the island to the extent where scholars are encouraging SIDS in the Caribbean to restructure the tourism industry (Ioannides & Gyimóthy, 2020); (Landell, 2021)to a more sustainable structure and the effects of the pandemic have further corroborated the need for this reconstruction (CEPAL, 2020); (Sheller, 2021); (B. Walker et al., 2021). Ricker et al., (2013) in their study making use of the Geoweb through volunteered geographic information (VGI) noted that citizens were aware of and could identify environmental impacts caused by climate change on the island or those with implications to the tourism industry. Some of these included: changes noted in wildlife in an area, coastal beach erosion, changes in tides, destruction of mangroves and more.

2.5 Previous studies and research gaps

The COVID-19 pandemic has presented a totally new situation to the world of tourism than with prior pandemics. Škare et al., (2021)noted that due to the evolving nature of the virus, collaborative efforts are needed by both the public and private sector in terms of action and policy in order to better assess and address the impacts on the industry. Botzen et al., (2021) echo the thoughts of UN expert Philip Alston in that

climate change will have a greater impact on vulnerable communities than others. They also recommend a collaborative approach, however, one such that the issues of climate change and COVID-19 are linked when presented to the general public as concern for COVID-19 is at a much higher level than that of climate change presently. That by linking the two, there could be a positive effect in the mitigation of both. This only further emphasises to SIDS like Barbados that it is not business as usual.

As previously shown, given the importance of the tourism industry to Barbados' economy and the effects of climate change to some of the mainstays of the industry (beaches, weather, etc.) research in the different aspects of tourism and climate change with relation to the island of Barbados has increased over the last two decades which is of course beneficial to the situation wholistically. Dharmaratne and Brathwaite, (1998) in recognition of the importance of the coast to the tourism industry saw merit in engaging in an economic valuation of coasts in an effort to sustain the prosperity of said coasts. P. Schuhmann et al., (2017) found that visitors said that were the quality and integrity of Barbados' coasts to deteriorate, it would be unlikely for them to return. Following this P. W. Schuhmann et al., (2019) noting the effects of climate change on the coasts sought to emphasise the importance of the coasts to the tourism industry and establish whether visitors would be willing to pay a marine conservation fee in an effort to preserve the coasts. The findings were such that visitors were inclined to paying a marine conservation fee as many were attracted to the island for its coasts. Also, while it has been argued for years that tourism contributes to economic growth (Archer, 1984); (Lorde et al., 2011) despite the leakages, Jackman (2012) argues conversely that the effects of a stable flourishing economy contribute to the development of the tourism industry.

Additionally, given the fairly new situation that is the COVID-19 pandemic, literature on the topic in regard to Barbados has been limited to the transparency of policy response from the government (Nicholls, 2020) with regard to the pandemic, mental health challenges experienced by residents due to the pandemic, as well general reports and impact assessments. There is definitely a dearth of literature on the pandemic in relation to the tourism industry. Additionally, there is a lack of scope on

literature of the thoughts of workers within the tourism on the topic of the industry's sustainability. This study aims to fill that gap.

Worthy of note to Barbados and also other SIDS, while the threat of climate change and the ongoing pandemic may make the current situation appear dire, this period can be used as an opportunity for transformation of the industry (Sigala, 2020) and further (continuous) need for research (Barouki et al., 2021) to better respond to this ever-evolving situation.

CHAPTER 3

RESEARCH METHODOLOGY

In this chapter, all research methodologies that will be used to explore the research topic are uncovered.

3.1 Case study

Figure 3.1: Map of the Caribbean (WorldAtlas, 2021)

As can be seen in Figure 3.1 above Barbados is the easterly most island situated in Caribbean chain of islands of the Lesser Antilles and completely surrounded by the Atlantic Ocean and not the Caribbean Sea as most often erroneously thought. Barbados has a total area of 430km^2 and a population of 287,371 according to the World Bank (2020). Despite being a SIDS the World Bank labels Barbados as being in the high-income level bracket. As can be seen in the Table 3.1 below, on data taken from Barbados' Country profile from the World Bank, 2020 saw a sharp decline in the annual percentage of GDP growth which can be attributed to the onset of the COVID-19 pandemic and the decline in the tourism industry.

Table 3.1: Barbados Country Profile – Economy (World Bank, 2020)

Economy	1990	2000	2010	2020
GDP (current US$) (billions)	2.01	3.06	4.53	4.37
GDP growth (annual %)	-3.3	4.4	-2.3	-17.6
Inflation, GDP deflator (annual %)	3.7	-1.3	3.8	1.7
Agriculture, forestry, and fishing, value added (% of GDP)	3	2	..	..
Industry (including construction), value added (% of GDP)	19	15	..	..
Exports of goods and services (% of GDP)	43	43	46	42
Imports of goods and services (% of GDP)	43	47	49	42
Gross capital formation (% of GDP)	15	18	16	16
Revenue, excluding grants (% of GDP)	..	28.3	26.6	..
Net lending (+) / net borrowing (-) (% of GDP)	..	-2.4	-7.8	..

3.1.1 Tourism Statistics

As has been previously mentioned, Tourism has become an essential industry to the Barbados economy, in terms of its contribution to the GDP and employment opportunities in the island. From the Table 3.2: Barbados Tourism Statistics below, you can see a breakdown of tourist arrivals in the country, contributions to the Gross National Product (GNP) and on average the amount of money a tourist spends during his/her stay. For classification purposes a tourist here is categorised as a person who spends at least one night but does not live on the island for more than twelve months and is not there for business purposes.

Table 3.2: Barbados Tourism Statistics (World Data, n.d)

Year	No. of Tourists	Receipts ($)	% of GNP	Income per Tourist ($)
2019	966,000			
2018	1.36m	1.13bn	22.12	830
2017	1.35m	1.08bn	21.70	803
2016	1.23m	1.07bn	22.17	873
2015	1.18m	974m	20.66	826
2014	1.08m	910m	19.38	843
2013	1.08m	988m	21.12	916
2012	1.05m	947m	20.54	899
2011	1.19m	984m	21.13	829
2010	1.20m	1.07bn	23.71	897
2009	1.15m	1.12bn	25.13	972
2008	1.17m	1.24bn	26.01	1,068
2007	1.19m	1.22bn	26.20	1,028
2006	1.10m	1.24bn	29.57	1,121
2005	1.11m	1.08bn	27.74	973
2004	1.27m	784m	22.31	616
2003	1.09m	767m	23.42	704
2002	1.02m	666m	21.01	652
2001	1.04m	706m	22.65	682
2000	1.08m	733m	23.48	680

3.1.2 Climate Change – Laws and Policies

Barbados has recognised the importance of the tourism industry to its economy and the threat that is climate change to that industry. Therefore, laws and policies have been enacted in an effort to protect this industry by encouraging eco-friendly practices and engaging in climate mitigating action. Some of these can be seen in Table 3.3 below.

Table 3.3: Barbados Climate Laws and Policies (LSE, n.d.)

Law	Details	Policies	Details
Electric Light and Power Act, 2013 and Electric Light and Power (Amendment) Act, 2015	The new version of the frees the power sector to independent producers to supply the country with power. It also includes targets such renewable energy as a primary energy source of over 30% by 2020.	"Roofs To Reefs" National Resilience Plan	Protection of the private and community roofs against extreme weather events, encouragement of the use of renewable energy source and other eco-friendly actions.
Income Tax (Amendment) Act, 2009	Income tax deductions related to the production of renewable energy, expenditure on energy audits, energy retrofitting and training in renewable energy and energy efficient systems for unemployed persons.	2021 Physical Development Plan (PDP)	Sustainable growth development with a focus on land use and infrastructure.
		National Policy Framework for MSMEs	Support to small and medium enterprises, particularly in the area of renewable energy sources.
		National Energy Policy 2019-2030	Government policy to achieve a fully renewable-powered grid and carbon neutrality by 2030.
		Barbados Comprehensive Disaster Management (CDM) Country Work Programme (CWP) 2019-2023	The plan was put in place in an effort to increase the country's resilience by strengthening national systems and processes for emergency and disaster risk management.
		National Climate Change Policy	Established in 2012 the policy aims to establish a national process for adaption, reduce greenhouse gas emissions, move towards renewable forms of energy and develop mechanisms to respond to climate change.
		The Barbados Sustainable Development Policy	The policy, established in 2004 is a comprehensive document addressing the socially, environmental and economic sustainability aspects in order to issue governmental strategies forward and sensitise Barbadians to sustainable development.

3.1.3 COVID-19 Protocols

Given the more recent nature of the COVID-19 pandemic, so far, there have been no laws and/or policies against COVID-19 but rather protocols that need to be adhered to. Protocols recommended by the World Health Organisation (WHO) on social distancing, vaccination and testing requirements in terms of travel and more. Blackman, et. al., (2020) of the IDB have recommended public policies that could be used to tackle COVID-19 in Latin America and the Caribbean.

3.2 Research conceptual framework

While climate change has been a topic of concern for decades, particularly to small island developing states such as Barbados, actual research done originating out of the island of Barbados into climate change and its effects on the island is quite dismal. Therefore, making it a fairly new topic to the island and its people. To more thoroughly approach the topic, the concept of the "research onion" (Saunders et al., 2019) will be applied. As shown in Figure 3.4 below, a five-step approach will be applied in exploring the research methodology in the approach to the research topic. These are the philosophies, research approach to theoretical development, research methods, research strategies and the data collection and analysis.

Besides this, on assessing individuals' response to climate change and COVID-19, the Protection Motivation theory (Rogers, 1975) will be applied. The Protection Motivation theory states that persons are motivated by or aim to protect themselves due to threat appraisals and coping appraisals. These threat and coping appraisals then determine the response (behaviour) individuals have in response to certain stimuli (Rogers & Prentice-Dunn, 1997). Simply put, how a person feels and the factors which motivate or influence them would have a direct impact on the choices they make and do not make. Chenoweth et al., (2009) in their study noted that the customers' awareness (fear) of spyware and other harmful technologies to their personal data and devices motivated them to download/use protective technologies in a bid to keep their data and devices safe. Therefore, their fear of something negative happening directly influenced their choice to download protective technologies to prevent said negative thing from happening.

Consequently COVID-19 and climate change pose a genuine threat to the tourism industry of Barbados and extensively the livelihood of Barbadian people. Therefore, through this study it was determined whether the requisite awareness (fear) was present to motivate the desired actions.

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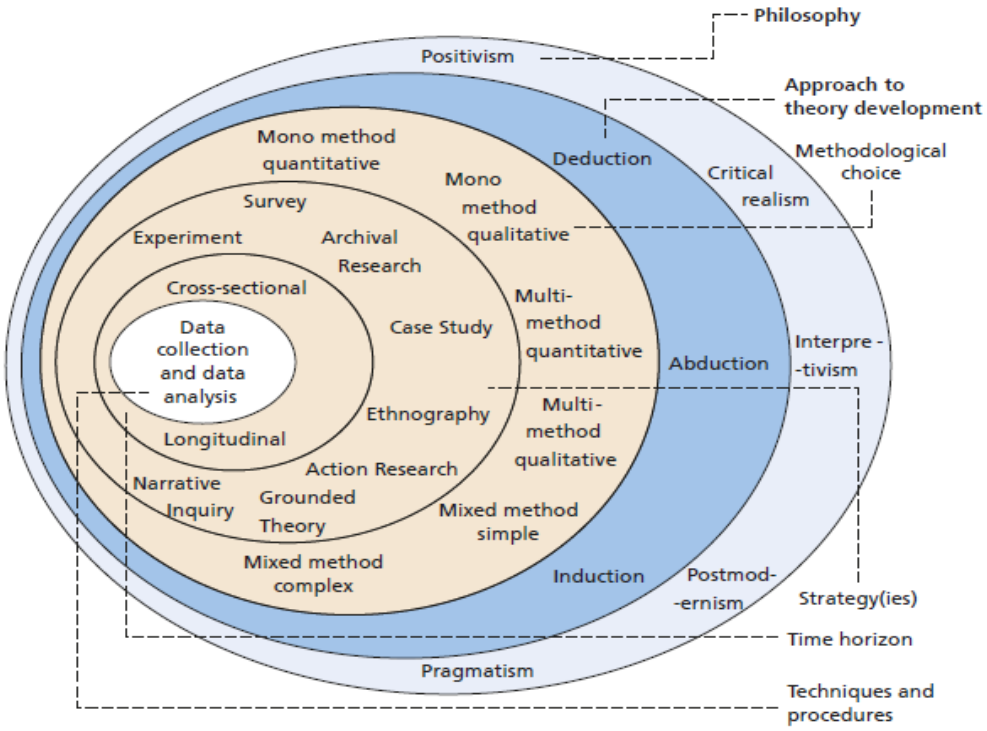

Figure 3.4: Research Philosophy: Pragmatic (Saunders et al., 2019)

According to Hothersall (2019), pragmatism offers an action-oriented framework based on experience through which research is used to help explain the issues of how we experience and understand the world in a practical sense. One of the main factors of pragmatism is that knowledge and reality are based on habits and beliefs which are part of social constructs (Yefimov, 2004)and that therefore reality can never be determined by one thing (Pansiri, 2005). This why is pragmatic philosophy encourages a mixed method approach to research and completely rejects the notion that

reality can be found using only a single scientific method (Maxcy, 2003). This method of approach is therefore appropriate when trying to decipher and determine the thoughts of a group of individuals on the topic of the sustainability of an industry in which they work.

3.3 Research Approach: Inductive

The topics of climate change and COVID-19 being fairly new to the targeted sample, an inductive approach is more suitable than a deductive approach and falls in line with the pragmatic philosophy. This is because with an inductive approach, it would be easier to explore the nature of the situation rather than trying to make a determination or answer a question. An inductive approach allows the flexibility to search for patterns from observations made and the development of explanations and theories through hypotheses (Bernard, 2011). Where a deductive approach aims to test a theory, an inductive approach aims to further develop a theory. While there is potential for testing of theories in terms of trying to determine how the perceptions of the workers potentially affect the sustainability of the industry, that is the possibility of another study.

3.4 Research Method: Mixed Methods

A mixed-method approach which as previously mentioned is a feature of the pragmatic philosophy will be used to get a better understanding of the research topic. This employs both quantitative and qualitative research to collect and analyse data (Tashakkori & Creswell, 2007). This method will be employed to collect large quantities of data (quantitative) for analysis while having smaller quantities of supplementary data (qualitative) to support research and better answer the research question. The qualitative data will be used in an effort to better clarify the quantitative data collected and the research as a whole. A two-step explanatory design as recommended by Creswell and Clark (2017) will be employed or what Saunders, et. al., (2019) referred to as sequential explanatory as can be seen in Figure 3.5 below.

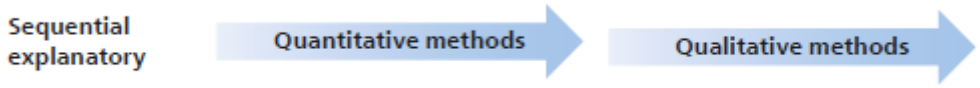

Figure 3.5: Sequential Explanatory (Saunders et al., 2019)

This is where the quantitative data is first collected and based on the findings the qualitative data is collected and used to clarify what was collected in stage one of quantitative data collection and to be better able to explore in depth the quantitative findings. Another benefit to using a mixed method approach is that qualitative research due to its more flexible nature when compared to quantitative research could suss out those matters overlooked by quantitative research due to its limitations. Participants of both the surveys and interviews will be contacted through affiliated agencies allowing them to participate in the research anonymously and to their level of comfort.

3.4.1 Interviews

A semi-structured interview approach will be applied following the collection of the surveys so that the results of the surveys can be used as a point of conversation and discovery through the interviews. The nature of the survey, the results and the perceptions and knowledge of the interviewee shall be discussed for a more in-depth analysis on the research topic. This also satisfies the pragmatist philosophy and the inductive approach which emphasises that one approach/method is insufficient in realising the reality (Maxcy, 2003); (Pansiri, 2005); (Bernard, 2011).

The aim is to interview four to five individuals and to target interviewees from various sectors of the tourism industry to ensure that the views collected are well rounded. A description of such targeted interviewees can be seen in Table 3.4 below:

Table 3.4: Semi-structured interview design of this research

Interviewee	Sample Question(s)	Reason	Reference/Linkage
Minister/Policymaker in the Tourism industry	What is the government's role in educating/sensitising the tourism sector (private & public) on the topics of climate change and COVID-19?	Ministers and policymakers have an overview on the ministry and what is occurring and to occur. Establishing whether their thoughts and perceptions match with those of industry workers can aid in discovering whether disconnects lie and encouraging that which is already operating as it should.	The right policies can cause an industry to flourish and vice versa the wrong policies can do the opposite (Sessa, 1976). The government needs to ensure that tourism policies put in place not only protects the industry, its workers and the tourists but also ensures the sustainability of the industry.
Director/Owner of large tourism enterprise or entity	Have you noticed a decline or increase in worker productivity during the pandemic? How has the pandemic affected your establishment?	Large tourism entities are responsible for a large number of workers. Understanding the thoughts of these workers could aid making better decisions going forward that benefit all involved.	There is no denying the positive effects of tourism in SIDS as they provide jobs to locals and in addition to the number of benefits afforded the communities they move into (Pattullo, 2005).
Director/Owner of village-type/community tourism establishment	How can the government assist in the development and sustainability of community tourism?	Village/Community tourism is still severely underdeveloped on the island. The unfortunate COVID-19 can be viewed as opportunity to gain ideas towards restructuring this form of tourism for the better. Hence their thoughts towards the sustainability of the industry are essential.	In studying the perceptions of the local community in the Bahamas, Edwards (1998) found a positive correlation between local community involvement and sustainable tourism development.
Tourist	In what way(s) (if at all) did the pandemic affect your decision to come to Barbados? What are your thoughts on climate change and how it affects the island as a tourism destination? Would you be willing to pay more for tourism services towards aiding in climate mitigation?	Tourists themselves are stakeholders of the tourism industry and to therefore have a wholistic view on the perceptions, tourists should also be interviewed.	Sustainable tourism practices are of course linked to tourists and the actions of tourists in the destination. Budeanu (2007) argues that there are various factors which affect whether tourists themselves are able to make sustainable decisions in the destinations due to policies, initiatives and more. That is, actions need to be taken to foster responsible tourist behaviour.

3.4.2 Questionnaire survey and data collection

In order to fulfil the mixed method approach, a combination of online surveys and with both closed and open-ended questions will be distributed and a select number of semi-structured interviews with industry officials will be conducted to corroborate the findings of the initial survey. Barbados is small island developing state with a population of roughly 285,000 with tourism workers accounting for 33% of the employed workforce. Therefore, a sample size of approximately 400 workers in tourism industry will be used making surveys the most appropriate form of data collection given the volume as recommended by Saunders, et. al. (2019). Online surveys will be used to

collect large volumes of data also due to the still present COVID-19 pandemic, in person interviews will difficult if not impossible and therefore will be done either over the phone or by virtual means.

3.4.2.1 Target population

The research targets legal-aged (18 and over) tourism industry workers at all levels and facets to gain their perspective on the sustainability of the industry through the use of the questionnaires based on a combination of closed and open-ended questions which would be taken and submitted anonymously. The semi-structured interviews target industry officials/stakeholders following the collection of the survey in an attempt to corroborate the results of the survey which will be done virtually or over the phone without the need for the collection of identifiable information.

Using Yamane Taro's sample size formula (Eq.1), a sample of approximately 400 individuals are targeted from which data will be collected using electronic surveys for ease of use and also in line with current COVID-19 protocols.

$$n=N/(1+N(e)^2) \quad (1)$$

Where, n: sample size

N: population of the study

e: allowable error (%)

As mentioned above, the total population in Barbados is 287,371 and approximately 33% of population working in tourism sector. Therefore, the target population for this survey is around 398, as follows:

N = 287, 371 x 33% = 94,832

n = 94,832/(1+94,832(0.05)2)

n=398

This number has been rounded off to 400.

3.4.2.2 Questionnaire design

The questionnaire consists of four parts with a total of twenty-five (25) questions. The questionnaire survey will be conducted using Survey Monkey which as stated previously combines closed and open-ended questions which will be answered anonymously, the details of which can be found in Table 3.5 below (More information is given in Annex I).

Table 3.5: Questionnaire design of this research

Variable	Question-Sample	Type of Scale	Reference/Linkage
• Demographic • Time period	• Gender Age Occupation • Time worked in the industry	Multiple Choices	There is importance in terms of finding patterns and linking certain demographics to certain perceptions. This can be further explored using the BDI (Belief, Desire, Intention) Model to determine whether something is perceived as Effective or Trivial (Vishwanath, et. al, 2015). In a study on what motivated hotel workers in the Bahamas, money was chosen by the majority; however, demographics such as age, gender and time in a certain job influenced responses (Charles & Marshall, 1992)
The effect of the climate and COVID-19 on emotions	• Whether COVID-19 has a negative impact on emotion within work • Whether climate change a negative impact on emotion within work • Vulnerable to COVID-19 belief	Likert scale	The nature of the pandemic has presented challenges for all. As tourism workers were labelled essential workers in Barbados with the onset of the pandemic, most did not have the work from home option. However, working during a pandemic can still negative impacts on an individual's emotional well-being (Restubog, Ocampo & Wang, 2020).
Opinions/perceptions on knowledge and awareness in the industry	• Tourism industry is important to Barbados' economy • Tourism was successful before and will continue to be • The economy's dependence on tourism makes it difficult to change the structure • The extent to which the	Likert scale	Lack of knowledge and low level of importance in the perception as to the impacts of the climate change on tourism have been tied to increased risk for the industry (Scott, et. al., 2012; Pandy & Rogerson, 2018).

	individual is involved in tourism's future • The government's policies align with the sustainability of tourism • Sources of known information about climate change		
Preparedness	• Prepared to deal with climate change in line of work • Prepared to deal with COVID-19 in line of work • Perceptions on	Likert scale	There is need to understand the nature of the issue and the challenges presented by them in order to develop a level of preparedness (Kaushal & Srivastava, 2021), which is of course difficult in an ever-evolving situation like the pandemic.
Opinions on what attracts tourists to the island	In your experience and opinion, the tourists who come to Barbados mostly come to enjoy	Multiple Choices	A drop question where industry workers choose what they believe to be the most marketable aspect of Barbados' tourism industry. Valtonen (2009) in a study on small tourism firms, noted the pertinent and critical knowledge industry workers possess towards the successful continuation of the industry.
Perceived impacts of climate change and COVID-19 on the tourism industry in Barbados	• Climate Change has had a strong impact on the Tourism industry in Barbados • COVID-19 has had a strong impact on the Tourism industry in Barbados • Will climate change or COVID-19 have a greater impact on the tourism industry?	Dichotomous questions	Using a simple yes or no response structure, uncomplicated response can be collected (Allen, 2017) on the survey respondent's perception of the impacts of both climate change and COVID-19 on the industry on which they work.

Thoughts on the relevance of COVID-19 and Climate Change to the Tourism industry	• Extended thoughts on the impact of climate change and COVID-19 • Whether knowledge on climate change and COVID-19 is essential to work • Whether a change in the tourism structure would help or hurt the industry	Open-ended questions	While there are disadvantages (such as having to code responses) to using open-ended questions rather than close ended questions with predetermined responses, open-ended leaves opportunity for discovery and forgoes bias (Reja, et. al., 2003). This also provides insider information which could potentially inform policy.

3.5 Data Analysis

For the purpose of data analysis, the Statistical Package for the Social Sciences (SPSS) will be used for ease of analysis and to explore data correlation between the independent and dependent variables and to explore the relationships which arise out of the data collected.

3.5.1 Descriptive Analysis

The questions in the survey consist of both close-ended and open-ended questions. In the case of the open-ended questions, coding will be exercised to draw definitive conclusions based on the responses given. The same will have to be done for the semi-structured interviews in an attempt to find consensus (where possible) among responses. Due to the nature of the close-ended questions where respondents were only allowed to choose one response, percentages, averages and means can be collected based on the responses.

3.5.2 Statistical Analysis

Kruskal-Wallis (as one-way non-parametric ANOVA; > 2 variables) and Mann-Whitney test (2 variables) were used to analyse the difference between demographic factors and preparedness with regard to climate change and COVID-19 among the worker respondents. Moreover, the Spearman's rank coefficient of correlation was also employed to explore the relationship between the Independent Variables (X) and the Dependent Variables (Y) as seen in Table 3.6 below:

Table 3.6 Independent and Dependent Variables of this research

Independent variables (X)	Details	Dependent variable (Y)
Demographic factors	-Gender -Age -Occupation	Preparedness with regard to Climate Change
		Preparedness with regard to COVID-19
Perceptions and awareness	Perceptions and awareness toward tourism in Barbados	Preparedness with regard to Climate Change
		Preparedness with regard to COVID-19
Climate risk perception	Thoughts on climate change risk to community/country	Preparedness with regard to Climate Change
Climate threat appraisal	Thoughts on the probability of increased bad weather phenomenon due to climate change	Preparedness with regard to Climate Change

3.6 Potential recommendations

The results of the surveys and interviews will be analysed, (coded where necessary) and the outcomes of which are to be used to give recommendations useful to industry stakeholders at both the public and private level. The interlinkages between the SDG's have demonstrated that linkages between sectors and collaboration is necessary for positive effective change, therefore, justifiably, the same is applicable in the efforts towards sustainability.

3.6.1 Short term

"A plan is only as good as its execution." Barbados has made multiple strides towards sustainability by writing policies and white papers to support the development of a sustainable platform. However, these policies, acts, etc. need to be enacted and policed to ensure adherence. Education and sensitisation of citizens and stakeholders to ensure adherence to the former is also essential. Ideas towards the most suitable methods to achieve the aforementioned could possibly be sourced through the results.

3.6.2 Long term

As constantly mentioned, tourism is of great importance to Barbados and its people, therefore, action and policy should coincide to ensure its survival and success. Collaborative policies that span sectors would be crucial to ensure buy-in of the respective parties. Also, the use of monitoring and evaluation programmes to pre-empt major blunders before their occurrence and settle them accordingly. Long-term goals that see the island achieving and maintaining SDG targets independently are the endgame.

CHAPTER 4

RESULTS AND DISCUSSON

The perceptions and preparedness of both frontline tourism workers and stakeholders on the topics of COVID-19 and climate change in relation to the tourism industry in Barbados are discussed in this chapter. It is important to note that throughout the process of the data collection, due to the ever-evolving nature of the COVID-19 pandemic, mandates and protocols had changed multiple times over the course of the data collection period. This of course would have had an impact on responses chosen by the survey audience.

4.1 Frontline Tourism Worker Survey

Frontline workers have been defined as "*employees within essential industries who must physically show up to their jobs*." Due to the great impact the tourism industry has on Barbados' economy and its labour force, at the onset of the pandemic, tourism workers were labelled essential workers and so had to continue working while other industries were under lockdown protocols and mandates. Frontline tourism workers then in the context of the tourism industry in Barbados involve workers who operate in a line of work which serves tourists, regardless of profession as can evidenced by the wide range of professions noted from survey respondents.

4.2 Questionnaire Results

A total of 403 frontline tourism workers (n = 403) virtually took the survey to preserve anonymity and also to keep in line with the COVID-19 mandates in place at the beginning of the data collection period.

4.2.1 Demographics

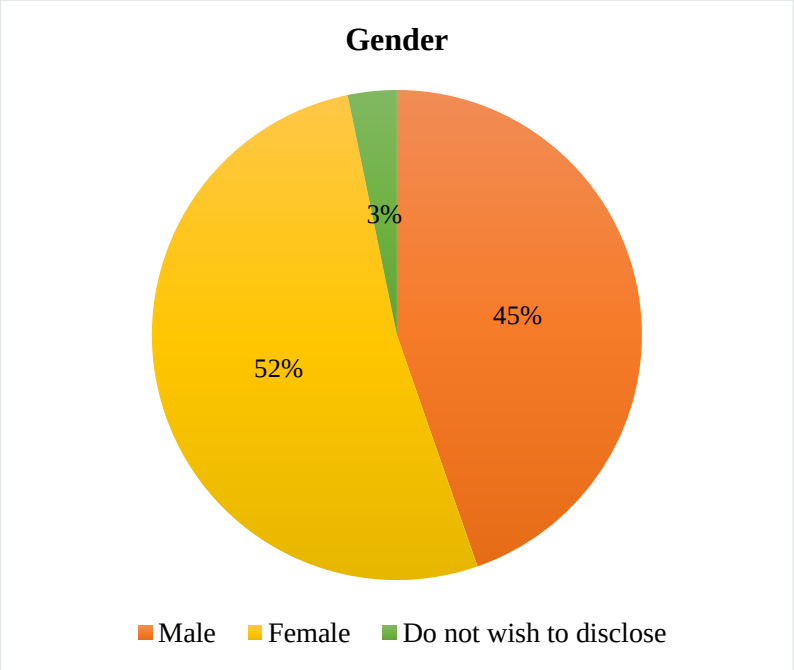

Figure 4.1: Gender Demographics

The genders of the respondents are split almost evenly between male and female with 180 identifying as male (45%), 210 respondents as female (52%) and 13 who chose not to disclose either way (Fig.4.1).

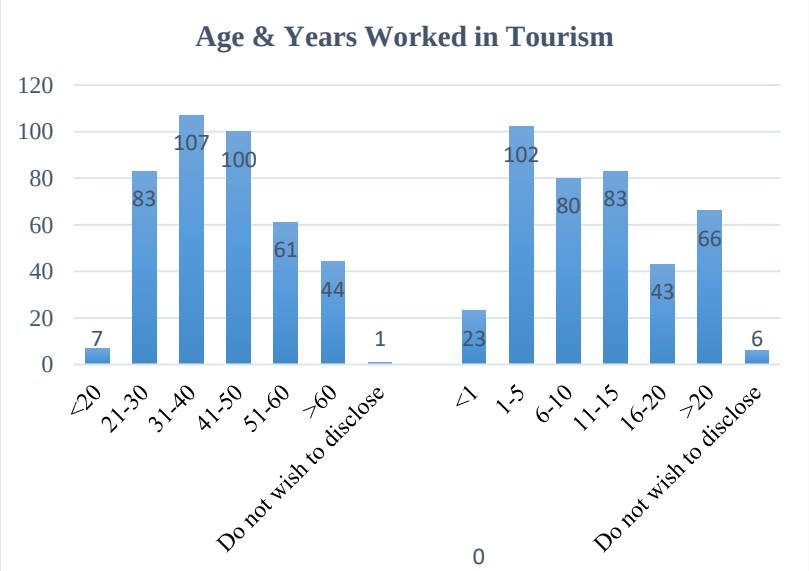

Figure 4.2: Age and Years Worked in Tourism

Also, as can be viewed from Figure 4.2 above, the ages of number of years worked within the tourism industry of the respondents cover a wide area. Most of workers had approximately 1-5, 6-10, and 11-15 years of working experience.

4.2.2 Descriptive Analysis

Respondents were queried as to as to their thoughts, preparedness and emotions in relation to COVID-19 and climate change in relation to the tourism industry as well other general questions as following:

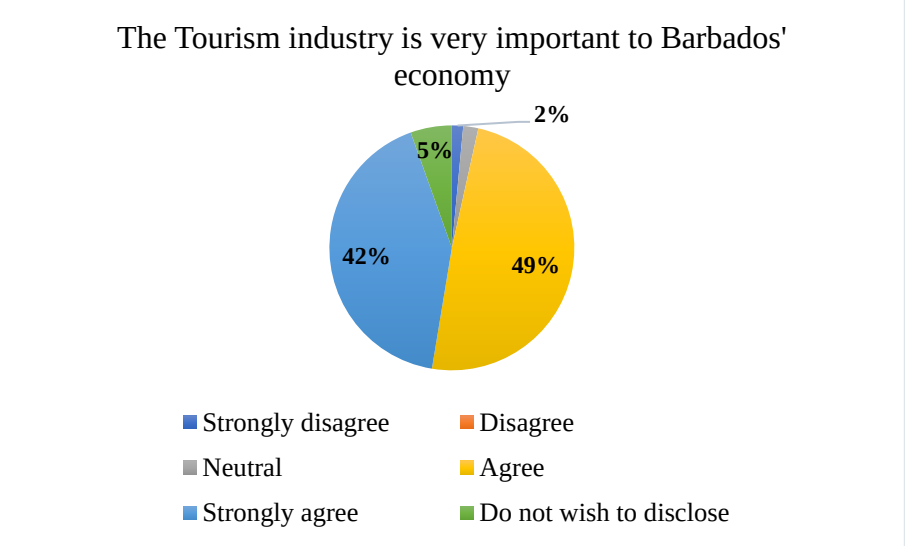

Figure 4.3: Importance of the Tourism Industry to Barbados' economy

It is important to note that frontline workers also realise the importance of tourism to the overall economy of Barbados (Fig.4.3). However, as can be seen from Figure 4.4 below, actual involvement/awareness in the future of the tourism industry by these frontline workers, do not correspond to their recognition of the importance of the industry. This could have played a part in the responses for the impact of COVID-19 vs climate change on the tourism industry as can be seen in Figure 4.8 due to the lack of heavy involvement in the future of the tourism industry in Barbados.

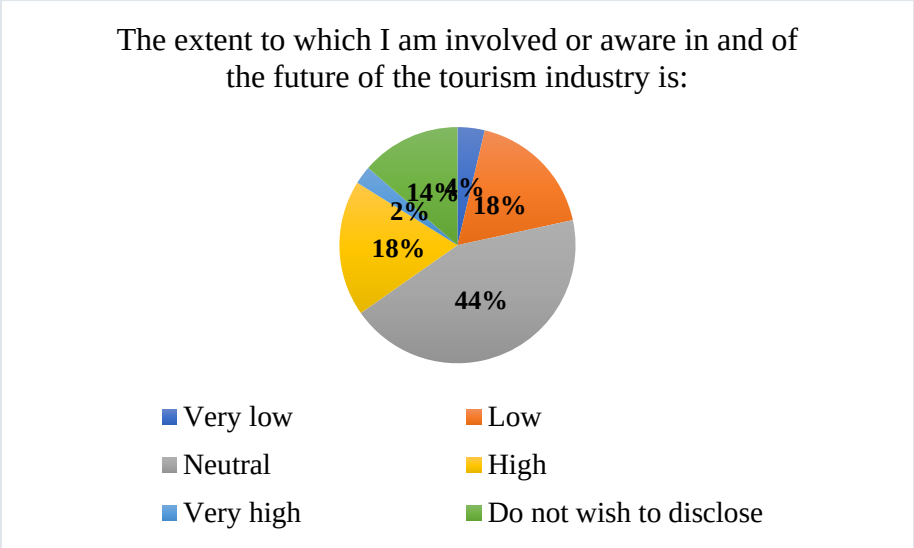

Figure 4.4: Level of involvement/awareness in the future of tourism in Barbados

4.2.3 Climate Change Perception

As can be seen from Figure 4.5, many of the respondents did not choose definitive answers on the topic of climate change. Further, most of the respondents agreed that climate change increases the probability of extreme weather events. Most of them disagreed on the statement that they feel fear when thinking or talking about climate change. Unsurprisingly, around 38% and 23% of the total respondents disagreed and did not wish to answer for the following statement: I am prepared to deal with climate change related issues in my work. This could either be interpreted as a simple lack of desire to respond to questions or a lack of knowledge or interest in topic making it difficult to answer the question. This held true for most of the climate change related questions.

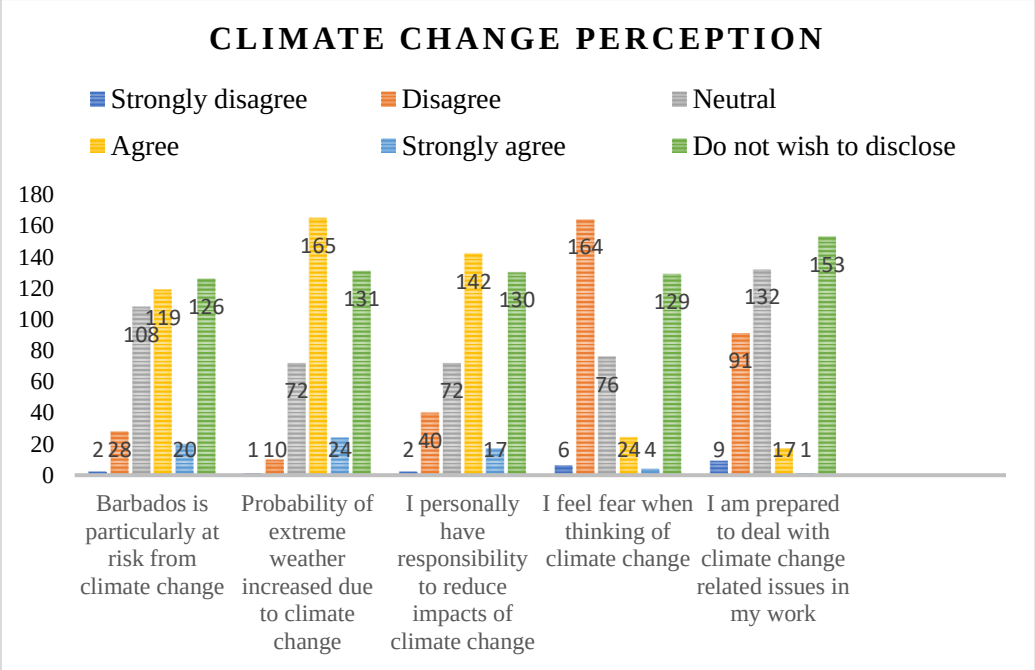

Figure 4.5: Perceptions on Climate Change

4.2.4 Perception of COVID-19

COVID-19 undisputedly had a major impact of the tourism industry worldwide and this was particularly so for Barbados where tourism accounts for roughly 30% of the country's GDP. As shown in Fig.4.6, the survey results indicate that over a half (53%) of the total respondents strongly agreed that they are in a high-risk group for COVID-19 as a tourism worker. Although tourism workers were labelled essential workers and allowed to continue to work during lockdowns and beyond curfew periods due to the essential worker status, many still lost their jobs or were subjected pay cuts and/or reduced hours due to lack of tourists resulting from border closures. Therefore, COVID-19 did not only present a medical risk to them, it also presented a great financial risk. Meanwhile, when asking about their preparedness for COVID-19, only 1% and 18% strongly agreed and agreed that they are prepared to deal with COVID-19 pandemic related issues in their work. This high perception of COVID-19 as a threat can be attributed to the evidence consequences of the pandemic (pay cuts, loss of job, health risk, etc.). These consequences have been experienced and/or seen first-hand by the audience unlike the consequences of climate change which could aid in explaining the disparity in the perceptions between the two.

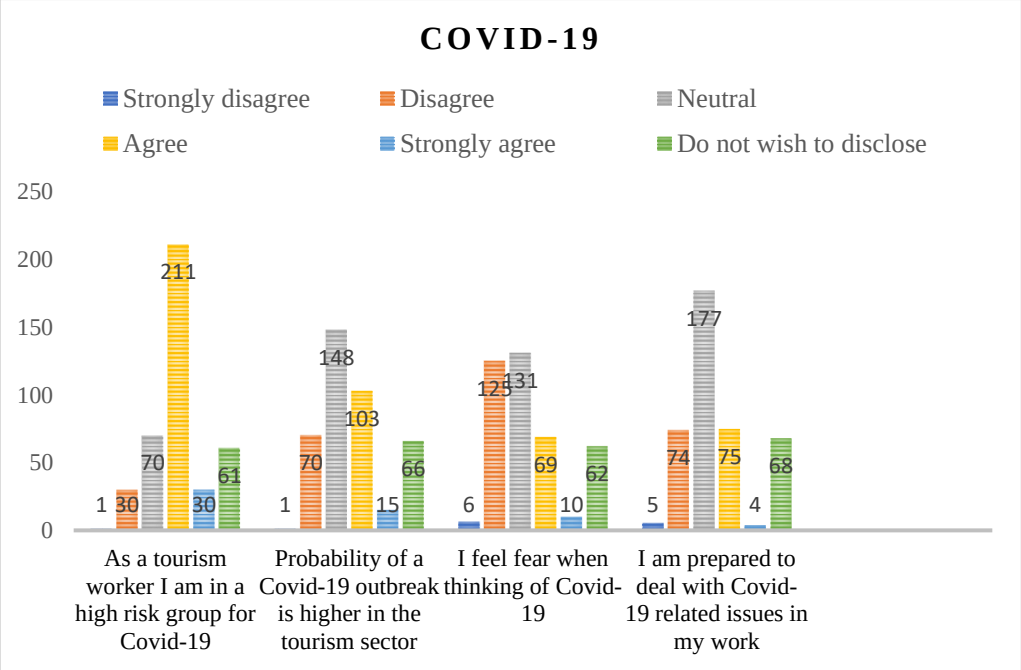

Figure 4.6: Perceptions on COVID-19

4.2.5 Perceived impact of climate change and COVID-19 on the tourism industry

Based on Figures 4.7 and 4.8, the respondents clearly believe that COVID-19 has had and will continue to have a greater impact on the tourism industry in Barbados than climate change. Specifically, almost all respondents (81%) perceived impact of COVID-19 pandemic on the tourism industry, while only 16% perceived impact of climate change on the tourism industry in Barbados. Slovic and Peters (2006) in their research noted a direct correlation between risk perception and affect. They stated that risks are perceived in two ways, “risk as feelings” and risk as analysis”. Risk as feelings involves an immediate and instinctive reaction to danger whereas risk as analysis involves more logic, reasoning and deliberation and is therefore a slower process. Also, risk as feelings is the more predominant of the two in human beings. When applied to results noted in Figures 4.7 and 4.8, while still low, a higher level of fear was noted for COVID-19, the figures for COVID-19 were still higher than those for climate change with 6% of respondents feeling fear when thinking about climate change and 17% of respondents feeling fear when thinking about COVID-19. According to both risk perception theory and protective motivation theory (Rogers, 1975), respondents would be more inclined to take action towards COVID-19 rather than climate change as they

view COVID-19 to be the bigger threat. This higher awareness or fear of COVID-19 can be attributed to the greater and constant exposure and the sensationalistic new articles on COVID-19 throughout the pandemic.

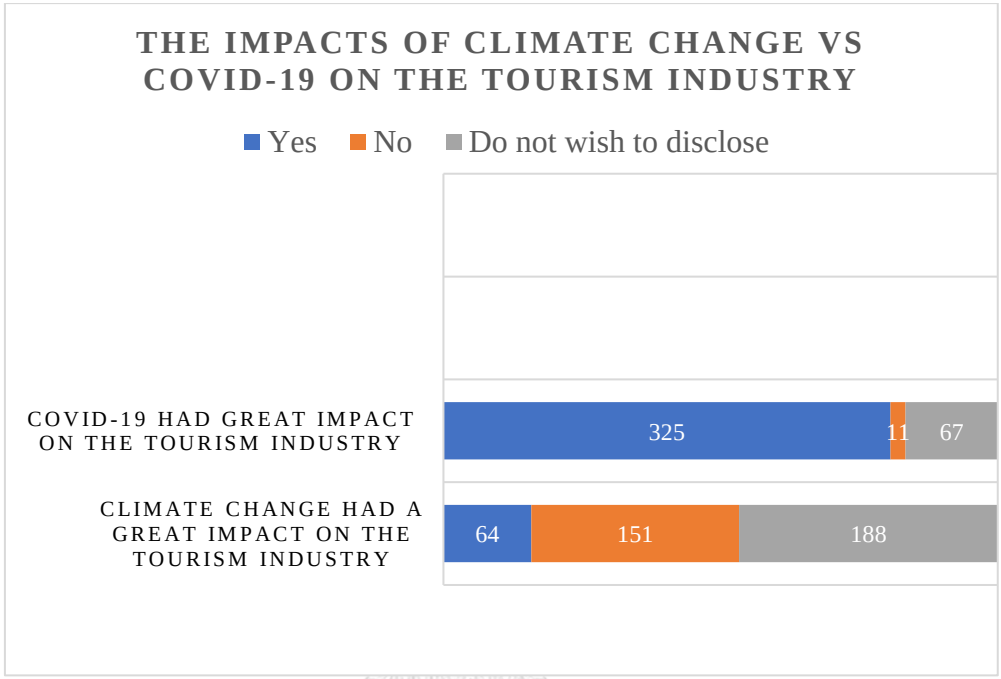

Figure 4.7: The impacts of Climate Change and COVID-19 on the Tourism industry in Barbados

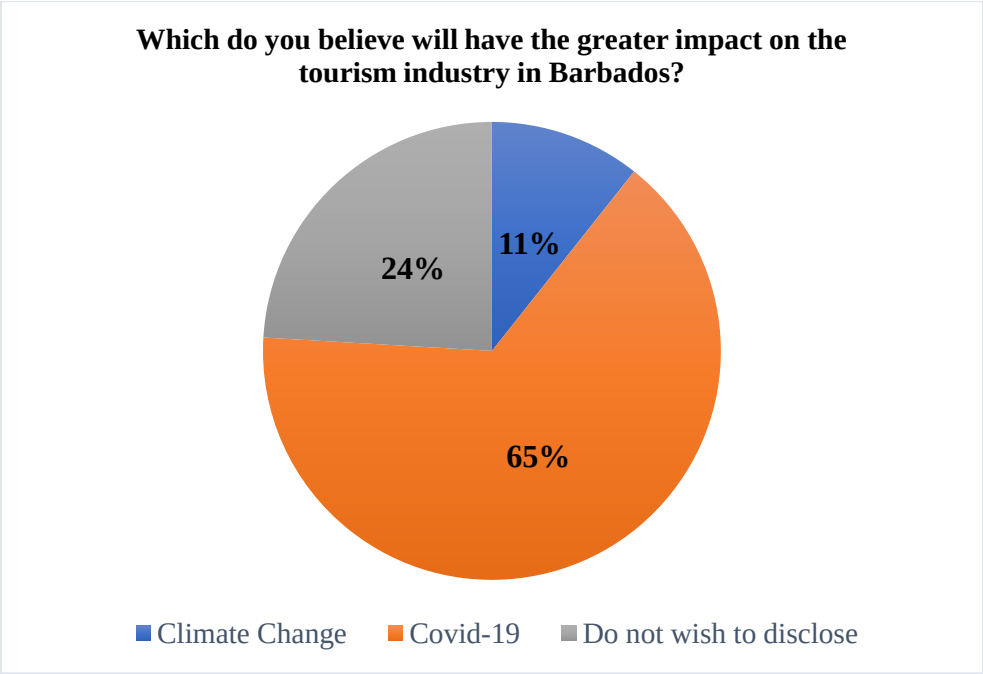

Figure 4.8: Perceived impact of climate change and COVID-19 on the tourism industry

4.2.6 Demographic factors influencing preparedness actions for climate change and COVID-19

To answer the first objectives, analysis of variance (ANOVA) was conducted to decide whether there would be differences in levels of preparedness among tourism workers based on gender and age. As shown in Table 4.1, the result of normality test by Shapiro-Wilk W test found that the p-value is less than 0.05. This implied that the data are not normally distributed. Therefore, Kruskal-Wallis test and Mann-Whitney test were conducted to determine if demographic variables (i.e., gender and age) had a significant influence on preparedness actions for both climate change and COVID-19 of the respondents. As noted, again, dependent variables of this analysis were preparedness of respondents to deal with climate change and COVID-19 pandemic in Barbados.

Table 4.1 Normality test for survey data

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
I am thoroughly prepared to deal with negative situations which may arise due to COVID-19 in my line of work.	.270	242	.000	.853	242	.000
I am thoroughly prepared to deal with negative situations which may arise due to climate change in my line of work.	.312	242	.000	.799	242	.000

a. Lilliefors Significance Correction

The results of Mann-Whitney test found that *p*-values of dependent variables are 0.917 and 0.791 which is greater than 0.05 (Table 4.2). The results implied that there were no significant differences between preparedness actions for climate change and COVID-19 with regards to gender of the worker respondents. In the meanwhile, by considering age groups of the respondents, there were also no significant differences between preparedness actions of the respondents for climate change and COVID-19 in Barbados based on the results of Kruskal-Wallis analysis as *p*-values are greater than 0.05 (Table 4.2). The results fall in line with numerous precious studies (Haq & Ahmed, 2017; Masud, et. al., 2017; Poortinga, et. al., 2019) that indicate that socio-demographic factors have a direct influence on perceptions of climate change. These socio-demographic factors influence the risk perceptions of these individuals which in turn affects the way they perceive climate change and COVID-19 as to whether they are deemed risk worthy or not. Dryhurst, et. al, 2020; Geldsetzer, 2020) in their studies noted a high-risk perception of responders to COVID-19 which resulted in a higher call to action. However, it should be noted that the data collection period of both studies was in the initial stages of COVID-19 where the mania and unknown were much higher. In the case of this study in Barbados, most of the protocols had already been removed and daily life had returned to pre-COVID normal with a few exceptions.

Table 4.2 Mann-Whitney test for testing the role of gender in preparedness for climate change and COVID-19

	I am thoroughly prepared to deal with negative situations which may arise due to climate change in my line of work.	I am thoroughly prepared to deal with negative situations which may arise due to COVID-19 in my line of work
Mann-Whitney U	6833.000	12811.000
Wilcoxon W	11204.000	23107.000
Z	-.104	-.264
Asymp. Sig. (2-tailed)	.917	.791

Table 4.3 Kruskal-Wallis test for testing the significance of differences among different age groups on climate change and COVID-19 preparedness

	I am thoroughly prepared to deal with negative situations which may arise due to COVID-19 in my line of work.	I am thoroughly prepared to deal with negative situations which may arise due to climate change in my line of work.
Chi-Square	4.723	.695
Df	5	5
Asym. Sig.	.451	.983

4.2.7 Factors influencing preparedness actions for climate change and COVID-19

Tourism workers were asked whether they felt prepared to deal with negative situations which may arise in their line of work associated with COVID-19 and climate change. Of the few open-ended responses returned, respondents queried the type of negative situations which could arise related to climate change in their line of work. While negative situations associated with COVID-19 were noted as positive cases, possible outbreaks, quarantined guests and/or staff and the like. Therefore, respondents asked how to prepare for something that they did not know. This lack of knowledge leads to an indifference or even lack of awareness on the topic of climate change in relation to the tourism industry and also indicates a lack of training and sensitisation. Aitken, Chapman and McClure (2011) similarly in their study assessing New Zealanders' preparedness to undertake climate mitigating actions, found that perceptions of powerlessness lead to low levels of action. In another study in the Philippines, Bollettino et al., (2020) respondents admitted to a low knowledge of

climate change, and it showed a direct correlation to low levels of disaster preparedness action.

While there was more information available to tourism workers on COVID-19, there was a lot of controversy surrounding the topic. Vaccination was not mandatory by law, however, it was heavily encouraged and also emphasised in the media. So much so that when COVID-19 related deaths were reported, the individuals' vaccination status were reported as well causing a level of unrest among some in the population. Tourism workers being labelled essential workers and those most exposed to foreigners were the most heavily encouraged to get vaccinated with certain establishment enforcing it although it was against the law. Balog-Way and McComas (2020) in their study reflecting on the COVID-19 pandemic focused on three risk communication themes: trust, trade-offs and preparedness. While in their study preparedness focused on the overlooking of strategies used in previous pandemics, they also discussed the importance of trust which was under question by tourism workers in Barbados as some did not trust the media given to them and at times felt that there was an agenda behind it.

Table 4.4: Results of Spearman's Correlation Coefficient between all related factors and preparedness in climate change

		The Tourism industry is very important to Barbados' economy:	I think that Barbados is particularly at risk from climate change and its related negative impacts	I believe that global climate change will increase the probability of extreme weather events in Barbados	I personally have responsibility to reduce the impacts of climate change (i.e., lowering greenhouse gas emissions, reduced waste, etc.)	I feel fear when talking/thinking about climate change and its related negative impacts:	I am thoroughly prepared to deal with negative situations which may arise due to climate change in my line of work:	I believe that I, as a worker in tourism, am vulnerable and a high risk group to Covid-19:	I believe that the probability of Covid-19 outbreak will dramatically increase in the tourism sector in Barbados:	I have negative feelings of fear and helplessness when talking/thinking Covid-19 and all its related impacts to the tourism sector:	I am thoroughly prepared to deal with negative situations which may arise due to Covid-19 in my line of work:
The Tourism industry is very important to Barbados' economy:	Correlation Coefficient	1.000	.088	.115	.189	-.017	.034	.042	-.079	-.058	.102
I think that Barbados is particularly at risk from climate change and its related negative impacts	Correlation Coefficient	.088	1.000	.691	.550	.275	-.065	.226	.144	.189	-.032

I believe that global climate change will increase the probability of extreme weather events in Barbados	Correlation Coefficient	.115	.691	1.000	.600	.167	-.120	.273	.167	.147	-.038
I personally have responsibility to reduce the impacts of climate change (i.e., lowering greenhouse gas emissions, reduced waste, etc.)	Correlation Coefficient	.189	.550	.600	1.000	.222	-.014	.192	.088	.111	.029
I feel fear when talking/thinking about climate change and its related negative impacts:	Correlation Coefficient	-.017	.275	.167	.222	1.000	.034	.118	.092	.289	.074
I am thoroughly prepared to deal with negative situations which may arise due to climate change in my line of work:	Correlation Coefficient	.034	-.065	-.120	-.014	.034	1.000	-.166	-.139	-.108	.411
I believe that I, as a worker in tourism, am vulnerable and a high risk group to Covid-19:	Correlation Coefficient	.042	.226	.273	.192	.118	-.166	1.000	.428	.239	-.270
I believe that the probability of Covid-19 outbreak will dramatically increase in the tourism sector in Barbados:	Correlation Coefficient	-.079	.144	.167	.088	.092	-.139	.428	1.000	.387	-.378
I have negative feelings of fear and helplessness when talking/thinking Covid-19 and all its related impacts to the tourism sector:	Correlation Coefficient	-.058	.189	.147	.111	.289	-.108	.239	.387	1.000	-.357
I am thoroughly prepared to deal with negative situations which may arise due to Covid-19 in my line of work:	Correlation Coefficient	.102	-.032	-.038	.029	.074	.411	-.270	-.378	-.357	1.00

4.3 The stakeholder's perspective on climate change and COVID-19

Tourism stakeholders are those persons who have a direct vested interest in the success of the tourism industry such as owners (i.e., hotel owners, tourist tour services owners, etc.), government officials in the tourism industry and even the tourists themselves. In line with the COVID-19 protocols of the time and at the promise of anonymity, these individuals were interviewed in a manner of their choosing and no personal or identifiable information was collected. As shown in Table 4.5, the interview results show a summarised table of the findings of the semi-structured interviews on their own perceptions and preparedness on COVID-19 and climate change in relation

to the tourism industry. A total of ten (10) individuals of varying categories were interviewed. The key findings of these interviews can be seen below.

Table 4.5 Perceptions and Preparedness of Stakeholders on Climate Change and COVID-19 in relation to the Tourism industry

Stakeholders:	Government Official – Tourism (2)	Government Official - Climate Change affiliated	Hotel Chain Owner	Village Tourism Enterprise Owner (2)	Tourists (4)	
Questions:	**Responses:**					
What is the government's role in educating/sensitising the tourism sector on the topics of climate change and COVID-19?	Offering workshops and putting out informative media on the topics, how best and safest to deal with and make aware the assistance which is available.		Aware of media released by government on the topic of COVID-19.		In terms of COVID-19 protocols and laws, information can be sound on government websites as well links to them form ticketing agencies.	
Have you noticed a decrease or incline in worker productivity during the pandemic?	Due to the closing of some establishments during the early stages of the pandemic, work was sourced overseas for those available to take advantage of it as well as other initiatives like the BEST programme.		A noted increase in worker frustration at the beginning of the pandemic which affected productivity.	Fear for the future and income security.		
How has the pandemic affected your establishment/your choices/your agency?	Establishing of protocols and initiatives that keep the industry alive while still protecting the citizens and tourists.		A great economic blow as there were border closures in countries that we usually receive guests/tourists from. In the early stages increased fear from workers and guests alike due to the uncertainty of the virus.		Very inconvenient, makes it more difficult and more expensive to travel.	
What are your thoughts on climate change and how it affects the island as a tourism destination?	Many projects are in line and have undergone to protect the island (not just the tourism industry) from climate change related risks.	More needs to be done to diversify the tourism product. Steps are being taken in that direction currently which is encouraging.			We come for the weather and the beaches so if that changes due to climate change then our destination may change.	It's a serious problem that should be address accordingly
Would you be willing to pay more for tourism services towards aiding in climate mitigation?					It depends.	Yes.

Government Officials

- Thoroughly informed on both topics of COVID-19 and climate change and the programmes available to deal with issues with both
- Consistently up to date on new information which may affect the tourism industry

- Constantly sourcing aid and methods of mitigation applicable the country
- Aware of limitations and grievances
- Acknowledges more needs to be done on information dissemination

Large Tourism Enterprises Owner

- More aware on topics of COVID-19 in regard to their business as opposed to climate change due to COVID-19's impact on the tourism industry globally
- Aware of both COVID-19 and climate change based on media and mandates released by government that directly affect their business
- Fear and unease noted from workers in the early stages of the pandemic related to the virus and economic uncertainty
- Dip in worker productivity due to frustration during the pandemic

Small Tourism Enterprises Owner

- Fear and unease noted from workers in the early stages of the pandemic related to the virus and economic uncertainty
- Fear of the future and income insecurity
- Undertaken tsunami drill training given yearly as some of the tours include beach locations
- Not sure of climate change preparedness beyond tsunami drill training
- Believes that there should be further investment and culture driven tourism entities

Tourists

- Thoroughly aware of COVID-19 protocols and mandates prior to entering the island
- COVID-19 has made travel more expensive and inconvenient which has led to a reduction in leisure activities
- On whether they would continue to travel to the island if climate change negatively affected the island in terms of the weather and beaches, the

older couple (50s-60s) responded it may result in a change of destination as they come to the island for the weather and beaches

- On whether they would be willing to pay more for tourism services as a form of climate mitigation the younger couple (20s) responded yes whereas the older couple (50s-60s) responded that it would depend on how much the cost would be

4.4 DISCUSSION

The purpose of this study was to explore the knowledge of tourism workers and stakeholders on the topics of COVID-19 and climate change and thereby their perceptions and level of preparedness in relation to those topics. It is clear through the findings that while stakeholders generally seemed to be more knowledgeable on both the topics of climate change and COVID-19, the disparity in knowledge and levels of preparedness is significantly more evident in relation to climate change. This lack is at detriment to the fight against climate change (Kahan, et. al., 2011) and a hindrance towards sustainable tourism and ultimately sustainable development. B. Walker et al., (2021) note the need for diversification of the tourism industry and of the tourism product particularly in SIDS is essential towards sustainable tourism and sustainable development. However, as can be seen from Figures 5.1 below, while frontline workers believe that government have the necessary policies in place to protect the tourism industry, 24% of respondents believe that this focus on the tourism industry makes it difficult to develop any other industry to bear the weight of the economy while 26% of respondents returned a neutral response.

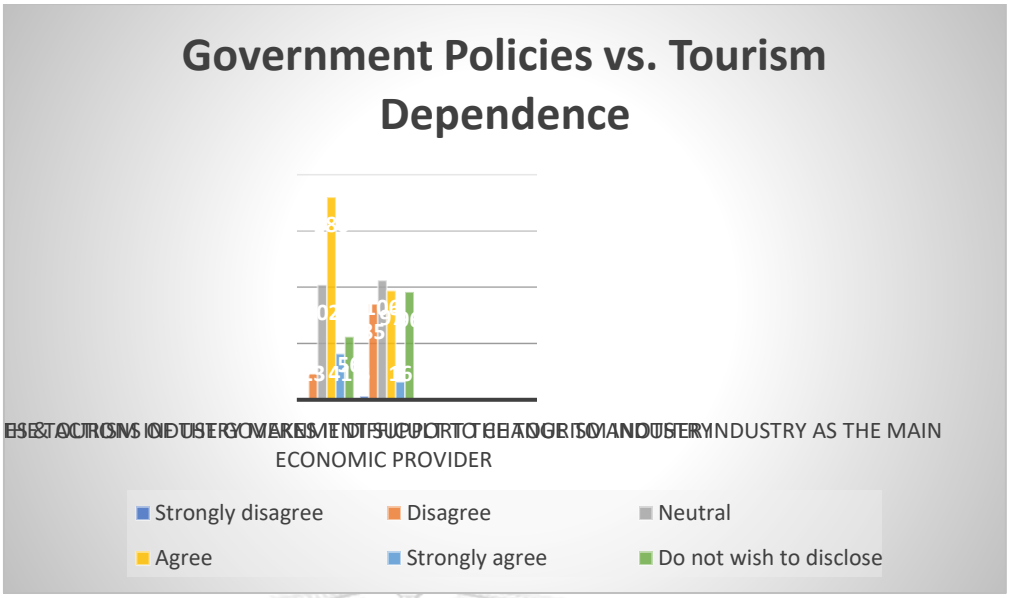

Figure 4.9: Government Policies vs. Tourism Dependence

COVID-19 in contrast has been (and still is) an ever-evolving global pandemic which has been highly reported on in the media and through governments of various countries when enacting protocols, mandates and the like which has served to keep persons readily informed as new information surfaces. This is shown in the responses of the survey as respondents were more willing to respond to COVID-19 related questions rather than the climate change related questions. It also could have influenced the fact that 65% of respondents believe that COVID-19 will have a greater impact on the tourism industry in the future than climate change. Klenert, et. al. (2020) in their study noted five lessons learned from the COVID-19 pandemic that can catalyse climate mitigation. They are the following:

1) The steep cost of procrastination and waiting – Delaying dealing with the issue further exacerbates the issue in the end which is evidenced in each subsequent Intergovernmental Panel on Climate Change (IPCC) report noting the effects of climate change on the planet
2) The involvement of people (citizens) is paramount to success – The fight against climate change and undertaking climate mitigating actions cannot be successful without the cooperation and supportive actions of citizens

3) Inequality can further exacerbate existing issues and decrease chances for success – As already expressed through the climate apartheid argument, in the case of climate change, the actions of some do not necessarily lead to equal consequences for another due to their socio-economic standing. This inequality therefore should be addressed as we are all interlinked which means when one is affected, all will be affected
4) A global issue requires global cooperation – Climate change is a global issue with global repercussions and thereby needs global cooperation to fix it
5) The need for scientifically informed policy generation, i.e., policy informed by science – Effective science-informed policies to effect real and necessary change

COVID-19 as at the writing of this paper has contributed to over six million deaths worldwide and through the number of cases and deaths associated impressed upon individuals to take it seriously. However, according to the World Health Organisation (WHO) climate change is expected to cause roughly an additional 250,000 deaths per year from diseases such as diarrhoea, malnutrition, malaria, etc. and has been previously discussed, these issues are expected to impact SIDS like Barbados sooner and more stringently.

Therefore, the answer to the first research objective and question is a resounding yes:

Table 4.6 Research Objective 1

Objective	Question
To explore how demographic factors affect the preparedness of the tourism workers to deal with COVID-19 and climate change	Are there any relationships between demographic factors and preparedness of the tourism workers to deal with COVID-19 and climate change?

As previously stated, studies (Haq & Ahmed, 2017); (Masud et al., 2017); (Poortinga et al., 2019) have clearly shown a direct correlation between socio-

demographic factors and risk perception. Risk perception in particular, Slovic and Peters (2006) in their studies on risk perception theory noted that how a risk was perceived whether there was fear or other emotions tied to that perception influenced how or if action would be applied. Lower instances of fear or emotional involvement meant lower chances of response. Therefore, if the workers themselves do not view climate change or COVID-19 as much of a risk, it is not likely for them to be thoroughly prepared to deal with negative situations which may arise from the two within their line of work.

4.4.1 Tourism Sustainability – Environmental Sustainability

Owing to leakages, it calls into question how much of the income per tourist shown in Table 3.2 actual stays within the Barbados economy and benefits the island. Though there are many definitions for sustainable tourism, the most applicable to island of Barbados in terms of what tourism means to the island as an industry is that of the definition by that of the International Council on Monuments and Sites (ICOMOS):

"Sustainable tourism refers to a level of tourism activity that can be maintained over the long term because it results in the net benefit for the social, economic, natural and cultural environments of the area in which it takes place."

In a snapshot glance as can be seen below from Figure 3.2 of the Sustainable Development Goals dashboard and trends in Barbados, only three of the seventeen SDG goals have been classified as being on track for achievement while another four have no data available for analysis. SDG 13: Climate Action which is of particular importance to the tourism industry and the island as a small island developing state has been classified as "stagnating" meaning lack of growth, activity or development. Of note, SDG's 2: Zero Hunger, 3: Good Health and Well-being, 5: Gender Equality, 8: Decent Work and Economic Growth and 16: Peace Justice and Strong Institutions are showing signs of moderate improvement according to the dashboard.

Figure 4.10: Barbados SDG Dashboard and Trends (Sustainable Development Report, 2021)

On the topic of tourism sustainability, the Barbados Tourism Master Plan 2014-2023 states that tourism sustainability and achieving a Green Economy are one and the same, that one cannot be had without the other. As part of the same Tourism Master Plan, it was noted that tourism capacity related more to the tourism offerings (what the tourists do and how they are managed) rather than the number of visitors. By this definition, considering that visitor numbers have been decreasing since 2006, tourism capacity does not present a problem in relation to numbers but rather the services offered to tourists and whether they are well managed or not within the confines of a green economy. It is further acknowledged within the Tourism Master Plan the lack of defined quantitative indicators for tourism sustainability and the need to address this matter. In fact, the lack of quantitative tourism sustainability indicators can be viewed as a drawback which is further addressed in the recommendations section.

As part of a scoping study on the transition to a green economy in Barbados, the following five sectors were highlighted: agriculture, fisheries, building, transportation and tourism. The document looked at “greening” these highlighted areas in an effort towards achieving a green economy. This is to be done through creating the necessary atmosphere to facilitate the greening of the aforementioned areas more easily through education, training, finance, government procurement, taxation, access and technology and much more.

By this vein, should tourism sustainability equate to the transition to a green economy or the greening of the sector in the context of Barbados, the Environmental Sustainability Index or more specifically the Environmental Performance Index (ESI) developed by Yale and Columbia universities along with along with the Joint Research Centre of European Commission and the World Economic Forum can be used to determine the island's status with regard to Environmental Sustainability and thereby Tourism Sustainability. In the year of 2020 Barbados ranked 77 out of 180 countries with an EPI score of 45.6 out of 100 illustrating a great need for improvement. The EPI is a comprehensive guide using a total of 32 indicators under the main headings of Environmental Health and Ecosystem Vitality which are then further broken down into other sub-categories such as Air Quality, Sanitation and Drinking Water, Waste Management, Heavy Metals and Biodiversity and Habitat, Ecosystem Services, Fisheries, Climate Change, Pollution Emissions, Agriculture and Water Resources respectively and further sub-categorised under these headings. A breakdown of the ranking (against the other 179 countries) of these categories and respective scores can be seen in Figure 3.3 below taken from the 2020 EPI report.

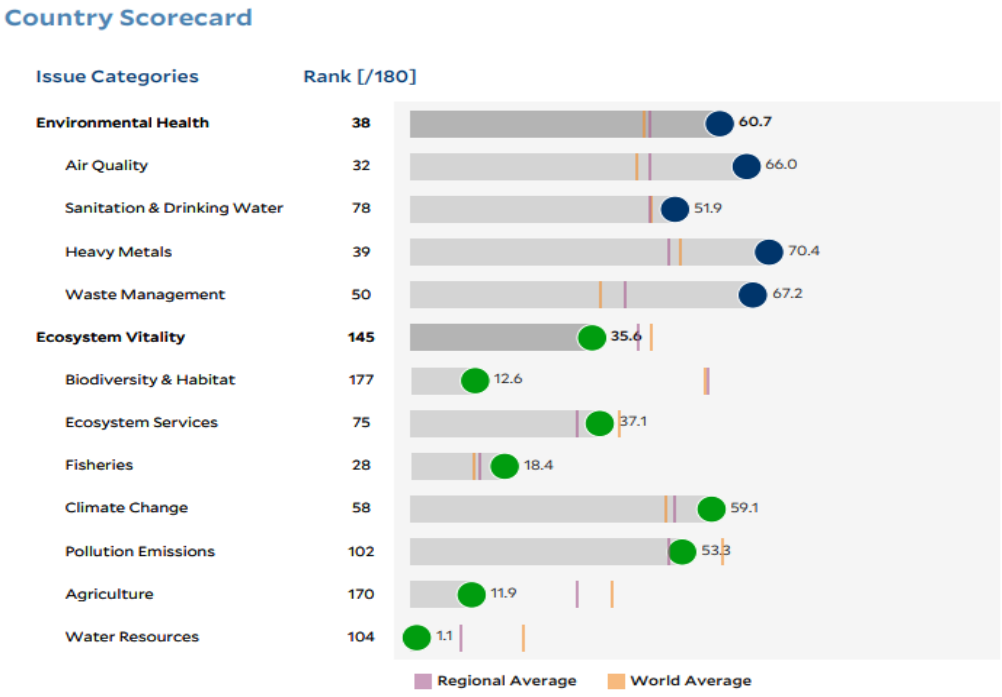

Figure 4.11: Barbados Environmental Performance Index Country Scorecard (Wendling, et. al., 2020)

Based on the results of Figures 4.6 and 4.7 tourism sustainability therefore is at a great risk as much of the industry's frontline workers do not appear to value climate change as a risk, while some stakeholders value climate change as a risk to the extent where they believe it directly affects them (or their business) and therefore convincing persons with such perceptions to undergo mitigating actions could prove to be difficult. Etkin and Ho (2007) noted that lack of awareness and negative perceptions have a direct impact on climate mitigation measures. As climate change is a global issue and therefore needs collective action for proper mitigation to take place, the lack of knowledge and awareness as well as the disconnect between the scientific community and the general public is working at a detriment to the cause. Also, tourism sustainability cannot be attained without addressing the climate change issue (Scott, 2011); (Weaver, 2011) as they are interlinked, particularly in SIDS.

Further, in addressing tourism sustainability, the National Sustainable Development Policy which was laid in parliament in January of 2004 was put forth as a guideline towards achieving sustainable development in Barbados, recognising the need for an integrated, holistic approach towards the matter. Meaning involvement at an individual level while also recognising the SDG's. However, this is a definite work-in-progress as in a recent poll it showed that Barbados placed 11th among a group of countries for the most expensive cost of fuel in the world. This clearly having a detrimental effect on the cost of living in the country as salaries in Barbados are nowhere near as high as that of the other 10 countries in that list. This directly relates to SDG 7, however, as previously mentioned all the SDG's are interlinked and therefore would have implications on each other.

Table 4.7: Research Object 2

Objective	Question
To determine how the perception and awareness of tourism workers directly affect preparedness of tourism industry to deal with COVID-19 and climate change.	Are Tourism industry workers in Barbados knowledgeable on the topics of climate change and the COVID-19? What extent?
	How this knowledge, or lack thereof, colours their perceptions on the sustainability of the tourism industry related to climate change and COVID-19 in Barbados?

Therefore, to answer the above questions, tourism workers are vaguely knowledgeable on the topics of COVID-19 and climate change and that knowledge is more heavily skewed in favour of COVID-19 than climate change. This is evidenced by the lack of responses to the open-ended questions for both COVID-19 and climate change and the general lack of responses to the climate change related questions. This lack of knowledge or awareness therefore makes it difficult to connect and/or equate tourism sustainability to environmental sustainability shows that while the results in Figures 4.7 and 4.8 indicates a lack of belief in the impact of climate change on the tourism industry, in Figure 4.12 below shows a definite belief in the continued success of the tourism industry and establishes a disconnect.

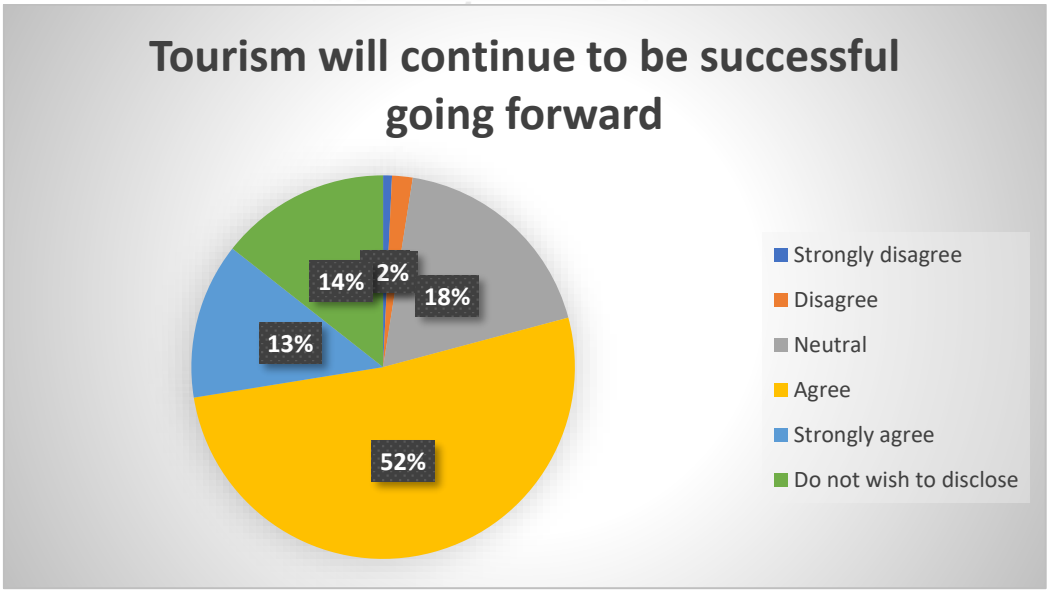

Figure 4.12: Tourism will continue to be successful in the future

Therefore, there is a willingness to see the continued success of the industry but a definite lack of knowledge and awareness as to what is needed to see to that success. A recent incident shows evidence of this where different groups appear to be more educated than others on various topics pertaining to the industry. Most recently the Barbados Sea Turtle Project, a non-profit organisation dedicated to the protection and conservation of the sea turtle population have noted increased incidents of deaths of sea turtles during nesting season due to loss of beaches as a direct result of climate change and human interaction. It is important to note that upon investigation, those individuals who gave positive responses as to the impacts of climate change were often persons in occupations who could see those impacts (eg: dive/submarine/boat tour operators, consultants, etc.). So, as was echoed previously, social perceptions can influence behaviour (Ferguson & Bargh, 2004) however, Zegarra-Valdivia et al., (2020) noted that even with the available information and knowledge, the education level of the individual seemed to have a direct influence on how that knowledge and information was perceived. Therefore, if in the case of Barbados, tourism sustainability is equal to environmental sustainability and tourism accounts for much of the island's economic income, the very sustainable development and achievement of the SDGs is also dependent upon the success of the tourism sector due to the interlinked nature of the 17 SGDs. The awareness of these linkages is essential to effecting change and ensuring survival of the sector and establishing and achieving sustainable practices.

CHAPTER 5

CONCLUSION

5.1 Conclusion

This study aimed to explore the perceptions and levels of preparedness of tourism workers in the industry in relation to climate change and COVID-19 towards tourism sustainability. The road towards sustainability and the sustainable development goals is a task that has been undertaken by many countries across the globe. The current climate issue and the COVID-19 pandemic are the best example of the integrated nature of the SDGs and how one cannot be achieved without the other. For example, Climate Change which directly relates to SDG 13, Climate Action and the COVID-19 pandemic which directly relates to SDG 3 Good Health and Well Being, while 2 separate SDGs, are linked and affect each other. For instance, studies have shown that the effects of climate change are providing the ideal atmosphere for infectious diseases to flourish. Therefore, just as climate change mitigation is a collective effort, the SDGs are an interlinked, collective effort, so too is tourism sustainability to that end. This study has shown that an individual's perceptions directly motivate them towards an action and whether that perception of risk generates analytical feelings or emotional feelings determines how the risk is responded to. Based on the results of the study lies in the perception that climate change and COVID-19 are not viewed as major risks to tourism sustainability by respondents and therefore would not result in a positive, action-oriented response based on the lack of motivation and low risk perceived.

5.2 Limitations

As previously stated, the data collection period for this study occurred at a tumultuous time during the pandemic where new information on variants were incoming as well as mandates and protocols loosening and even changing towards the end. As part of the study the audience were afforded anonymous status when taking the survey which was also in line with the COVID-19 social distancing protocols at the

time. This came with its disadvantages as respondents more readily skipped questions, especially so for the open-ended questions.

Upon conversing with some tourism workers after the study it was discovered that different individuals defined “fear” differently with regard to COVID-19. Some individuals feared COVID-19 for the health risks it presented while others feared it for the economic uncertainty and risk to financial stability it presented. This of course would directly impact the results collected.

While the questionnaire attempted to be as simple as possible to encourage the target audience to respond, its very simplicity failed to capture the more complex perceptions of COVID-19 such as the political implications of some institutions trying to enforce vaccination of its employees. Also, the lack of level of education as a demographic indicator could have enriched the results of the study further as this may have been a factor in frontline workers’ lack of willingness to respond to certain questions.

The very nature of the pandemic at the beginning of the data collection made the process of data more difficult as some persons were working from home in their respective jobs and were more difficult to source and contact.

While the aim of the study was to explore the perceptions and levels of preparedness of tourism workers, the lack of response from these individuals on the topic of climate change whether it be through a lack of knowledge on the subject or a lack of desire to respond, made it difficult to answer that question.

5.3 Recommendations

Table 5.1 Research Objective 3

Objective	Question
To provide recommendations to stakeholders in the tourism sector on the topic of sustainability with regard climate change and COVID-19.	What recommendations can be made to policy makers and related stakeholders to deal with climate change impacts and also better adapt to this new normal and effectively develop a sustainable tourism industry?

5.3.1 Government Officials

The government structure as it currently stands may be hindering the dissemination of information to the necessary parties. This means that the current structure may be too top heavy causing the information to stay amongst ministers and others within the governmental structure. While efforts are indeed made to relay this information using media such television, radio and even social networking sites, like Instagram, YouTube, etc. a more hands-on approach and collaborative effort may be useful in a small country like Barbados. That is, more collaborative efforts between small groups to represent the various factions and a reduction in government officials overall. This would also serve to free up more funds towards attaining sustainable development and reducing the overall cost of living for persons in the country. This hands-on approach will be vital in ensuring that relevant information reaches the necessary audiences in order to change the current perceptions of tourism sustainability and in particular climate change and its effects.

5.3.2 Large Tourism Enterprise Owners

One of the major problems experienced particularly with large tourism entities is that they are generally foreign owned, and this results in a lot of “leakages” of funds being transferred outside of the country due to the foreign ownership. This transfer of

funds therefore negatively affects the flow of money within the economy of the country. Though foreign direct investment is encouraged by many small island developing states as a means of bringing money into the country, economic policies should be enacted to better control the flow of money made within the country. By doing this it ensures that the country benefits from this money rather than simply losing it.

5.3.3 Small Tourism Enterprise Owners

As previously mentioned, more inclusion of local activities and village-style tourism would foster a more invested approach of citizens in the tourism industry. The more direct/personal gains they can receive from the industry the more invested they would be in the industry's success and sustainability. This translates beyond economically but also environmentally, culturally and more. While recent ventures show evidence of supporting small tourism enterprises such as with the plans to assist in creating community tourism villages across the island like the Rock Hall Freedom Park, more can be done to support small tourism enterprises. For example, the distribution of subsidies to those who have intriguing business plans, etc. and eventually move towards making the tourism industry more locally owned.

5.3.4 Tourists

The COVID-19 pandemic highlighted the need for diversification and innovative offerings within the tourism industry. When travel became difficult due to border closures, protocols, expensive tickets and more, some places turned to virtual tourism and other forms of niche tourism in an effort to keep their industry running. Barbados and other SIDS can benefit from such innovative strategies. Niche tourism as well allows for a more controlled form of tourism such as what is practiced in Bhutan. Mass tourism in and of itself is the antithesis of sustainable tourism. Therefore, more diverse offerings will attract a more varied audience and also incorporating climate fees/taxes onto certain activities in a bid to alleviate the effects of climate change.

5.3.5 Short Term

Information and Awareness (3-6 months)

The lack of responses to the climate change related questions indicates a need for further education, sensitisation (and training where necessary) of tourism workers on the topic of climate change and tourism sustainability or more efficient dissemination of the available information to tourism worker. As a SIDS in the Caribbean, climate change and its effects are pertinent to all industries but even more so to the tourism industry as it has direct impacts on the industry in the following ways: bleaching of coral, increased levels of sargassum seaweed, warmer waters and more. Fuentes et al., (2020) noted that both COVID-19 and climate change are global problems essentially within the same structure with the main difference being the perceived period of time of the effects. They noted that with COVID-19 the risk appeared higher to audiences because the effects occurred within days and weeks as opposed to the months and years projected by climate change issues and therefore perceived as lower risk due to the time frame.

It is noted that the government already releases informative media on the topics of climate change and COVID-19, and also makes use of workshops and seminars, however, based on the results of the survey, this information seems to be missing its targeted audience. Therefore, more direct engagement is needed with target audience and the establishment of "middlemen" to ensure the proper dissemination of information and also to establish better communication pathways for the exchange of information. Also, according to Bish and Michie (2010)in order to properly impress upon a targeted audience the level of a threat or risk tied to something, demographic factors such as age, sex, etc. can be used to better tailor the message to have the greatest impact.

Survey Efficacy (3-6 months)

While the survey aimed to be simple to encourage responses, the simplicity of it was also its downfall. A more explanatory survey format can be employed where respondents can be provided with short explanations of terms and phrases when highlighted words in the question to ensure that they fully understand the question.

Also, monetary compensation for a fully taken survey would incentivise them to answer all given questions.

Government agencies and tourism stakeholders (large and small tourism enterprise owners) can also make use of surveys as a quick way to touch base with their target audience and determine whether everyone is operating on the same wavelength and/or what adjustments need to be made.

Interlinkages and Cooperation (6months – 1 year)

The encouragement for more diversified tourism offerings and an emphasis on the showcase of the culture and people should influence an investment in the development of village style tourism. This does mean a total move from traditional tourism offerings but could involve an intertwining of the two. For example, more large chain hotels offering packages for village style tours. Culturally based/inclined bookings through travel agencies and niche-style tourism brochures released by the government, keeping visitors fully aware of the activities and sights available to them. To be able to do such, all parties need to be aware of each other and in this age of technology, a portal could be established for business (small or otherwise) to register so that the government is aware of the type of business and their offerings and to also help foster the appropriate linkages.

These interlinkages are not only for business-to-business transactions but should extend to government agencies and beyond. Where small business collaborations may be able to establish in a short period of time, government and other agency interlinkages make take some more time. As an example, the Barbados Sea Turtle Project as mentioned previously have noted increased incidents resulting in the deaths of sea turtles over the last few years during nesting seasons as a result of disappearing beaches. A more collaborative effort from government or even the tourism enterprises in those areas with the Barbados Sea Turtle Project could result in not only reduced deaths but creating an environment that ensures the conservation of the species. Middle ground and compromise can be found through collaborative efforts.

5.3.6 Long Term

Diversification of Tourism Offerings (3-5 years)

As part of the survey, tourism workers were asked what they believed attracted tourists to the island and 35% of respondents chose “the culture/people”. Therefore, further diversification away from eco-stressful sun, sea and sand model to more culture-based and community and village type of tourism is encouraged. Evidence of this shift has already been noted, from the calendar of events for the year listed on Visit Barbados display an array of cultural activities and options of events to attend and activities to try. In fact, the diversification of tourism products is encouraged (Benur & Bramwell, 2015) in order to develop a sustainable tourism industry and as well to take away the strain on the ecosystem for those which practice a sun, sea and sand model. While it is encouraged to diversify the tourism products offered, it comes with the understanding that doing so has added costs involved and would therefore not be something that can be achieved right away. The necessary infrastructure needs to be built depending on the type of tourism product. For example, culturally based style village tourism which encourages tourists to live like a Bajan, would require development of the public transportation system. There have been developments in recent years but much more is needed to make the system user friendly and sustainable. Therefore, market research into the feasibility of developing each tourism and what needs to be done in order to develop it sustainably and effectively would be required.

Better Policing of Existing Policies (Continuous)

Policies such as the coastal setback policy, public access policy and density and overcrowding policy need better policing. The coastal setback policy that any coastal development should be done at a 30-metre setback behind the high tide mark. A trip down the west coast of the island shows that that is not the case for a number of tourism entities situated along the coast. Also, the public access policy states that properties built along the coast should not restrict access to the beach to locals and yet there are numerous cases of this occurring particularly with hotels built along the coast. Finally, the density and overcrowding policy states that only 150 beach chairs per 0.5 hectares

are allowed on the south coast and 110 beach chairs per 0.5 hectares on the west coast and this is also flouted. Each of these policies directly impact the environmental and cultural integrity and thereby sustainable development of the island and should therefore be better and more strictly policed.

Further Research (Continuous)

Further research into climate change, COVID-19 and overall sustainable development. While there does appear to be a larger focus on effects of climate change on SIDS due to Climate Apartheid, there still appears to be a dearth of literature on SIDS in the Caribbean who also face their own challenges due to history, culture and much more. Factors such as an island's geographic location as well would have different implications with regard to the effects of climate change. Therefore, research focused on the region and its various islands would directly and more accurately answer questions posed. Also, continuous research allows stakeholders to better stay abreast of trends and adjust in a timely and informed manner to an evolving industry. Klenert et al., (2020) even explores how lessons learned from the COVID-19 pandemic can be applied to better handle the climate change crisis. Comparative studies can also be done to see how Barbados compares with other SIDS and vice versa. These studies will not only be informative but can also aid in opening new doorways of opportunity in terms of grants, funding and other international collaborations. Additionally, pointed research on quantitative and qualitative sustainability indicators would be useful towards further research and decision making.

ANNEX I: Questionnaire Design

Questionnaire

"Perceptions and preparedness of the tourism workers linked to climate change and COVID-19 in Barbados"

Introduction:

This survey is an anonymous submission on your thoughts and opinions to support the master's thesis on the sustainability and stability of your area of work in the Tourism industry given the effects of Climate Change and the most recent COVID-19 pandemic. The survey should take an estimated 5-10 minutes. The questionnaire consists of the following 4 parts:

Part 1: Demographic Characteristics
Part 2: Perceptions and awareness toward tourism in Barbados
Part 3: Climate risk perception and preparedness actions
Part 4: COVID19 perception and related actions

If you have any queries please feel free to contact Ms. Natasha Mayers (natasha.p.mayers@gmail.com). Your co-operation and time are greatly appreciated.

****

Part 1: Demographic Information

1. Gender: [Drop down question]
   □ Male
   □ Female
   □ Other: _____
   □ Do not wish to disclose

2. Age: [Drop down question]
   □ >20
   □ 20-30
   □ 30-40
   □ 40-50
   □ 50-60
   □ <60

3. Occupation: [Drop down question]
   □ Chef
   □ Property Manager
   □ Housekeeper
   □ Butler
   □ Grounds Keeper
   □ Maintenance worker

□ Aesthetician
□ Other: _____

4. How long have you worked in the Tourism industry? [Drop down question]
□ >1 year
□ 1-5 years
□ 5-10 years
□ 10-15 years
□ 15-20 years
□ <20 years

Part 2: Perceptions and awareness toward tourism in Barbados

5. The Tourism industry is very important to the Barbados economy:
□ Strongly Disagree
□ Disagree
□ Neutral
□ Agree
□ Strongly Agree

6. In your experience and opinion, the tourists who come to Barbados mostly come to enjoy: (Please select one answer)
(a) Sun, Sea & Sand
(b) The culture/people
(c) The food
(d) Heritage/history
(e) Other: _____

7. Tourism has been a successful industry in Barbados from since the 1900s and will continue to be successful going forward:
□ Strongly Disagree
□ Disagree
□ Neutral
□ Agree
□ Strongly Agree

8. Barbados' dependence on Tourism makes changing the current structure of Tourism (how we do things) difficult:
□ Strongly Disagree
□ Disagree
□ Neutral
□ Agree

□ Strongly Agree

9. The extent to which I am involved or aware in and of the future of the tourism industry is:
□ Very Low
□ Low
□ Neutral
□ High
□ Very High

10. The policies and actions of the government align with protecting/preserving the tourism industry in Barbados:
□ Strongly Disagree
□ Disagree
□ Neutral
□ Agree
□ Strongly Agree

Part 3: Climate risk perception and preparedness actions

11. I think that either my community (even our country) is particularly at risk from climate change and related negative impacts
□ Strongly Disagree
□ Disagree
□ Neutral
□ Agree
□ Strongly Agree

12. I believe that global climate change will increase the probability of extreme weather events in my community and tourism sector in Barbados
□ Strongly Disagree
□ Disagree
□ Neutral
□ Agree
□ Strongly Agree

13. Climate Change has had a strong impact on the Tourism industry in Barbados:
□ Yes
□ No

Please give the reason for your response to question 13:

_____

14. I, myself, have responsibility to mitigate the impacts of climate change (i.e., lowering GHGs emissions)
□ Strongly Disagree
□ Disagree
□ Neutral
□ Agree
□ Strongly Agree

15. I feel fear when talking/thinking about climate change and related negative impacts
□ Strongly Disagree
□ Disagree
□ Neutral
□ Agree
□ Strongly Agree

16. I am thoroughly prepared to deal with negative situations which may arise due to climate change in my line of work:
□ Strongly Disagree
□ Disagree
□ Neutral
□ Agree
□ Strongly Agree

17. What sources of information do you know about climate change (and even its negative impacts to the tourism sector)?

Part 4: COVID19 perception and related actions

18. I agree that myself as a worker in tourism is vulnerable and high risk group to COVID19?
□ Strongly Disagree
□ Disagree
□ Neutral
□ Agree
□ Strongly Agree

19. I believe that the probability of COVID-19 outbreak will dramatically increase in my community and tourism sector in Barbados
□ Strongly Disagree
□ Disagree
□ Neutral
□ Agree
□ Strongly Agree

20. I have negative feelings of fear and helplessness when talking/thinking COVID-19 and all related impacts to tourism sector
□ Strongly Disagree
□ Disagree
□ Neutral
□ Agree
□ Strongly Agree

21. I am thoroughly prepared to deal with negative situations which may arise due to COVID-19 in my line of work:
□ Strongly Disagree
□ Disagree
□ Neutral
□ Agree
□ Strongly Agree

22. COVID-19 has had a strong impact on the Tourism industry in Barbados:
□ Yes
□ No

Please give the reason for your response to question 22:

_____

_____

23. Of the two, (Climate Change and COVID-19), which do you believe will have a greater impact on the Tourism industry in Barbados?
□ Climate Change
□ COVID-19

24. In your opinion, do you believe knowledge on the topics of climate change and the COVID-19 pandemic to be essential to your work within the tourism industry? Why, or why not?

_____

_____

25. Would a change in the structure of the tourism industry (tourism offerings) at this point help or hurt the industry?

_____

_____

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