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AN INVESTIGATION INTO THE ATTITUDES OF KEY TOURISM PROVIDERS REGARDING 'CARBON NEUTRAL' TOURISM IN COUNTY CLARE, IRELAND

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ABSTRACT

The global tourism industry is inextricably linked with climate change, and, faced with a 'climate emergency', there is an increasing emphasis on finding environmentally sustainable tourism models. One such model is 'carbon-neutral tourism (CNT)'. This paper investigates attitudes towards CNT in County Clare (Ireland), focusing on tourism providers. By reviewing and evaluating key relevant academic sources, clarification is given about climate change, and the tourism industry's relationship with it. The concept of sustainable tourism is explored, leading to an understanding of the meaning of CNT, and the various steps taken to create it. Following this, semi-structured interviews are conducted with selected tourism providers in County Clare. Using purposive sampling, a selection of tourism providers covering key elements of the tourism product are interviewed. These interviews are of a semi-structured format, allowing for some generic investigation, but also permitting an exploration of each provider's contribution to the tourism product. The analysis concludes that tourism providers in Clare hold generally positive attitudes towards CNT. All respondents currently carry out at least some elements of CNT and all respondents express an enthusiasm to be more involved. However, certain barriers to fuller participation are identified.

KEYWORDS

Carbon neural tourism; climate change; Ireland

ECONLIT KEYS

Z32; Z39; Z31

1. INTRODUCTION

'Climate change and the need to change human behaviour in response, are increasingly accepted and identified as key challenges for tourism' (Vaske, Jacobs and Espinosa, 2015, p. 80). There is considerable evidence that the Earth's climate is changing, with a vast array of scientific studies using a variety of methods to determine the extent of the changes (McGrath, 2019). Whilst Earth's climate has been changing throughout its history (Goosse, Barriatt, Lefebvre, Loutre and Zunz, 2010). The 'climate emergency' facing planet Earth, in all cultures and societies, is unprecedented in human history (Neukom, 2019). Therefore, this study aims to provide useful data that may contribute to a growing body of knowledge about truly sustainable models for the tourism industry. The focus of this paper is to investigate the connection between tourism and climate change, to understand carbon-neutral tourism (CNT), and to determine the attitudes of some key tourism providers in County Clare, Ireland (See Figure 1). The development of tourism responses to climate change will be explored, with particular emphasis on the concept of CNT. CNT will be defined, and the requirements for it to occur will be established. Further to this, the significance of attitudes to CNT will be investigated, and in doing so areas for further research will be identified.

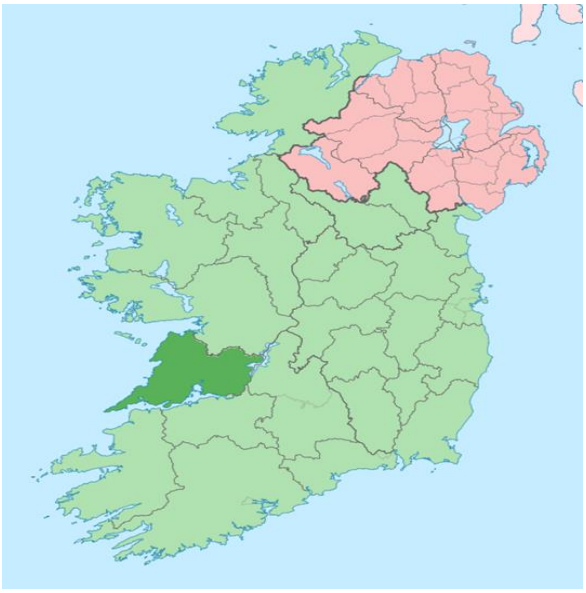

Figure 1 - Map of Ireland highlighting County Clare (in dark green)

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As the aim of this paper will be to determine the attitudes towards CNT by key tourism providers in County Clare, five Research Questions (RQ) have been identified, which should be met to fulfil this aim;

RQ 1 Are tourism providers familiar with the concept of carbon-neutral tourism?

RQ 2 Do tourism providers perceive any relationship between the tourism industry and climate change?

RQ 3 How can carbon-neutral tourism be created?

RQ 4 What are the attitudes of carbon-neutral tourism within County Clare?

RQ 5 Are tourism providers practicing elements of carbon-neutral tourism?

The primary research for this paper, guided by the secondary research, contained specific topics to explore within the broad area of CNT. Consequently, the most suitable interview type was deemed to be semi-structured, and this was the type used with all respondents. Finally, this paper will examine if there is a willingness amongst tourism providers in County Clare to participate in CNT.

2. LITERATURE REVIEW

2.1 Tourism and Climate Change

The tourism industry has always been impacted by climate change (Weir, 2017). However, it is also noted that future climate change will have effects that are unpredictable and variable (Weir, 2017). Scott, Hall and Gossling (2019) describe tourism as being a sector that is highly climate-sensitive and anticipate that the effects of climate change will be far-reaching in the coming decades. One reason they argue this will happen is that the strong inter-connectedness of the tourism industry will mean that effects in source countries can affect destination countries, and vice-versa (Scott et al., 2019). It is also noteworthy that Nepal, Irsyad and Nepal (2019) found that tourist numbers were negatively affected by increasing levels of energy consumption. Despite the recommendations outlined by the United Nations World Tourism Organisation (UNWTO) in their Davos Declaration (UNWTO Environment Programme, 2008) which were designed to curb emissions from tourism, the industry is currently predicted to grow substantially, with a

corresponding increase in GHG emissions (Scott, Gössling, Hall and Peeters, 2016). Gössling (2009) argues that in fact GHG emissions may increase at a significantly higher rate than the tourism industry itself, due to the industry's increasingly energy-intense nature. In 1950 tourist arrivals were 25 million, and this had grown to 1.245 billion in 2016, with a predicted number of 1.8 billion arrivals by 2030 (Gössling and Scott, 2018).

Whilst 'the implications of climate change for the tourism sector are far-reaching' (Gössling and Scott, 2018, p. 2072), Higham, Cohen, Cavaliere. and Reis (2016) observe that an imbalance exists whereby the consequences of emissions which are the responsibility of a small number of frequent air travelers are felt by people in nations with low per capita emissions. This imbalance is likely to increase in the future, and has been highlighted by Scott, et al. (2019) who created a 'Climate Change Vulnerability Index for Tourism' (CVIT). Using this method, it was found that the most vulnerable nations were to be found in the developing world (Scott, et al., 2019). Figure 2 shows the vulnerability to climate change of 181 countries around the world. It is notable that vulnerability is highest in poorer countries most reliant on tourism for their income. This corresponds with the findings of Dogru, Marchio, Bulut, and Suess (2019), who find that countries with the lowest incomes are also those with least resilience.

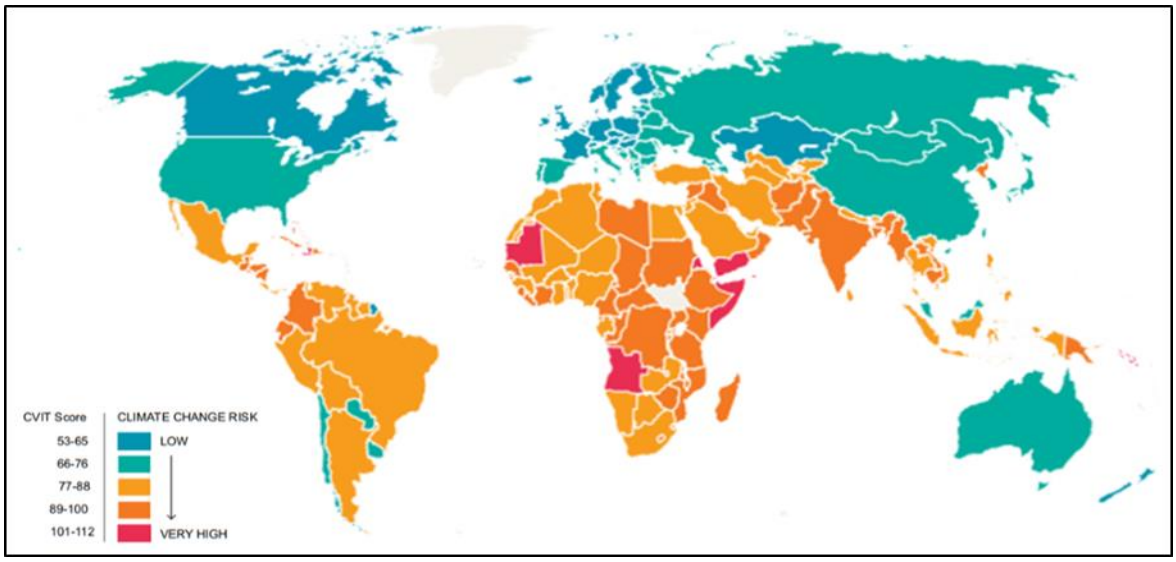

Figure 2 - Global distribution of CVIT scores (Scott, et al., 2019, p.56)

The effect of carbon levies or taxes have been shown to have limited impact in reducing the emissions from aviation (Gössling, et al., 2015). However, carbon taxes are likely to impact upon the tourism industry more generally, as was demonstrated by Dwyer, Forsyth and Spurr (2012) in their study of the Australian carbon tax, and a proactive approach from the industry could lessen these impacts (Scott, et al., 2016). The vulnerability of destinations to oil price increases can be reduced by 'decarbonising' (Gössling, et al., 2015), and this could be an example of a proactive measure taken by the tourism industry. These findings would concur with those of Dogru, et al. (2019, p. 300), which show that tourism is more vulnerable to climate change than the overall economy. Therefore, tourism stakeholders should be the proponents of policy development, push for adaptation and mitigation, and be pioneers of any resultant policy actions. Tourism has been shown to have clear links with climate change (See RQ 1). A proactive approach within the tourism industry has been the promotion of 'sustainable tourism'.

2.3 Carbon Neutrality in the Tourism Context

An important recent development has been the promotion of the idea of 'carbon neutral destinations' which could, if embraced by the tourism industry in sufficient numbers, lead to significant GHG reductions, though for these destinations to be labelled as such, all tourism actors must cooperate (Gössling, 2009). Several destinations have declared their intention to become carbon neutral, in different parts of the world. The differing criteria they use to measure their carbon neutrality highlights the lack of clarity in this area (Berners-Lee, Howard, Moss, Kaivanto and Scott, 2011). It is important, then, in the context of this paper, to define 'carbon neutral' (See RQ 1). There exist a variety of terms used to define 'carbon neutral', each with significant implications for their application within the tourism industry. Destinations describing themselves as aiming towards, or already achieving, carbon neutral status may use these differing interpretations. Gössling (2009) identifies four terms used by destinations – 'carbon neutral', 'climate neutral', 'carbon clean' and 'carbon free'. 'Carbon neutral' and 'climate neutral' have a similar meaning, implying a neutralising of emissions, the latter being a broader term which would include non-carbon emissions, which are significant for radiative forcing (Gössling, 2009), though

in reality the word 'neutral' is not strictly correct as emissions are compensated for, not neutralised.

At the 2007 UNWTO Second International Conference on Climate Change and Tourism, Sri Lanka declared itself to be the world's first 'carbon clean' destination (Sunday Times in Sri Lanka, 2007). Both 'carbon clean' and 'carbon free' imply that no carbon emissions have occurred, though this is rarely the case, and indeed never the case when aviation is included (Young, Markham, Reis and Higham, 2015). Perhaps more accurate terminology would be 'carbon compensated' or 'climate compensated' – the latter broader in its application, which would also include non-carbon emissions (Gössling, 2009). Implicit in the understanding of all these terms, from a tourism perspective, is that there is no net increase in global warming caused by the activities of the tourism industry. As global warming has been shown to be a result GHG emissions, most notably CO2, the understanding of the author of this paper, in the use of the general term 'carbon neutral', is that any carbon emissions have been compensated (See RQ 1).

Gössling (2009) identifies a three-step approach to achieve carbon neutrality, namely 'measurement', 'decarbonising' and 'offsetting'. Measurement is also sometimes referred to as 'footprinting' (Berners-Lee, et al., 2011), decarbonising is more often referred to as 'mitigation' (Debbage and Debbage, 2019) or occasionally 'abatement' (Scott, et al., 2016), and offsetting is sometimes referred to as 'neutralising' (Gössling, et al., 2015). There are few studies into the indirect effects of people's actions upon carbon emissions, and where there is the emphasis is, typically, on measurement (Büchs and Schnepf, 2013), with little attention paid to any mitigating effects.

Currently, Scott, et al. (2016) argue that there are few adequate systems to measure and report tourism sector emissions, though a variety of methods have been outlined and successfully applied. Measurement is a crucial first step for CNT (See RQ 3). Gössling and Schumacher (2010) identify the three major components of tourism sector emissions as transport, accommodation, and activities. Surugiu, Surugiu Zelia and Dinca (2012) utilise a method known as 'input-output', in which supply chain element inputs are aggregated and measured, and these are checked

against output measurements to give a net emission figure. This method requires the availability of broad economic and environmental data. A different approach, demonstrated in a case study by Pereira, Ribeiro, and Filimonau (2017), is the 'life cycle assessment' (LCA) method, whereby the inputs during all stages of an element's life cycle are assessed to give a total estimation of emissions.

Mitigation is the process of reducing carbon emissions which occur because of the tourism process (See RQ 3). As identified previously, the areas of most significance are transport, accommodation, and activities. Whilst being an essential step in achieving carbon neutrality, mitigation can have other significant benefits, largely cost-related, but also in terms of the attitudes of consumers (Scott, et al., 2016), who may perceive a lack of mitigation as inaction within the tourism industry. Mitigation costs are often perceived as prohibitive – however, the average cost of a low-carbon tourism sector was estimated to be only US$11 per consumer, which Scott, et al. (2016) argue puts it on a par with other charges currently paid by tourists, which don't deter them.

The Davos Declaration (UNWTO Environment Programme, 2008) stipulates that destinations should focus on energy efficiency, and some of the largest emission reductions can be a result of this. Within the accommodation sector there is often the potential for significant energy saving using a combination of insulation (Walz, Calonder, Hagedorn, Lardelli, Lundstrom and Stöckli, 2008) and the use of alternative sources of energy (Gössling and Schumacher, 2010), and these measures can sometimes be achieved at negative cost (Scott, et al., 2016). Within the tourism industry travel is the main cause of GHG emissions. Most mitigation in this sector will involve consumer choice, most notably in choosing the destination, and the mode of transport to be used (Gössling, 2011). Some forms of transport can themselves be carbon neutral if renewable energy is used as a source of power. Examples of this would be to use biofuel (Pereira, et al., 2017), or electricity generated by renewables, as in the case of the Dutch railway network, which uses wind power for all its trains (Nederlandse Spoorwegen, 2019). A new development, currently being trialed, is hydrogen-powered trains, which would also be carbon-neutral (Hirschlag, 2020).

The most effective method to mitigate aviation sector emissions is for consumers to travel to destinations closer to their source market (Hares, Dickinson and Wilkes, 2010), consequently a logical conclusion is that destinations promote themselves to nearby markets. As an example, if 5% of New Zealand's UK market came instead from China, associated emissions would reduce by nearly 6% (Gössling, et al., 2015). Where long distance routes are chosen, significant emissions reductions can be made by flying direct, rather than via other airports (Debbage and Debbage, 2019). Food is significant source of emissions and making certain choices in this area can have a big impact on emissions reduction (Berners-Lee, et al., 2011). The transportation of food can add considerably to emissions, and sourcing food locally can help mitigate this, as well as providing an attraction as part of a gastro-tourism product offering (Gössling, et al., 2011). Tourism activities undertaken vary considerably in their emissions, as demonstrated by Gössling, et al. (2005), who compare a low-impact activity (going to a visitor centre) and heli-skiing, the latter of which is responsible for nearly 200 times as many CO2 emissions. Such high-emission activities could be avoided, and once the practice of mitigation has been applied emissions that cannot be avoided can be offset (Gössling and Schumacher, 2010). This point is significant, as carbon offsetting has received widespread criticism if used as a lower cost alternative to mitigation (Scott, et al., 2016).

Gössling (2009) identifies several methods of forest management that can be viewed as offsetting carbon, such as the prevention of forest loss which has been used in Costa Rica as counting towards offsetting, whereas in Sri Lanka loss of forests was not considered in their calculations, measuring only afforestation effects. Rehabilitation of existing forests, and reforestation of previously forested areas, are also identified as being methods to store carbon (Gössling, 2009). To have credibility as offsetting methods Scott, et al. (2016) suggest that projects should only be included that wouldn't take place otherwise. The announcement by the Irish Government that 440 million trees will be planted by 2040 (Hutton, 2019) could be a viable offsetting method if the purpose of the plan is to sequestrate carbon, and the trees would not be planted otherwise.

Scott, et al. (2016) argue that credible offsetting should be permanent, independently verified and registered, which is echoed by Gössling (2009), who

identifies that forests must be permanent for them to effectively offset carbon. Commercial forestry does not typically fall in this category (Barkham, 2020). At aviation's current rate of growth there is not enough land to offset emissions from aviation, with Gössling (2009, p. 14) stating that 'offsetting emissions from aviation would lead to the use of all available lands by 2050'. There are many online offsetting tools available which accept payment to offset calculated amounts of carbon, some of which are non-profit organisations, and most of which offset carbon in the developing world (Vidal, 2019). However, these have been met with a degree of skepticism and uncertainty by consumers (Higham, et al., 2016), with McLennan, Becken, Battye and So (2014, p. 194) claiming that many carbon calculators in use 'often have simple interfaces but complex, ambiguous and inconsistent calculation processes. This was demonstrated by Vidal (2019), who asked eight offsetting companies to calculate his CO2 emissions for a return flight from London to Lilongwe via Nairobi, and who was given quotations varying between 2.24 and 5 tonnes CO2. Whilst some policy makers see carbon offsetting as substantive and useful, others see it solely as a partial or interim measure (Gössling, et al., 2015). The number of tourists purchasing carbon credits has been low, with estimates ranging from 1-2% of travellers for international flights, to 5-10% for domestic flights (Gössling, et al., 2015). However, there has recently been a significant increase in these numbers, and this has been attributed to the raised profile of the dangers of climate change by campaigners in what has been referred to as the 'Greta Thunberg effect' (Laville, 2019), demonstrating the importance of customer attitudes in their decision-making.

2.4 The Significance of Attitudes

A variety of academic studies report on issues relating to the attitudes of tourism stakeholders regarding climate change and carbon offsetting, though very little of this research involves tourism providers, the research being generally aimed at consumers of tourism. There is also a noticeable absence of this information in the Irish setting (See RQ 4). Brownlee and Verbos (2015) used a specially developed scale to measure beliefs in climate change and found that whilst the majority of respondents did believe in climate change, fewer of them believed this was influenced by mankind. Hares, et al. (2010) found that when planning holidays many

tourists did not consider climate change, and Buckley (2011) concluded that even if prices rise significantly, many environmentally knowledgeable people will continue with their current travel behaviours. McLennan, et al. (2014) did, however, find that people buying offsets were more likely to hold eco-centric attitudes.

The response of governments to global warming has been to encourage voluntary public behavioural change (Higham, et al., 2016), but voluntary approaches have been deemed insufficient. Gössling and Scott (2018) state that voluntary change does not work, however León and Araña (2016) did find that when consumers were well informed, especially when accompanied by positive emotions, they were more willing to pay to offset their emissions. Young, et al. (2015) suggest that feeling both entitled and powerless may be a reason people do not act pro-environmentally, and Higham, et al. (2016, p. 337) expand on this, stating that 'the deeply embedded nature of contemporary tourist air travel in developed societies has been highlighted by recent 'binge flying' and 'air travel addiction' discourses'.

Studies have found that the belief of many consumers is that responsibility for emissions lies with aircraft manufacturers and governments (Young, et al., 2015; Higham, et al., 2016). In one Swedish study, only a third of consumers felt they had any responsibility (Gössling, 2009). Even when consumers do feel responsible there is a 'substantial implementation gap in converting concerns into actual behaviour' (Gössling, et al., 2015, p. 204). Many studies have thus shown the significance of attitudes in the development of CNT (Gössling, 2009; Young, et al., 2015; Hares, et al., 2010), though there is an absence of research in the Irish market. This could be a key area of study, as 'the magnitude of climate change and associated risks in the decades and centuries ahead will be determined by the choices made today and, in the years, ahead to reduce GHG emissions' (Gössling and Scott, 2018, p. 2071).

3. METHODOLOGY

3.1 Introduction

The primary research for this paper, guided by the secondary research, contained specific topics to explore within the broad area of CNT. Consequently, the most suitable interview type was deemed to be semi-structured, and this was the type

used with all respondents. Prior approval was sought, and granted, from the paper supervisor to conduct interviews. RQ 3 was met through secondary research in the literature review. RQs 1, 2 and 4 were partially met, but RQ 5 was not addressed, and it was therefore necessary to use primary research methods to attempt to complete and satisfy these remaining RQs. As detailed previously, the interactive approach suggested by the ontology and epistemology which form the basis of the research in this paper is likely to produce predominantly qualitative data.

3.2 Interviews

Interviews can take a variety of forms, from fully structured to fully unstructured. In-depth interviews can be semi-structured or unstructured, depending on whether a checklist of areas to be covered in the interview is used, or whether there is only a prescribed broad topic area (Saunders, Lewis and Thornhill, 2016). In depth interviews are a form of inductive research, which differs from deductive research in that the process does not begin with an established theory (Mason, 2014).

11 interviews were conducted, in January 2020, with each taking place in a location chosen by the respondent. Typically, this was alone in a quiet office, though one interview took place walking in a woodland. One of the interviews took place using internet telephony (Skype), and one took place over the telephone, with all others taking place in person. The interviews ranged from 15 to 45 minutes in duration, and a maximum of two were conducted per day. An audio recording was made of each interview, which was later transcribed.

Prior to the interview each respondent signed a consent form. Using a 5-point Likert scale all interviews began with a brief, structured exploration of the respondents' beliefs regarding the existence of climate change, and whether they feel it has a human cause, using the model devised by Brownlee and Verbos (2015) for their research. Further to this, the respondents' views on the contribution of tourism to climate change were explored. The choice of these questions was influenced by the research undertaken by Gössling, et al. (2015); Higham, et al. (2016); and Gössling, (2009). At this point in the interviews the topic of conversation was steered towards each respondent's particular input into tourism supply in County Clare, and whether they currently carry out any aspects of CNT (See RQ 5). A more

general discussion of attitudes, using open questions, was then encouraged (See RQ 4). During all interview's attention was paid to the tone of voice of respondents, hesitation, and any other verbal cues, such as leaning forward, and these were noted.

3.3 Research Participants

To meet RQ 5, it was necessary to identify suitable key tourism providers. All respondents were selected using purposive sampling, whereby subjects were chosen on the basis of important characteristics they possess relevant to the field of study (Brotherton, 2009). Representatives of a range of regional tourism management bodies were interviewed, along with tourism providers that have expressed an intention to offset carbon. Representatives of a variety of tourism supply elements were also chosen to interview. These elements are 'productive activities that involve the provision of goods and services required to meet tourism demand and which are expressed in tourism consumption' (Sessa, 1983, p. 59). These elements are categorised under the frequently used category headings Accommodation, Attraction, Accessibility, Activity and Amenity (O'Connor, 2016). See Table 1 for a list of respondents.

Category	Details	Alias in this paper
Tourism management	Regional Government	R1
	Local Tourism Development Group Secretary / Self Catering Provider	R2
	Geopark Manager/Geologist	R3
Carbon offsetting	Tree Planting Charity	R4
	Retreat Centre/ Workshop Centre Manager	R5
Accommodation	Hotel 'Green Team' Leader	R6
Attraction	Eco-tourism Attraction General Manager	R7
Accessibility	Local Bus Service Manager	R8
Activity	US-based Tour Operator	R9
	Local Drive Guide	R10
Amenity	Woollen Mill Proprietor	R11

Table 1 – Respondents

All prospective respondents were contacted in advance by email or telephone. They were informed of the reason for the interview, and the likely topics to be

investigated. Most participants were given an advanced copy of the consent form; if this was not possible, they were informed of its contents. Participants were told that they could withdraw at any time and were informed of the procedure to follow if they should have any complaints. Full confidentiality was offered, should they choose it, and respondents were given the choice of using an alias if they preferred. Advance permission was requested to record the interviews, and respondents were assured that the audio files would be stored electronically in a password-protected folder until July, when they would be deleted. Respondents were offered the opportunity to hear the audio recording, read the transcript and review any content that pertained to their interview prior to its publishing in the paper. No participant elected to review any material prior to publishing – one respondent did request to see the final submitted paper.

3.4 Ethical Considerations

In conducting the primary research for this paper, it was necessary to consider any ethical issues that might arise, as 'ethical behaviour is important in research, as in any other field of human activity' (Veal, 2011, p. 101). The Economic and Social Research Council (ESRC) produced a 'Research Ethics Framework' which detailed six key principles of ethical research and these principles have been followed during the research of this paper. Of relevance in the current context is the principle of 'informed consent', whereby 'the researcher should always inform potential participants in advance of any features of the research that might reasonably be expected to influence their willingness to take part in the study' (Brunt, et al., 2017, p. 11). A full explanation of the purpose and context of the research was given to the respondents in advance of their interview.

3.5 Methods of Analysis

In conducting the research for this paper, the author used the 'grounded theory' approach, as devised by Glaser and Strauss, whereby theories are generated by the research, rather than using research to test theories (Veal, 2011). Interviews were transcribed, and these transcripts were analysed to identify any themes or ideas that were repeated. This method is known as 'content analysis', and is an established

technique frequently used when analysing qualitative research (Saunders, et al., 2016). To assist the process of data analysis an appropriate software package was used. The software used was 'NVivo 12 Pro', which 'intuitively helps a researcher to characterise, cut, code, categorise, convert and create knowledge about a phenomenon' (Brunt, et al., 2017, p. 261). All interview transcripts were entered into NVivo, and themes, concepts, ideas and opinions which linked to the RQs of this paper were identified, and these codes (labelled as 'nodes') were also entered into the software (Brunt, et al., 2017). Excerpts from the interviews were linked with the nodes, and this facilitated a summary of the findings, with a clear identification of the interview origin of the data.

4. DATA ANALYSIS

4.1 Introduction

This section summarises and discusses the findings of primary research, conducted during January 2020, to meet the RQs. The research was conducted using semi-structured interviews. Details of respondents is given in Table 1. All respondents were assigned an alias to be used in this data analysis (e.g., R2, R7) to facilitate the reading of the section.

4.2 Climate Change and Tourism

As already noted, all respondents were asked preliminary questions about whether they believe climate change is happening, and whether they consider certain actions of mankind to contribute towards climate change. These questions were based on the work of Brownlee and Verbos (2015). All respondents answered that they 'agreed completely' with all of the statements (See Table 2), thus demonstrating they believe strongly that climate change exists, and that it is influenced by people's actions. These results show a greater belief among respondents than Brownlee and Verbos (2015) found in their own study in the USA where, whilst a large majority felt climate change was a reality, fewer considered human activity a causative factor.

Question	Number of Respondents	Question	Number of Respondents
On average around the earth, I believe the following are happening:		**I believe the following contribute to changes in climate around the earth:**	
Air temperatures are increasing		Clear cutting of forests	
Agree completely	11	*Agree completely*	11
Agree somewhat	0	*Agree somewhat*	0
Don't know	0	*Don't know*	0
Disagree somewhat	0	*Disagree somewhat*	0
Disagree completely	0	*Disagree completely*	0
Sea level is rising		Burning Fossil fuels such as coal and oil	
Agree completely	11	*Agree completely*	11
Agree somewhat	0	*Agree somewhat*	0
Don't know	0	*Don't know*	0
Disagree somewhat	0	*Disagree somewhat*	0
Disagree completely	0	*Disagree completely*	0
		Air Travel	
		Agree completely	11
		Agree somewhat	0
		Don't know	0
		Disagree somewhat	0
		Disagree completely	0
		Driving petrol / diesel cars	
		Agree completely	11
		Agree somewhat	0
		Don't know	0
		Disagree somewhat	0
		Disagree completely	0

Table 2 - Responses to preliminary questions

When asked specifically about tourism's relationship with climate change (See RQ 2), all respondents replied that they think tourism is a significant contributor, which corresponds with the findings of Lenzen, Sun, Faturay, Ting, Geschke and Malik (2018), who concluded that 8% of total planetary GHG emissions in 2013 came from tourism. Whilst some respondents consider all aspects of tourism to have the potential to contribute to climate change, most respondents identified travel, and flying, as being the major contributing factors. Whilst the view about air travel corresponds with the findings of Scott, et al. (2016), who found that air travel is the main factor, less emphasis was given to car transport, which has been estimated to contribute 32% of tourism's emissions. The modern phenomenon of cheap flights

was observed, which has led to a significant growth in air travel. R11 stated the irony that, whilst low prices created this demand, raising prices would now have little effect, commenting that 'it would only change behaviours if the flight cost €500 extra'. One respondent (R5) also identified the typically high amounts of food waste within the hospitality industry as contributing to climate change.

The tourism industry was seen by some respondents as being a necessary evil in society, and that, whilst tourism is 'abusive to the environment, and people, and communities' (R8), 'no country can survive without tourism … so we are kind of held hostage to it' (R7). R3 observed that the unsustainable nature of tourism, and its contribution to climate change, were the reasons the Burren Ecological Network was created, which requires its members to sign up to a charter committing themselves to lessening their environmental impacts, as recommended by the Davos Declaration (UNWTO Environment Programme, 2008). The effects of climate change upon the tourism industry in County Clare were considered of a lesser magnitude than in some parts of the world (See RQ 2), though R5 did observe a notable change in weather patterns in recent years, with more storms and extreme weather events, and R1 commented on increased levels of flooding – all of which can be detrimental to the tourism product. As seen in earlier, the CVIT model (Scott, et al., 2019) suggests that tourism in Ireland is indeed likely to experience only a low impact because of climate change.

4.3 Attitudes towards Carbon-Neutral Tourism

Following on from a discussion about climate change and tourism, respondents were asked about their understanding of CNT, their general attitudes towards it, and whether they feel interested in getting involved.

4.3.1 Understanding

When asked about their familiarity (or not) with CNT (See RQ 1), a range of answers were given. Some respondents were familiar with the concept, and had some understanding of its meaning, whereas others had never heard of CNT. R11 was familiar with the term, but thought it was 'a bit of a hoax'. R7 questioned the accuracy of the term 'carbon-neutral', expressing doubts about whether all inputs are

measured when calculating emissions, a point echoed by R8. Gössling (2009) also questioned the accuracy of the term but conceded that it is the term most accepted. Upon CNT being explained, one respondent (R10) observed that the carbon-neutral model could apply to most industries.

4.3.2 General Attitudes

In the academic realm, limited research has been conducted with tourism providers about their attitudes towards CNT, with most studies investigating the attitudes of consumers (Hares, et al., 2010; McLennan, et al., 2014). In this study general attitudes towards CNT were investigated with all respondents (See RQ 4), and a wide array of opinions were given. Most respondents commented favourably upon CNT, although negative perceptions were also expressed from some respondents. These negative perceptions typically revolved around ethical issues, especially about the notion of people 'buying off their sins' (R5), with R8 commenting that 'it is what multinationals do isn't it? Pollute, and then pay any fines.

R8 observed that CNT would not change habits sufficiently to prevent climate change, with R7 adding that 'even though you might pay your one or two Euros for your carbon footprint, that's not really going to do anything'. In their study Gössling and Scott (2018) also found significant variation in views about CNT, but many of the negative attitudes towards CNT they recorded were based more on a disbelief in climate change, the perception that the tourism industry is already doing enough, and the view that economic growth is more important than mitigation. In contrast, all respondents held the view that climate change is real, and that CNT is the minimum requirement of the tourism industry.

R2 commented on the true sustainability of CNT and linked this with creating thriving social communities. Other respondents were more skeptical of some of the means to achieve CNT. R5 expressed doubts about methods that might be employed to achieve carbon-neutrality, such as questionable management practices when planting trees to offset carbon, citing the almond tree, which will eventually die out if planted as a monoculture due to the lack of habitats for bees, with which the tree has a symbiotic relationship, relying on bees for pollination. R11 also questioned the long-term future for planted trees, with R11 stating (referring to Brazilian

President Jair Bolsonaro) 'I wouldn't trust your man in Brazil, he'd burn it down again the next day'. R4 also commented on deforestation in the Amazon, and the lack of trust in offsetting schemes there. R7 questioned whether the environmental impacts of all inputs are measured, such as 'cobalt from the Congo' in the manufacture of electric vehicles. These doubts differed from those found by Higham, et al. (2016), who only noted skepticism based on calculation inaccuracies. R5 felt that, whilst CNT is a step in the right direction, 'we are about 50 years too late'. R11 agreed with this sentiment, adding the cautionary comment that if tourism continues to grow at its present rate 'the world would be very full of trees very soon with all the people travelling!' Research has shown that, at the current rate of growth, there will be insufficient land to offset emissions with trees by 2050 (Gössling, 2009).

4.3.3 Interest

All respondents were asked whether they would like to be involved in CNT (See RQ 4), and all respondents said that they would. R2 commented that 'it's kind of the whole ethos of Tourism East Clare', and R10 stated that 'if I felt I could work within the tourism sector on work that valued and protected nature, I'd definitely be interested', whilst qualifying this by noting that 'it would have to be profitable for it to be viable'. This should be feasible, as Scott, et al. (2016) argue that low-carbon tourism does not need to incur significant extra costs. Other respondents were more drawn to CNT for ethical reasons (R7, R8), with R6 summing this up saying 'it's simply the right thing to do'.

R3 stated that environmental concern was the reason that the Burren Geopark was created but observed that to create a carbon-neutral geopark in the Burren would be difficult, as 'all stakeholders would have to buy into the idea'. This statement echoes that of Gössling (2009, p. 34), who states that 'it is essential for all tourism actors to cooperate, rather than to focus on individual tasks' in creating carbon-neutral destinations. R3 did, however, observe that a Finnish geopark does intend to declare itself carbon-neutral within three years, and that there is an intention to move towards CNT in the Burren. R8 found the idea of practicing CNT which involved the local offsetting of carbon most appealing, and R4 found that, by

planting trees locally, interest in CNT was growing. This growing interest has included hotel staff (R6), who noted that since Hotel Burren, in Doolin, became carbon-neutral employee turnover had decreased, adding that 'people want to work in a business that has a sustainable ethos', which concurs with the findings of Manika, Wells, Gregory-Smith and Gentry (2013).

4.4 Measurement, Mitigation and Offsetting

The three-step method by which CNT can be achieved, outlined by Gössling (2009), was investigated, with all respondents discussing the three steps of measurement, mitigation and offsetting (See RQ 3), and explaining their activities relating to the three steps (See RQ 5).

4.4.1 Measurement

All respondents were asked about any attempts they might make to measure their carbon footprints. Whilst all respondents expressed an interest in measuring this, only a few respondents had attempted to do so (See RQ 5). Methods used to do this varied, though no respondents were able to measure their carbon footprint accurately, which corresponds with the findings of Scott, et al. (2016), who argued that few adequate systems to measure emissions exist. Some respondents also questioned the accuracy of online measurement tools, and these doubts concurred with the findings of Higham, et al. (2016).

As seen earlier, measuring carbon emissions can be complicated (and some methods only apply on the macroscale), and all methods used by respondents involved the use of third parties. R6 used the services of a company that gave an estimate of Hotel Burren's emissions as part of a 'green hospitality' certification programme. Both R7 and R8 had availed of the voluntary services of local experts, who had found the number of variables to be measured an obstacle to providing clear and accurate data. In estimating the emissions of a local bus operator (Clare Bus), R8 found that a complication was the start-stop nature of the vehicle use, which would seem to modify the claim from Gössling et al. (2015) that emissions from transport can be easily calculated.

R4 had investigated the process for having the carbon footprint of their tree planting business certified by globally recognized bodies, concluding that this would take a long time. R5, whilst not directly measuring the carbon footprint, regularly measured energy use per person that visit the Boghill Centre, a method utilised by Sung, Chon and Hong (2015). R5 also had plans to commission an energy audit that should more accurately give an estimation of carbon emissions, though the net carbon footprint was more difficult to calculate as the centre also plants trees, which themselves sequester carbon. The findings of this section may suggest carrying out further research into finding effective, industry-recognised measurement tools that are perceived to be more accurate than online methods, and that can be carried out at a level suitable for small businesses.

4.4.2 Mitigation

Of the three steps by which CNT can be developed, the most spoken about and practiced by respondents was mitigation. A notable distinction was made between direct mitigation, where steps taken by organisations automatically reduced emissions, and indirect mitigation, where the effect of an organisation's activities was to reduce emissions elsewhere. Indirect mitigation has been rarely studied, with academic research tending to focus more on measuring indirect emissions (Büchs and Schnepf, 2013). R1 had found that, at all levels of government, there was a focus on mitigation, saying 'no one is talking about carbon-neutral - there's talk about mitigation all right'. At a direct tourism management level this focus on mitigation was also found, with R3 stating that mitigation was a pre-requisite for membership of the Burren Ecotourism Network. R2 also discussed the encouraging of mitigation at a local tourism level, but said it was not seen as a priority in East Clare.

All respondents carried out some level of direct mitigation themselves (See RQ 5), and there was a wide variance in the methods employed. These included energy efficiencies (R5, R11), which conforms with the Davos Declaration (UNWTO Environment Programme, 2008), replacing petrol-powered tools with electric ones (R7) and using renewable sources of energy such as wind power and firewood (R2, R4, R5, R6). R8 said Clare Bus had previously trialed biofuels, and had proposed using electric buses, but found a lack of government support had rendered these

initiatives unviable. Using food as a form of mitigation was mentioned by several respondents, and this has been shown to have a big impact on emissions (Berners-Lee, et al., 2011). Most of the focus was on sourcing foods locally (R2, R5, R6), with some respondents growing it themselves, and serving less or no meat on their menus (R5, R6, R7, R11), as highlighted by Poore and Nemecek (2018). These practices correspond with the recommendations from Gössling, et al. (2011) for climatically sustainable food management.

The motives expressed for practicing mitigation were typically for the benefit of the environment, though R10 suggested his employer carried out mitigation to save costs, which is a potential benefit also noted by Scott, et al. (2016). Hotel Doolin carried out mitigation as part of the process of becoming 'Ireland's first carbon-neutral hotel' (Conghaile, 2019), seeing an estimated emissions reduction from 465 tonnes of CO2 in 2017 to 115 tonnes in 2018 (R5). Limitations on mitigation were expressed by some respondents. R7 explained the willingness to, but the impracticality of, travelling by boat and rail to attend an event in Italy, rather than flying. Whilst this would have taken much longer, the main barrier was the cost, which was calculated to be over 11 times the price of flying. Another limitation, expressed by R5, was the travel origin of visitors to the centre, pointing out that 'I can't stop people coming to a workshop because they are coming too far'.

Several respondents discussed the effects their activities may have upon the actions of people elsewhere, which may lead to a mitigation of emissions, and which could demonstrate the complexities of tourism's relationship with climate change (See RQ 2). R4 spoke about his company's growing of organic vegetables to sell, and how this could reduce the emissions for consumers due to reduced transport requirements. Similarly, R7 referred to the fruit trees sold by Irish Seed Savers Association, which would themselves sequester carbon in their final destinations. These effects are also noted by Gössling, et al. (2011).

R8 observed that by providing public transport consumers will use cars less, which also leads to indirect mitigation, corresponding with the observations of Gössling (2011). R2 remarked that a wind turbine connected to the national grid (which she had considered installing) would enable a business to practice CNT, whilst also contributing to reduced emissions elsewhere. R11 suggested that, by

providing local, high-quality products, consumers are likely to buy fewer cheap, imported products which could have a larger carbon footprint, pointing out that 'if somebody only buys one scarf from us instead of 20 from somebody else then we are helping that bit'. Evidence of this effect has been recorded by Duarte, Mainar and Sánchez-Chóliz (2010). Whilst rarely studied, this indirect mitigation could be a factor in calculating an organisation's carbon footprint and may be a recommended area for further research.

4.4.3 Offsetting

Few of the respondents actively offset their carbon emissions (See RQ 5), though some respondents did indicate an intention to do so (R8, R2). Other respondents considered whether their own land management practices offset CO2 to the extent that they are unconsciously practicing CNT. R4 highlighted the lack of specific details about levels of carbon sequestration by trees, pointing out that 'loosely speaking, between one and four trees remove one tons of carbon from the atmosphere'.

The motives varied for different land uses, with several respondents stating that they plant trees or re-wet bogs simply to create ecosystems (R4, R5, R7). Most notable in this regard is R4, who's business essentially revolves around planting trees, but who states that 'I don't work in carbon offsetting, I work in, you know, planting trees', adding that 'Home Tree's purpose is to increase biodiversity and regenerate landscapes, and engage people in the natural world'. This business does, however, plant trees on other people's behalves, which enables those people or businesses to declare themselves carbon neutral. An example of this is Hotel Doolin, who pay Home Tree to plant 10 trees for every wedding hosted at the hotel (R6), thus offsetting their emissions. As seen previously, offsetting CO2 with trees is the main method in use globally (Keith, et al., 2019), and planting trees locally in Ireland may be particularly beneficial, as there is recent evidence of tropical rainforests storing lessening amounts of carbon as their health deteriorates (Hubau and Lewis, 2020). R5 suggested offsetting carbon by making 'biochar', which corresponds with the findings of Bis, Kobylecki, Ścisłowska, and Zarzycki (2018) who have shown it to be a useful method for storing carbon in soils, and R7 discussed grasslands as areas for sequestration.

4.5 Additional Factors

During the research, certain unprompted themes were raised by the respondents, which related to the area being studied. These are discussed here.

4.5.1 Education

A theme that occurred regularly during the interviews was that of education. Many respondents see part of their role as tourism providers being to educate others, either directly, or by way of example, about care of the environment (See RQ 2). Accommodation providers said they try and educate their guests about reducing their carbon footprints (R2, R5, R6), and some tourism providers hope to provide working examples of climate-friendly businesses which can inspire others (R5, R6, R7), with R7 observing that 'the more people actually see offsetting happening in real life, the more likely they are to actually take part'. Other examples of education that respondents mentioned were teaching international visitors about local environments (R9) and explaining the environmental and social effects of buying mass-produced, cheap clothing (R11). This education could be beneficial for CNT, as well-informed consumers, in positive scenarios, are more willing to pay to offset emissions (León and Araña, 2016).

4.5.2 Funding and Support

Whilst CNT was seen by all respondents to have positive attributes, the perception generally was that state bodies do not prioritise, and financially support, the growth of CNT. R1, who is an active politician, observed that at County Council level there is talk only of mitigation, and not carbon-neutrality. This mitigation does not extend to curtailing tourism that has a high carbon footprint. R2 did see some cause for optimism, with a shift of focus within Clare tourism away from competition, towards greater collaboration between tourism bodies, which could facilitate more integrated CNT (See RQ 5).

At national government level supports for CNT were perceived to be minimal (See RQ 4), with most respondents being unaware of any financial inducements to encourage CNT. R8 observed that the National Transport Authority had hindered attempts to create carbon-neutral transport. Some respondents emphasised the

need for subsidies to encourage potentially low-impact modes of transport, such as trains and boats, and greater supports to develop public transport. It is notable in this regard to compare the situation in Ireland with that in Luxembourg, where all public transport has recently been made free to use (Agence France-Presse, 2020). Tallinn, the capital of Estonia, and Dunkirk, in France, have also introduced free public transport (Kirby, 2020). Cynicism was shown towards national government policies, with the assertion that the management of carbon looks more positive than it is due to purchased carbon credits (R7). By November 2019, the Irish government had paid €121 million to offset carbon due to its unmet emissions targets (Finn, 2019). R1 summed this up by saying 'The big parties are just 'greenwashing', the Green Party is the only party that actually has accepted the fact that the reality is we have to reduce our carbon emissions'.

4.5.3 Tourist Attitudes

Many respondents referred to their perceptions of attitudes amongst tourists towards the environment and CNT (See RQ 5). Generally, the feeling was that many tourists are motivated by the desire to limit their effects on climate change, and to exert a positive influence on the environment. Examples were given of hotel guests voluntarily offsetting their flights to Ireland and shifts in dietary demand towards foods that have a lower impact on climate change (R6). Holidaymakers picking up litter (R10), and visitors wanting to engage in environmental work, to give back to the communities they are visiting (R9) were also highlighted. Levels of environmental awareness in different areas were also remarked upon, with R9 stating that 'where I live there's (environmental) consciousness … definitely it's not the standard in the US. You know, when I travel to Europe, and travel to different parts of the world, I see much higher standards. Many governments have encouraged voluntary behavioural change amongst consumers as a way of dealing with climate change (Higham, et al., 2016), though many consumers felt they had no responsibility for emissions (Gössling, 2009). Whilst beyond the remit of this paper, the attitudes and motivations of tourists would be a valuable area of further research, especially in the Irish context. This research could potentially include an exploration of any variation amongst respondents from different demographic and geographic categories.

5. RESEARCH LIMITATIONS

Time and resource constraints for completing this paper placed a limit on the number of respondents. Also, these constraints made it preferable to approach some people whose contact details the author already had/could easily get. This method of selecting respondents has elements of 'convenience sampling' (Mason, 2014). Whilst an attempt was made to interview a balanced range of tourism providers, and significant key tourism management personnel, chosen using purposive sampling, some bias is possible when respondents are deliberately selected, as probability theory does not apply (Saunders, et al., 2016).

6 CONCLUSIONS AND RECOMMENDATIONS

5.1 RQ 1 - Are tourism providers familiar with the concept of carbon neutral tourism?

Having determined an accepted meaning of 'carbon-neutral', academic sources gave a broad consensus about the concept of CNT. Many research respondents had a limited understanding of CNT. One respondent was, however, already using the term in their marketing, and some evidence was found that there may be a growth in the understanding, and use, of the term. CNT is not generally well understood, and if it is to be prioritised by governments and tourism bodies, they should put resources into effective, explanatory marketing. It should be noted that most respondents felt that local/national government in Clare/Ireland are not currently prioritising CNT.

5.2 RQ 2 - Do tourism providers perceive any relationship between the tourism industry and climate change?

Tourism has been seen to be both a contributor to climate change, and, to a lesser extent, affected by the consequences of climate change. Academic sources (Gössling, et al., 2015; Katircioglu, 2014; Dogru et., 2019) have provided scientific evidence of these effects, and this paper has displayed clear beliefs which support this. The perception amongst respondents is that County Clare is not very vulnerable to the effects of climate change, but greater consequences can be felt elsewhere.,

which corresponds with academic research. Respondents in this paper questioned whether the indirect effects of their actions on climate change, as tourism providers, are measured. This could be a valuable, if complex, area of future research.

5.3 RQ 3 - How can carbon-neutral tourism be created?

The three key components of CNT were found to be 'measurement', 'mitigation', and 'offsetting'. Different tools exist to measure carbon emissions, and these can vary widely in their estimates. Whilst the idea of mitigation is generally well understood, there can be uncertainties as to what constitutes assessable mitigation. A variety of methods to offset carbon have been identified, though most attention has been placed just on tree planting. More accessible measurement tools would be helpful. A greater understanding of indirect mitigation would also be beneficial. Further studies into the offsetting of carbon in peat bogs could be especially useful in the Irish context.

5.4 RQ 4 - What are the attitudes of carbon-neutral tourism within County Clare?

There is little academic generic research about attitudes in Ireland towards CNT, though positive attitudes have been identified as important for CNT. In this paper these attitudes were researched through the medium of semi-structured interviews using open questions. All respondents had broadly positive feelings towards CNT and were keen to be involved. Whilst the attitudes of consumers were not measured in this paper, many respondents felt tourists also had positive attitudes towards CNT. Measuring this could be a valuable area of further research, which may lead to an understanding of the demand for CNT and could be part of another feasibility study.

5.5 RQ 5 - Are tourism providers practicing elements of carbon-neutral tourism?

Only a few respondents currently measure their carbon emissions, partly due to a perceived unreliability of measurement tools. All respondents mitigate directly, and some also mitigate indirectly. Few respondents currently offset their emissions. Whilst tourism is a fragmented industry, there are signs of greater collaboration developing in County Clare, which will be essential if the county wishes to become a carbon-neutral destination. Whilst this paper shows clear trends in the practices of tourism providers, it is limited in scope. Carrying out further, larger-scale research

would give a more complete understanding of tourism practices in County Clare, and in the wider, Irish context. This could also yield some quantitative data, which may be helpful

This paper has demonstrated an enthusiasm amongst selected tourism providers in County Clare towards CNT, and a willingness to practice more elements of it. However, this paper has highlighted barriers to engaging in CNT, and a perceived lack of industry support that can also hinder tourism stakeholders willing to participate in CNT. This work has also identified gaps in available knowledge. Climate change is a growing concern in the world, a fact that has been recognised by the United Nations, who have in response created a blueprint for sustainable development that should help reduce the effects of climate change. This blueprint is enshrined in the Davos Declaration, and the 17 Sustainable Development Goals. CNT is a model that can be used to create a more sustainable tourism product, which can help governments and tourism bodies meet the demands made by the United Nations to help lessen the effects of climate change. CNT is thus likely to grow. This paper has demonstrated a willingness amongst tourism providers in County Clare to participate in CNT. However, certain barriers have been identified, and CNT needs better understanding, promotion and support for it to be practiced more widely.

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