

CLIMATE CHANGE MITIGATION POLICY AND THE TOURISM SECTOR:
PERSPECTIVES FROM THE SOUTH WEST OF ENGLAND.

Tim Coles, Anne-Kathrin Zschiegner and Claire Dinan

Centre for Sport, Leisure and Tourism Research, University of Exeter Business School.

Streatham Court, Rennes Drive, Exeter, EX4 4PU. United Kingdom.

(t) +44-1392-724441 (f) +44-1392-722342 (e) t.e.coles@ex.ac.uk

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ABSTRACT

Climate change is one of the major challenges of our times and state intervention has been identified as a critical success factor in attempts to tackle it. This paper critically explores the reciprocal relationship between climate change policy and the tourism sector in the United Kingdom. It examines on the extent to which current mitigation activities within accommodation businesses in the South West of England reflect recent UK policy on climate change as well as the prospects of the tourism sector contributing to the delivery of the state's aspirations in this area. Among tourism businesses there has been weak recognition of, and direct response to, recent policy UK initiatives and their associated instruments. An Implementation Gap is identified relating to the top-down nature of climate change policy in the UK. If this gap is to be closed and the tourism sector is to make a greater contribution to abating climate change, policy-making must progress from generic prescriptions towards a more nuanced approach that recognises and addresses the particularities within key economic sectors such as tourism.

KEYWORDS

Tourism, policy, implementation, gap, climate change, mitigation.

1. INTRODUCTION: THE STATE, CLIMATE CHANGE MITIGATION AND TOURISM

Climate change has been described by Nicholas Stern, as one of the greatest instances of market failure the world has ever seen. Without abatement, he argues, the risks are so high that serious climate change will fundamentally alter how people live within three decades (Stern 2007). Central to the response is state intervention.. For the political commentator Anthony Giddens (2009: 8), 'the state has to act as a facilitator, an enabler – it has to help to stimulate and support the diversity

of groups in society that will drive policy onwards'. Without well-targeted interventions that mobilise as wide a cross-section of social interests as possible, the chances of abating future climate change are much reduced. Nevertheless, for all the interest in climate change in tourism (see Hall and Higham 2005; Gössling and Hall 2006; Scott and Becken 2010), there has been practically no systematic analysis of the relationship between state policy and behaviour on either the demand-side (i.e. visitors) or the supply-side (i.e. among tourism businesses and intermediaries). In one notable exception, Klint et al (2011) examined adaptation policy in the Pacific island state of Vanuatu and concluded that, if there were explicit climate change policies for the tourism sector, its resilience would be strengthened. Other studies have concluded with general policy recommendations while some have even commented broadly on the potential of tourism-related activities to contribute to government goals for mitigation (Gössling and Schuhmacher 2010; Dwyer et al 2010). However, as Scott et al (2010) have recognised, few studies have embarked specifically from the starting point of a close inspection of extant policy and the nature of practices that accompany it. Put another way, dedicated and detailed assessments of the efficacy of particular climate change policy instruments in terms of their ability and appropriateness to induce behaviour change in the tourism sector have been lacking.

The aim of this paper is to examine climate change policy as it relates to the tourism sector in the United Kingdom (UK). In particular, it focuses on how interventions in the area of mitigation relate to the actions of accommodation providers in the South West of England and hence the prospects of a major economic sector contributing to the achievement of the UK government's goals. The paper reports research conducted from 2009 to 2010: that is, during the last months of the previous (Labour) administration which identified climate change as one of the 'great challenges of the twenty-first century' (Stern 2009: 1). Five further sections follow in the two parts. Policy interventions and instruments are intended to induce 'behaviour change' among those subjected to

them. While this term has mostly been associated in tourism studies of climate change with attempts to encourage new tourist behaviours (Barr et al 2010, 2011), it is equally relevant to business practices and operating procedures. Central to debate on the former has been the extent to which intentions result in desired (policy) outcomes but this duality should also be of concern on the supply side and, as such, it underpins the structure of this paper. The first part of the paper examines policy intentions. It sets out how policy analysis has featured in recent research on climate change in tourism (Section 2) as a precursor to a discussion of current state policy to encourage greater mitigation in the UK (Section 3). The second part examines policy outcomes as expressed in business behaviours. Discussion of the methods (Section 4) precedes analysis of how over 400 accommodation providers have responded to the need for greater mitigation (Section 5). The juxtaposition of policy intentions and business practices are discussed in the final section.

2. POLICY RESEARCH ON TOURISM AND CLIMATE CHANGE MITIGATION

In parallel to its growing political importance, academic interest in climate change as a feature of contemporary tourism development has been growing (Gössling and Hall 2006; Becken and Hay 2007; Gössling and Hall 2008; Scott and Becken 2010; Hall 2008a; Dubois and Ceron 2006; Gössling et al 2010). Within the body of knowledge, several major lacuna have started to emerge as the nature of enquiry is being debated (Weaver 2011; Scott 2011). One of the more important lacuna relates to the regulation of tourism production and consumption in view of future climate change. More particularly, as Scott and Becken (2010: 286) have noted,

‘policy analysis in relation to climate mitigation and tourism is very rudimentary and at this point does not provide meaningful insight as to which policies might be effective in achieving emissions reductions’.

Their comments were primarily aimed at the demand-side and the extent to which policy may be able to induce different forms of –what they called- ‘tourist activities’, for example by encouraging greater carbon-offsetting (Gössling et al 2007, 2009; Mair 2011) or inducing different holiday choices and travel behaviours (Barr et al 2010, 2012; Dickinson 2010; Dickinson and Lumsdon 2010; Hares et al 2010, McKercher et al 2010). Still, this observation is even more pertinent with respect to the supply-side. To date, there has been no dedicated research on the extent to which specific policy interventions or particular policy instruments have been designed and implemented to encourage tourism producers to alter their operating procedures to mitigate climate change.

The fact that there has been so little detailed analysis of state (or sub-state) policy in this context is somewhat curious for two main reasons. First, tourism producers have been broadly identified as a notable global source of emissions (UNWTO 2007; Simpson et al 2008). Accordingly, there has been some limited scrutiny of broad supra-national policy and the role of international industry lobby groups in the setting and achieving of basic global targets for future emissions (Scott et al 2010; Gössling 2011). Second and connected, environmental management has been a long-standing and much debated topic in tourism research (Tribe et al 2000; Bohdanowicz 2006; Bohdanowicz and Martinac 2007; Chan et al 2008), in particular as it relates to small- and medium-sized (tourism) enterprises (Hobson and Essex 2001; Vernon et al 2003; Tzschentke et al 2008; Chan 2011; Sempaio et al 2012a, 2012b). Many technologies that feature in studies of environmental management like photovoltaic cells, wood chip boilers, so-called ‘smart’ metering or solar window films, contribute to mitigation. Hall (2006: 234) offers some clues as to why the disconnect may have arisen. In one of the few studies to examine attitudes towards adaptation and mitigation in New Zealand, he argues that climate change is not always a term that resonates with tourism entrepreneurs. Rather ‘measures were being developed... in relation to environmental change issues with respect to

biosecurity and water security but not necessarily climate change *per se*'. As a cross-cutting theme, climate change can be embedded in, and hence obscured by, other policy domains.

Whatever the reasons for this lacuna, Scott and Becken's (2010) observation is actually more important than it may at first appear because it exposes an important conceptual deficit. *Prima facie* they correctly point to the desirability of robust and detailed scrutiny of mitigation policy as it relates to tourism. However, inadvertently they reveal the fact that established constructs and frameworks from political science and public administration have yet to be adopted in this context, as they are in other areas of tourism policy analysis (Murphy and Murphy 2008; Dredge and Jenkins 2007; Hall 2008b). This is notwithstanding their clear potential as recent perspectives sustainable tourism informed by debates on governance once again demonstrate (Bramwell and Lane 2011; Hall 2009, 2011a, 2011b). What is more, they understate the extent to which greater conceptual and terminological precision will be required. Policy analysis is, for instance, a multi-dimensional term (Pforr 2005; Hall 2008b) which comprises at least three dimensions: first, analysis for policy relates to making the case for, and shaping the direction of, policy by identifying gaps between the current situation and the desired position (Murphy and Murphy 2004); second, analysis of policy, its development and implementation in a historical sense (Hall 2009); and third, analysis of the extent to which policy has resulted in the desired changes (Hall 2008b).

The latter may have been what Scott and Becken (2010) had in mind because there is already a compelling evidence base for a greater policy response (UNWTO 2007; Simpson et al 2008). Policy evaluation refers to the collection and monitoring of data on the performance of policy interventions and instruments both during and after the period of implementation (Hall 2008b: 125). However, there is an important conceptual difference between effectiveness and efficacy, and it is the latter that is arguably the more urgent research imperative for climate change at this time. Efficacy refers

to the capacity of policy to result in desired changes and, like evaluation, it has not been the subject of attention thus far in studies of tourism and mitigation policy. While there is no doubt that it is appropriate to concentrate on the nature of policy outcomes and outputs (and whether targets have been achieved), a more crucial question is the extent to which policy was (or is) fit for its intended purpose. As an empirical exercise, evaluation describes progress against a series of milestones and towards targets but it says little about the starting point or whether the benchmarks were appropriate in the first place.

Several demand-side studies rooted in the Theory of Planned Behaviour point to the importance of taking such an approach in supply-side analysis. Disconnections have been noted between behavioural intentions and actual behaviours (Barr et al 2010, 2011; Hares et al 2010; McKercher et al 2010). For example, Barr et al (2010, 2011) have noted that tourists often profess their willingness in principle to make more sustainable choices but this is not translated into their pre- and in-trip decision-making. Policy may inspire greater awareness of the need to alter behaviours, but this is not always matched by action and policy instruments (like air passenger taxes and duties) lack efficacy because they misunderstand their audiences and their targets are set too high as a result. As accounts of environmental management make clear, despite exhortations from government over nearly two decades to adopt more sustainable (i.e. 'green') practices, this has not translated into (more) universal practice in the tourism sector despite no little sympathy for the principle (Vernon et al 2003; Tzschentke et al 2008; Sempaio et al 2012a, 2012b).

[INSERT TABLE 1 NEAR HERE]

3. CLIMATE CHANGE MITIGATION AND TOURISM: THE UK POLICY FRAMEWORK TO 2010

As a first step towards the assessment of the efficacy of mitigation policy as it relates to tourism businesses, in this section we outline the major policy positions, interventions and instruments together with their main desired effects. As a starting point, it is worthwhile noting that the publication of the highly influential Stern Review (2007) framed the previous UK government's response to climate change. Its stark messages were that inaction is not a viable option, action was vital immediately, and investment in global GDP of 1% will be the cost of stabilising at the (relatively) acceptable and realistic levels of 500-550ppm of CO₂. These were interpreted by the government of the day that climate change should be a cross-cutting theme; consideration of it should feature in *all* government policy- and decision-making; and that *all* government actions and investments had to be assessed for their possible contribution to climate change.

Of course, it is impossible here to review the full body of public policy and its evolution since the Labour administration came to office in 1997 because it was so active on climate change (Table 1), in particular towards the end of its third term. From 2007 to May 2010, it legislated on four main occasions. Nevertheless, there were three main elements to the previous government's policy position (Table 1). The first was that a neo-liberal approach in which the markets and businesses would find a solution to climate change when left to their own devices, was inappropriate and infeasible. Rather government had to intervene on such a major issue. In so doing and as testament to how highly it valorised the issue, it wanted to demonstrate global leadership as a major industrialised country by committing itself to more ambitious targets for emissions reductions than its Kyoto obligations through the Climate Change Act 2008 (Giddens 2009, DECC 2010a).

Second, an integrated approach was adopted to abate the effects of climate change. A dual strategy focusing on both adaptation *and* mitigation was pursued, while climate and energy policy were identified as mutually-reinforcing. To be at the forefront of renewable and low-carbon energy generation was seen as vital in terms of emissions reductions and future energy security. To this end, a separate ministry of state, the Department for Energy and Climate Change (DECC) was established to ensure these issues were simultaneously prioritised within government. Third and connected, government introduced a series of instruments to stimulate behaviour change in energy provision and emissions. According to the rhetoric of the day, the transition to low-carbon economy and society was a concern of all citizens, businesses and organisations (POST 2006; Stern 2007; HMG 2009). In the context of this paper and the discussion of efficacy in later sections, this is vital.

Instruments, such as the Carbon Levy, the Energy Efficiency Scheme, Feed-in-Tariff (FiT) and Renewable Heat Incentive (RHI), were designed to facilitate the widest possible engagement in the private, public and voluntary sectors. Put another way, their desired effect was to catalyse a step-change in attitudes and behaviours towards energy supply and emissions. What is more, they were not narrowly targeted or focused; that is, they were intended to be as applicable to businesses and organisations in the tourism sector as they would be to those in other sectors of the economy.

No explicit UK tourism policy existed (or exists) on climate change. This is notwithstanding that, if global data are representative of the UK, the tourism sector accounts for a significant share of its greenhouse gas emissions (5-14%, according to Simpson et al 2008). Instead, tourism businesses, including accommodation providers as a major constituency, were expected to contribute fully towards the general delivery of UK targets for emissions reductions, renewable heat generation and other connected targets. Government intervened in energy markets through its Renewables Obligation to set a target of 15% of generation by renewable and low carbon sources within a decade. To support this commitment, the FiT and RHI were introduced based on experiences in

other countries, such as Germany (Giddens 2009). Consistent with the intention of the Energy Act 2008 to encourage more smaller-scale energy users to produce their own electricity, the FiT made provision for payment (from government) for each unit produced as well as payment for power exported to the national grid (from energy companies). The RHI consolidated the FiT by expanding its scope into newer, more advanced technologies to accelerate progress rapidly in an area where the UK lagged a long way behind its targets. As symbolic of the then government's deep desire to engender behaviour change, the FiT and RHI were set at generous levels. In fact, according to the next government they were unsustainably high and would have to be reduced (Harvey 2011; DECC 2012; Murray 2012).

Overall, the scope and content of the interventions and associated instruments should have had a high capacity to induce behaviour change. More specifically, there should have been great potential for accommodation providers to benefit and reflexively for the tourism sector to make a significant contribution to realising government's targets. Anecdotal evidence collected from renewable energy suppliers in the pilot stages of this research revealed that some accommodation providers took full advantage. On their large roofs and other surfaces large-scale solar installations were possible. In return for free energy supplies and reduced bills from power companies, they signed away their FiT payments and any export value of (excess) energy to the UK national grid to energy speculators. Given the dual residential-commercial use of many premises (Coles and Shaw 2006; Lynch et al 2009), they were potentially eligible for a wider range of grant schemes to update their infrastructure.

Thus, the situation in the final months of the Labour administration was that there was cross-party consensus on the importance of tackling dangerous climate change; that all forms of economic

activity—including tourism - should contribute as fully as possible to mitigation; and several policy instruments had been introduced to encourage the most widespread behaviour change possible. However, there had been no attempt to consider the extent to which these would or could be actioned within the tourism sector, nor consequently how far it may contribute to the delivery of government's targets, and it is to these issues to which we turn in the second part of the paper.

4. METHODS

The business response to public policy was considered during a programme of empirical research on current practices in, and future plans for, climate change mitigation among accommodation providers in the South West of England. Until 2010 each UK region was responsible for devising and implementing plans for both mitigation and adaptation, especially as they related to their key economic sectors (ERDA 2010), in order to deliver on central government policy. The South West was chosen as the sampling frame because a response to government policy in the tourism sector should have been detectable in the region for three reasons. First, its regional action plan recognised that it was both a 'climate conscious' and 'carbon aware' region for which climate change presents both vulnerabilities and potentials (SWRA et al 2008) perhaps nowhere more so than tourism (SWCCIP 2010). Second, sustainable development had been one of three strategic pillars of regional tourism strategy (SWT 2005). Before the announcement of its closure in 2011, the regional tourist board (RTB, Southwest Tourism) had led the policy debate on tourism and climate change within the English regions on behalf of government (Coles 2008), in particular in the areas of adaptation modelling (SWCCIP 2010) and ecological footprinting (DCMS 2009; Whittlesea and Owen 2012). Finally, well over a third of the (English) members of the Green Tourism Business Scheme (GTBS)—one of the principal certification and benchmarking schemes for sustainable tourism—were located in the region. As a major destination for domestic and international visitors, tourism had

become one of the principal motors for the regional economy in which there was also a growing and vibrant renewable energy sector (RegenSW 2010).

Primary research employing a mixed methods approach was conducted in Winter 2009/2010. An extensive questionnaire of 31 questions was devised to examine and situate current practices towards mitigation. The questionnaire comprised three sections: the first examined the perceived relationship between the business and the environment, including climate change; the second covered the business' environmental (management) practices; and the third covered their characteristics. Importantly in the context of this paper, in addition to their basic business operating parameters, the questionnaire gathered detailed data on current and planned environmental measures, as well as the the drivers behind and obstacles to more responsible behaviour.

Quantitative analysis was accompanied by a series of semi-structured interviews. There are many permutations and sequences for approaching mixed methods research (Johnson et al 2007). Here, the interviews were intended to develop a deeper understanding of motivations, barriers and stimuli to greater mitigation, including their responses to the measures and incentives devised by government to stimulate behaviour change. Prior pilot research had demonstrated a general lack of awareness among accommodation providers of the *detail* (not existence) of UK government policy prescriptions on climate change but limited awareness of select instruments as the FiT and RHI (table 1) as they related to their businesses.

Accommodation providers were the subject for this research because they represent the largest constituency of tourism businesses but their mitigation behaviours have been largely overlooked. Recent empirical studies on tourism entrepreneurs' attitudes to climate change have been characterised by small sample sizes of fewer than 50 businesses (Saarinen and Tervo 2006; Hall

2006) as have accounts of environmental management (Tzschentke et al 2008; Sempaio et al 2012a, 2012b). One of the goals for this research was to obtain a more comprehensive overview of what was happening in a part of the tourism sector which *pro rata* ought to be able to contribute significantly to government goals for climate change abatement and which were –potentially at least- the targets for, or beneficiaries of, the many recent policy instruments in the area. At the time of the research, the RTB estimated that there were 14,970 accommodation providers. An email invitation to participate in the online questionnaire survey was sent out randomly to over 5,000 businesses by the RTB on behalf of the authors. 417 usable responses were received by the survey closure in December 2009, or an effective response rate of 8.9%. In other words, if the RTB's database was accurate, the questionnaire survey captured the views of 2.8% of the background population and the sample size is well above the threshold of 390 required for a Confidence Level of 95% and a Precision Level of 5% (Israel 1992: 3). Eighteen interviews, which lasted around one hour on average were conducted in February 2010 with owner/managers across the full range of business types (B&B, Hotel, self-catering, and caravan and camping sites), and across the entire region to ensure geographical spread. The interviewees were selected at random from respondents who had completed the questionnaire and agreed to participate further. Given the nature of this paper, the emphasis is on reporting the quantitative data analysis; however, insights and corroboration provided by the interviews are used selectively (mainly in the form of verbatims) to shed extra light on the results.

[INSERT TABLE 2 NEAR HERE]

The absence of a reliable census of the background population and its characteristics defies a more comprehensive discussion of representativeness. Nevertheless, from a basic examination of the

sample set, it is clear that micro- and small-sized tourism enterprises typically completed the survey (Table 2). A range of accommodation providers was evident from full service hotels (3.6%) to farmhouses (3.4%), general self-catering (27.6%), bed-and-breakfast establishments (B&Bs, 14.1%) and guest accommodation (28.3%) according to Southwest Tourism's categories. Under the terms of the National Quality Assurance Scheme (NQAS), around 40% of the sample comprised B&Bs and guest houses. Nearly two-thirds of the accommodation was graded four-star or above. From the quality of experience offered to their guests, this would infer that a clear majority of the businesses were reasonably well-run. Businesses had been in their current ownership for 10.4 years on average, and in existence for three decades. Thus, in many cases current ownership predated the great surge in public interest and debate on climate change in the UK after 2005. Moreover, many owners and/or operators had had ample time to implement mitigation measures. Based on these average figures for turnover and length of ownership, the average total investment in six typical areas of mitigation represents an investment in the business by the current owners of around 2.0% of total revenue over the past decade.

5. RESULTS

5.1 INTENTIONS, BEHAVIOURS AND ACTION

As noted above, for mitigation policy to be successful in the UK, it has to stimulate more sustainable behaviours from as wide a cross-section of society as possible (Stern 2007, 2009; Giddens 2009). As data from the first section of the questionnaire revealed, climate change divided opinion and there was some evidence of a gap opening between intention and behaviour. As a general concept, 57.7% of businesses intended to act on it moving forward but around a fifth (21.9%) were not prepared to, despite government policy. There were also stark polarisations in the perceived response levels.

When asked about the level of their response, 10.3% felt that they had gone as far as they can, while 13.2% of businesses declared they had made a negligible or no effort to tackle climate change (i.e. the two extreme points of a seven-point Likert Scale). The key result was the average response of 3.45 (below the mid-point of 4 on the same scale). This suggests that, in general, many respondents felt they had made some progress in responding to climate change, but there was still some way to go. Taken together the data point to reasonably positive levels of intention to act among the sample which were accompanied only by more modest levels of action. In other words, policy prescriptions and instruments had not been having the effect desired by government.

[INSERT FIGURE 1 NEAR HERE]

These observations were corroborated by data from the second section of the questionnaire. Respondents were asked to report on their implementation of, or intentions for, a series of environmental measures that are routinely identified as internal operations that can contribute towards climate change mitigation (i.e. SEERG, 2006; Defra, 2009; HM Government 2009). From a policy perspective, two important features are evident here. First, these data paint a picture of businesses taking relatively simple and straightforward measures to tackling climate change. In the process they echo previous work on environmental management (Vernon 2001; Vernon et al 2003; Tzschentke et al 2008). Beyond recycling, which was very widespread, the most popular measures were installing loft insulation, more efficient boilers and A-rated appliances, as well as water saving measures (i.e. dual flush toilets, hippos), towel (i.e. refresh) agreements, and efficient shower heads and taps (Figure 1). These had been implemented by over a half of all businesses and there were high levels of intention to implement these measures within businesses where they were lacking.

Second and conversely, relatively few businesses had extended beyond the ‘easy wins’ or ‘low hanging fruit’ (as they were described in interviews) thereby endorsing the view that businesses in the sector could do more. More systematic, ‘whole-business’ approaches were less common as were more (radically or disruptively) innovative approaches that required more investment (Vernon 2001). More importantly, though, the sorts of measures and technologies that would be more likely to result in greater contributions to government targets on emissions reductions and renewable energy were relatively absent (Figure 1). Formalisation of environmental management in the form of an appointed manager or agreed plan had taken place in less than a quarter of businesses. More advanced (and/or more expensive) renewable technologies such as solar panels and water-heating systems as well as wood chip boilers and smart metering had been introduced by less than 15% of businesses. Perhaps more concerning is that over 40% businesses reported that they had no plans whatsoever to install solar-powered water heating, solar energy panels, wood chip boilers, grey water systems, cavity wall insulation or even the now relatively widespread power-control room key. Over 50% had no intention to switch to a green energy supplier or employ smart metering.

[INSERT FIGURE 2 NEAR HERE]

As Figure 2 indicates, the latter was another symptom of a general monitoring deficit. Resource use and costs were routinely overlooked. Over 50% reported that they do not observe either energy or water consumption by their customers and over 60% do not set water- or energy-saving targets (Figure 2). Nevertheless, energy and water bills accounted for 15% and 7% of costs (Table 2), and respectively they were reported to have risen in the past year in 65% and 52% of businesses. The performance of energy- and water-saving devices was not reviewed in 48.0% and 60.9% of cases. On one level, in the short term this would suggest that resources are being used in an unintelligent, unaware manner incommensurate with the government’s preferred approach to tackling climate

change. On another it demonstrates the clear need for, and the probable impact of, smart metering as it is progressively introduced to the tourism sector as part of the government's response to climate change (Vaughan 2009; DECC 2011).

5.2 DRIVERS OF CURRENT AND FUTURE ACTIVITY

The second stage of the analysis explored the reasons for the discrepancy between intention and behaviour. This primarily interrogated the data supplied by four extensive questions (comprising 36 Likert scales), with the qualitative data providing additional explanation. The questions explored: the various motivations to respond to climate change (8 scales – Table 3); how action on climate change featured in the operation of the business (5 scales – Table 3); the barriers towards acting on climate change (7 scales – Table 4); and possible stimuli to provoke further action in the form of 'contingent facilitation' statements (i.e. 'would do more if....', 16 scales – Table 4).

[INSERT TABLE 3 NEAR HERE]

Making sense of the motivations was a tricky task but, in general, this research corresponded with other recent work in which environmental management is interpreted as a value-driven journey (Tzschentke et al 2008) and shaped by a combination of individual world views, self-efficacy beliefs and goal orientations (Sempaio et al 2012a). Where it differed was in the level of parochialism and pragmatism. At first inspection, the most important reason for future action appeared to be the moral imperative. Among the principal motivations for action (i.e. on which over 50% of respondents agreed), 83.9% noted that managing environmental impacts is morally the right thing to do, while 61.0% managed environmental impacts because of soaring utility bills. Further probing

from the interviews confirmed that an abstract, higher level ‘climate change’ was an issue that they felt they ought to be addressing but an element of ‘yea-saying’ (Ryan 1995) may have distorted this particular result. Thus, despite apparently noble intentions, it became clearer that instrumentalism - and not necessarily just a deep-seated commitment to the environment or to climate change - motivated the nature and level of managerial response. For 55.9%, monitoring was to reduce bills *not* to respond to messages on climate change, and a majority (52.5%) noted that environmental management actions benefit profitability. The perceptual disconnection between climate change and resource use was further in evidence. Utilities bills were a feature in the future business planning of a majority of businesses (61.5%) while 55.3% believed that their individual business’ actions make a difference in tackling climate change. Perhaps not surprisingly then, under a half reported that measures to tackle climate change did not feature in their future business plans while around just a fifth believed they were using innovative business practices to improve their environmental performance.

[INSERT TABLE 4 NEAR HERE]

Among the principal practical barriers to further action were premises (67.4%), overly protracted payback periods (62.8%), and planning regulations and schemes that were too prohibitive (55.7%). Put another way, over 60% of businesses would have done more to address climate change if the economic case was clearly proven and there were apparently greater business benefits to them (Table 4). Therefore, despite the apparent financial incentives associated with the FiT and impending RHI (Table 1), relative low and slow returns on investments in renewables were perceived and furthermore these were considered to be prohibitive to wider take-up (and it is why renewables did not feature highly in plans – Figure 1). As one interviewee put it emblematically,

‘The payback time for electricity generating systems is so long because they are still very expensive. That’s it.... Until the price does come down, it doesn’t make economic sense.’

Another pointed to the widely-held perception of the difficulty in accurately calculating payback arguing,

‘It is very difficult with payback because you could calculate it to a certain extent but they [renewable energy companies] always make it sound better than it is’.

Interestingly, a lack of information was not a main barrier to further action. Only just over a quarter of businesses believed that this was problem. Rather, it would appear that more could be done to address climate change if there were a more coherent approach. Nearly a half of businesses agreed that there is too much conflicting information and they did not know where to begin in their efforts to make sense of it. One business even noted the duplication of effort,

‘It’s always the same sort of information. It’s a lot of wording but you don’t actually get anything out of it in the end’.

Best practice examples to consult (64.9%) and a clear ‘one stop shop’ for advice (62.1%) were considered essential by nearly two-thirds of businesses (Table 4). Other principal stimuli (i.e. mentioned by more than a half of respondents) were grants to help with monitoring (75.8%); dedicated equipment to monitor energy (62.3%) and water (50.7%); and more trustworthy messages in the media about climate change (57.3%). Indeed, the interviews revealed a further layer to the issue of (a lack of) trustworthiness. There may appear to be an impressive array of grants and

financial incentives to induce behaviour change. However, in practice it was not immediately clear for which schemes they were eligible or the commercial benefits which *their* particular businesses may accrue as a result. They did not have the time and often the expertise to establish the relevance or benefits of particular schemes. As a result, many interviewees preferred to ignore them altogether, while others were disillusioned by their largely unsuccessful attempts to access them. Typical of these comments, one manager noted,

‘there is a lot of confusion a lot of talk about availability of grants that aren’t there.... it’s probably easier to win the lottery than to actually get in on the pot’.

Another complained that,

‘getting grant money from government is a very, very painful process. Although they talk about how much money is there, available in grants – that and getting it are two very different things’.

In some cases, the overlap between residential and commercial space created confusion and mediated against state assistance. As one manager explained as part of attempt to obtain a grant for cavity wall insulation,

‘They came, saw that we were in part a business and literally didn’t come in the front door and said “We can’t apply the grant”. In spite of the fact that this is our home and we are trying to use these measures to demonstrate to others, you find that it’s not eligible so I’m afraid there is a lot of talk about potential help but there is very little in reality.’

5.3 EXPLORATORY FACTOR ANALYSIS

What emerges from the preceding (univariate) analysis is the apparent importance of the business case and individual contexts in driving responses to climate change. Regulation and the planning regime as manifestations of government were in relative terms rather less important while the major policy instruments of FiT and RHI, which were about to be rolled out, had made little impression. Instead, clear and coherent business intelligence drove the decision-making as it related to the environment and climate change. In brief, the costs of potential action were considered too high while the costs of non-action, which Stern (2007) and the government encouraged all citizens to consider, were dismissed. Less than a half would do more if they knew how doing nothing currently would threaten their businesses (Table 4). Put another way, the data presented so far suggest that intentions and behaviours at 'grassroots' were very different to those desired by government. In light of this apparent mismatch, the question arises of how policy prescriptions more generally and policy instruments more specifically might be developed in the future in order to facilitate a greater response from accommodation providers?

An Exploratory Factor Analysis (EFA) was performed on the 36 variables discussed above, with the intention of revealing the 'underlying structure among the variables' (Hair et al 2010: 94). EFA is an established technique in social sciences research (Hayton et al 2004; Bandalos and Finney 2010). In the context of this paper it was employed to help make sense of what dimensions may be more fruitful to future policy to stimulate greater mitigation among accommodation providers.

Preliminary checks revealed that the data set had an acceptable ratio of cases to variables (12:1; Hair et al 2010); high levels of inter-variable correlations over $r=0.30$ (Tabachnik and Fidell 2001); a Bartlett Test of Sphericity which was highly significant ($p<0.001$); and a Kaiser-Meyer-Olkin measure

of sampling adequacy of 0.834 (Field 2005). Eight factors were initially generated with Eigenvalues of greater than one and they accounted in total for 59.6% of the variance (Table 5). A large sample size and average communalities of 0.6 both justify this solution (Field 2005); however, the pattern of Eigenvalues and 'Scree Plot' suggested a more complex situation with two points of inflexion (Wheeler et al 2004): one at eight factors, and one at three factors. Making a decision on the number of factors to retain in EFA can require fine judgements (Hayton et al 2004). Here three- and eight-factor solutions were explored further by Varimax rotation to determine the most appropriate (final) solution (Hair et al 2010). Although factor analysis is a data reduction technique, ultimately a three-factor solution proved inappropriate and the eight-factor solution was retained (Table 5).

[INSERT TABLE 5 NEAR HERE]

Among the eight factors, the first two accounted for 33.19% of the variance, while the remaining factors accounted for less than 6% each. Factors One and Two are clearly the most important and hence warrant most attention here. When the constituent elements are considered, 'practical facilitation' and the 'proactive business case', writ broadly, appear vital to future mitigation activity (Table 5). As the most important factor, 'practical facilitation' reveals the importance of external stimuli as drivers of change. Focused, useful and practical intervention was most valued and the composition of the factor is highly instructive for two reasons. First, it hints that the contribution of accommodation providers to climate change mitigation will occur not as a result of appeals directly to them to act in the collective, long-term interests of themselves and other citizens. Rather, mitigation is likely to result indirectly, almost as an unintended consequence of their managing their resource use more efficiently and responsibly (which in turn will contribute towards the abatement of climate change). In a similar manner to Tzschentke et al (2008: 132), intrinsic reasons within the

business drive action, not extrinsic factors or appeals. A second important feature is the relative simplicity that is needed to induce greater mitigation compared to the current arguably 'over-engineered' approach. Businesses would do more if best practice examples were available to consult, there were a clear source of advice, and it were easier to understand bills. Not surprisingly then, dedicated equipment to monitor energy and water consumption would contribute to their cost-saving (and hence mitigation) efforts. Such a result represents a partial endorsement of the government's advocacy of smart metering. However monitoring existing consumption from utilities is quite different to investing in and installing newer, especially renewable technologies as envisaged by FiT and RHI. In this respect, government policy may be criticised as being too ambitious in encouraging greater take-up of solar and other renewable energy sources in a part of the tourism sector that has only embraced only modest mitigation practices (Figure 1) and which struggles to monitor current resource (Figure 2) use even though this comprises just over 20% of costs (Table 1). Viewed from a different perspective, abstract cost curves, hypothetical business cases and confusing bills were, as the interviews variously confirmed, all significant impediments to further action in the tourism sector as they are elsewhere (Fletcher, 2010). According to several managers, the virtue of best practice case-studies was in the perceived reliability of business-to-business exchange of knowledge about practical, 'real life' experiences of implementation and associated business benefits. 'Word-of-mouth' recommendation was more trustworthy and energising, with one interviewee encapsulating the prevailing view:

'I think if there would be more case studies about what other businesses did and then it's quite easy to see it in action and then you'll see that if somebody else can do it, you think, oh it can't be that difficult.'

The first factor, then, clearly points to the importance of clearer, targeted intelligence to inform future decision-making and actions among individual businesses. The second factor underscores this view. Four motivational variables suggest greater action is possible where managers and/or owners connect the environmental case with the business case; in other words, where competitive advantages are perceived or it is possible to 'do well by doing good', as one interviewee put it. Rather than the 'passive business case' (Factor 4, Table 5) where further action is stimulated by the delivery of message *at* and the case *to* businesses, this factor suggests that policy interventions are more likely to succeed where individual managers and/or owners make the connections themselves (or they are facilitated so to do). The inclusion of a single action-based variable on innovative business practices is important. In this context and compared with the other variables in the factor, it is suggestive that those businesses employing more imaginative or creative solutions (in terms of managerial and process-related innovations) are those that are likely to be reaping the environmental and hence commercial dividends. In light of the importance of word-of-mouth and trust, policy interventions must therefore encourage 'first movers' who will act as 'key champions' by implementing changes and demonstrating the benefits, not retard them by means of generic prescriptions, the implications of which both entrepreneurs and scheme administrations have first to unravel before any investment decision can be made.

6. DISCUSSION AND CONCLUSION

Policy analysis has been an important lacuna in the recent growing body of knowledge on tourism and climate change. This paper has made a first attempt to present a dedicated, in-depth analysis of the relationship between mitigation policy and tourism through a study of accommodation providers in the South West of England. In so doing it has demonstrated that prior to the change of government in May 2010, there had been only modest progress towards mitigation. Existing policy

had not resulted in widespread abatement activities and a major constituency in the tourism sector (as a notable source of greenhouse gas emissions) had made an extremely limited contribution to government's policy goals. What is more, comparatively few businesses were planning to introduce the types of technology that could make a more rapid or substantial contribution to help the UK deliver on its medium- to long-term commitments. The magnitude of this gap between policy and action was significant. Intention to act was clearly evident but the majority of businesses were looking for more straightforward, low-cost, low disruption responses. A relatively low proportion had adopted more radical, arguably more expensive technologies or whole business approaches. The introduction of the FiT and the prospect of the RHI as major instruments of UK climate change policy were not accompanied by greater intentions to introduce renewable energy; in fact, they did not feature in the plans of a great majority of businesses.

A gloomy prognosis is that under 'business as usual' it may be some time before accommodation providers play a significant role in the stabilisation or reduction of emissions. This is serious because, as Stern (2007) notes, delaying action serves not to postpone problems, but to amplify their magnitude. If government is determined that the tourism sector should contribute as fully as other sectors towards the delivery of climate policy, this is unrealistic. Put another way, the anticipated capacity of policy to deliver behaviour change in the tourism sector was simply too high. This is because it failed to acknowledge the particularities of the sector and the business cultures, contexts and operating parameters of SMTEs. In this respect, this research endorses Giddens' (2009) view that it is necessary to progress beyond general messages about the perils of climate change, to personalise engagement, and to galvanise activity by more positive messages that stress the duality of what an *individual* tourism business can achieve by acting in the common good. Future policy will have greater efficacy where it focuses on practical facilitation and helping businesses to make decisions proactively. Policy instruments like the FiT and the RHI were designed to encourage as

widespread mitigation activity as possible but there has been a lack of trust in the information and the apparent benefits they offer. Moreover, the 'one-size-fits-all' nature of the FiT and RHI assumes that tourism enterprises are as ready, motivated and able to act as those elsewhere. Many accommodation providers were starting from a much lower base than in other sectors. Thus, to extend Scott and Becken's (2010) critique, greater policy analysis of mitigation and tourism is desirable but a more nuanced reading of policy analysis is necessary informed by conceptual constructs and analytical frameworks from policy research and public administration. As this paper has demonstrated, in this respect even a relatively simple idea like efficacy offers a powerful lens. While it is important to evaluate the performance of policy, a more fundamental question for policy analysis in this area is the extent to which interventions and instruments are fit for the purpose of application to the tourism sector.

Of course, care should be taken when generalising from a study of this nature. Admittedly, there are important similarities between the UK approach to tackling climate change and other states' (Giddens 2009). Within the UK, though, these findings relate to a region that has a long-term commitment to the principles of sustainable development in tourism and to the importance of renewable technologies. Elsewhere, progress may have been even more limited. Within this sample, larger hotels and members of chains were under-represented, and there is evidence that some have already made more progress independently towards more actively managing their environmental responsibilities (Bohdanowicz 2006; Bohdanowicz and Martinac 2007; Deng 2003; Chan et al 2008). Finally, shortly after the Coalition Government came to office, it signalled its continued support for FiT and the RHI but, as part of its deficit reduction plans, its contributions would be much reduced. This decision has been challenged in parliament and in the courts (Murray 2012) and has prompted formal review by government (DECC 2012). Thus, further research would be welcome to investigate these issues in a comparative sense across the country and the entire

sector, and to examine whether the sector has progressed or further delays have been introduced. Nevertheless, although additional work is clearly necessary, it is more crucial that such research should be embedded within proper evidence-based policy-making. Otherwise the tourism sector will continue to sleep-walk in its response to climate change.

REFERENCES

- Bandalos, D.L. and Finney, S.J. (2010) 'Factor Analysis: Exploratory and Confirmatory', in Hancock, G.R. and Mueller, R.O. (eds.) *The Reviewer's Guide to Quantitative Methods in the Social Sciences*. New York, Routledge: 93-114.
- Barr, S.W., Shaw, G., Coles, T.E. and Prillwitz, J. (2010) '"A holiday is a holiday": practicing sustainability, home and away', *Journal of Transport Geography*, 18: 474-481.
- Barr, S.W., Shaw, G. and Coles, T.E. (2011). 'Times for (un)sustainability? Challenges and opportunities for developing behaviour change policy', *Global Environmental Change* 21: 1234-1244.
- Becken, S. and Hay, D. (2007) *Tourism and Climate Change. Risks and Opportunities*. Clevedon: Channel View Publications.
- Bohdanowicz, P. (2006) 'Environmental awareness and initiatives in the Swedish and Polish hotel industries--survey results', *International Journal of Hospitality Management*, 25(4):662-682.
- Bohdanowicz, P. and Martinac, I. (2007) 'Determinants and benchmarking of resource consumption in hotels - Case study of Hilton International and Scandic in Europe', *Energy and Buildings*, 39(1): 82-95.

- Bramwell, B. and Lane, B. (2011) 'Editorial introduction: critical research on the governance of tourism and sustainability', *Journal of Sustainable Tourism*, 19(4-5): 411-422.
- Chan, E.S.W. (2011) 'Implementing environmental management systems in small- and medium-sized hotels: obstacles', *Journal of Hospitality and Tourism Research*, 35(1): 3-23.
- Chan, W.W., Mak, L.M., Chen, Y.M., Wang, Y.H., Xie, H.R., Hou, G.Q., and Li, D. (2008) 'Energy saving and tourism sustainability: solar control window film in hotel rooms', *Journal of Sustainable Tourism*, 16(5): 563-574.
- Coles, T.E. (2008) 'The implementation of sustainable tourism: a project-based perspective', in Gössling, S., Weaver, D. and Hall, C.M. (eds.) *Sustainable Tourism Futures. Perspectives on Innovation, Scale and Restructuring*. London, Routledge: 204-221.
- Coles, T.E. and Shaw, G. (2006) 'Tourism, property and the management of change in coastal resorts: perspectives from South West England', *Current Issues in Tourism*, 4(1): 46-68.
- Department for Environment and Rural Affairs (Defra) (2009) *Adapting to Climate Change UK Climate Projections*. London: Defra.
- Department for Energy and Climate Change (DECC) (2010a) *Climate Change Act 2008*. Online document. Available from: http://www.decc.gov.uk/en/content/cms/legislation/cc_act_08/cc_act_08.aspx [Last accessed: 08/07/10]
- Department for Energy and Climate Change (DECC) (2010b) *Renewables Obligation*. Online document. Available from: http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/renewable/policy/renew_obs/renew_obs.aspx [Last accessed: 08/07/10].

Department for Energy and Climate Change (DECC) (2010c) *Energy Act 2008*. Online document.

Available from: http://www.decc.gov.uk/en/content/cms/legislation/energy_act_08/energy_act_08.aspx [Last accessed: 08/07/10]

Department for Energy and Climate Change (DECC) (2010d) *Consultation on the Renewable Heat*

Incentive (RHI). Online document. Available from: <http://www.decc.gov.uk/en/content/cms/consultations/rhi/rhi.aspx> [Last accessed: 08/07/10]

Department for Energy and Climate Change (DECC) (2011) *DECC lays foundation for smart meters rollout*. Online document. Available from:

http://www.decc.gov.uk/en/content/cms/news/pn11_032/pn11_032.aspx [Last accessed: 10/07/12]

Department for Energy and Climate Change (DECC) (2012) *FITS Review*. Online document. Available

from: http://www.decc.gov.uk/en/content/cms/meeting_energy/renewable_energy/feedin_tariff/fits_review/fits_review.aspx [Last accessed: 10/07/12]

Deng, S.-M. (2003) 'Energy and water uses and their performance explanatory indicators in hotels in Hong Kong', *Energy and Buildings*, 35:775–784.

Dickinson, J. (2010) 'Holiday travel discourses and climate change', *Journal of Transport Geography*, 18(3): 482-489.

Dickinson, J. and Lumsdon, L. (2010) *Slow Travel and Tourism*. London: Earthscan Ltd.

Dredge, D.M. and Jenkins, J.M. (2007) *Tourism Planning and Policy*. Milton, Queensland: John Wiley & Sons Australia.

Dubois, G. and Ceron J.-P. (2006) 'Tourism and Climate Change: Proposals for a research agenda', *Journal of Sustainable Tourism*, 14(4): 399-415.

- Dwyer, L., Forsyth, P., Spurr, R. and Hoque, S. (2010) 'Estimating the carbon footprint of Australian tourism', *Journal of Sustainable Tourism*, 18(3): 355-376.
- England's Regional Development Agencies (ERDA, 2010) *Regional Development Agencies. Delivering a Low Carbon Britain. The Contribution of the England's RDAs. March 2010.* Online document. Available from:
http://www.englandsrdas.com/admin/uploads/attachment/RDA_Energy_and_Climate_Change_Brochure-RDA%20Energy%20and%20Climate%20Change%20Brochure.pdf [Last accessed: 13/09/11].
- Hobson, K. and Essex, S. (2001) 'Sustainable tourism: a view from accommodation businesses', *Service Industries Journal*, 21(4): 133-146.
- Field, A. (2005) *Discovering Statistics Using SPSS*. London: SAGE.
- Fletcher, A. (2010) New energy statements 'will confuse' says watchdog. BBC News (03/08/10).
 Online document. Available from: <http://www.bbc.co.uk/news/business-10840660> [Last accessed: 19/08/10].
- Giddens, A. (2009) *The Politics of Climate Change*. Cambridge: Polity Press.
- Gössling, S. (2011) *Carbon Management in Tourism. Mitigating the Impacts on Climate Change*. London: Routledge.
- Gössling, S. and Hall, C.M. (2006) *Tourism and Global Environmental Change*. London: Routledge.
- Gössling, S. and Hall, C.M. (2008) 'Swedish Tourism and Climate Change Mitigation: an Emerging Conflict?', *Scandinavian Journal of Hospitality and Tourism*, 8(2): 141-158.
- Gössling, S. and Schuhmacher, K.P. (2010) 'Implementing carbon neutral destination policies: issues from the Seychelles', *Journal of Sustainable Tourism*, 18(3): 377-392.

- Gössling, S., Broderick, J., Upham, P., Ceron, J-P., Dubois, G., Peeters, P. and Strasdas, W. (2007) 'Voluntary carbon offsetting schemes for aviation: efficiency, credibility and sustainable tourism', *Journal of Sustainable Tourism*, 15(4): 402-417.
- Gössling, S., Haglund, L., Kallgren, H., Revahl, M. and Hiltman, J. (2009), 'Swedish air travellers and voluntary carbon offsets: towards the co-creation of environmental value?', *Current Issues in Tourism*, 12(1):1-19.
- Gössling, S., Hall, C.M., Peeters, P. and Scott, D. (2010) 'The future of tourism: a climate change mitigation perspective', *Tourism Recreation Research*, 35(2): 119-130.
- Hall, C.M. (2006) 'New Zealand tourism entrepreneur attitudes and behaviours with respect to climate change adaptation and mitigation', *International Journal of Innovation and Sustainable Development*, 1(3): 229-237.
- Hall, C.M. (2008a) 'Tourism and climate change: knowledge gaps and issues', *Tourism and Climate Change in Polar Regions*, in Saarinen, J. and Tervo, K. (eds.) Oulu, Finland, University Press: 6-17.
- Hall, C.M. (2008b) *Tourism Planning: Policies, Processes and Relationships*. Harlow: Pearson Education.
- Hall, C.M. (2009) 'Archetypal Approaches to Implementation and their Implications for Tourism Policy', *Tourism Recreation Research*, 34(3): 235-245.
- Hall, C.M. (2011a) 'A typology of governance and its implications for tourism policy analysis', *Journal of Sustainable Tourism*, 19(4-5): 437-458
- Hall, C.M. (2011b) 'Policy learning and policy failure in sustainable tourism governance: from first- and second-order to third-order change?', *Journal of Sustainable Tourism*, 19(4-5): 649- 671

- Hall, C.M. and Higham, J. (eds.) (2005) *Tourism, Recreation and Climate Change*. Clevedon: Channel View Publications Ltd.
- Hair, J.F., Black, W.C., Babin, B.J. and Anderson, R.E. (2010) *Multivariate Data Analysis. A Global Perspective*. Upper Saddle River (NJ): Pearson Prentice Hall (7th edition).
- Hares, A., Dickinson, J. and Wilkes, K. (2010), 'Climate change and the air travel decisions of UK tourists', *Journal of Transport Geography*, 18(3):455-473.
- Harvey, F. (2011) *Coalition faces revolt over planned cuts to solar subsidies*. Online document. Available from: <http://www.guardian.co.uk/environment/2011/nov/22/coalition-revolt-cuts-solar-subsidies> [Last accessed: 10/07/12].
- Hayton, J.C., Allen, D.G. and Scarpello, V. (2004) 'Factor retention decisions in Exploratory Factor Analysis: a tutorial on Parallel Analysis', *Organizational Research Methods*, 7(2): 191=205.
- Her Majesty's Government (HMG) (2009) *The UK Low Carbon Transition Plan - National strategy for climate and energy*. London: The Stationery Office.
- Israel, G.D. (1992) *Determining Sample Size*. University of Florida: Program Evaluation and Organizational Development, Florida Co-operative Extension Service, Institute of Food and Agricultural Services (Fact Sheet PEOD-6).
- Johnson, R.B., Onwuegbuzie, A.J. and Turner, L.A. (2007) 'Toward a definition of mixed methods research', *Journal of Mixed Methods Research*, 1(2): 112-133.
- Klint, L.M., Wong, E., Jiang, M., Delacy, T., Harrison, D. and Dominey-Howes, D. (2011) 'Climate change adaptation in the Pacific Island tourism sector: analysing the policy environment in Vanuatu', *Current Issues in Tourism*, 15(3): 247-274

- Lynch, P., McIntosh, A.J. and Tucker, H. (2009) *Commercial Homes in Tourism*. London: Taylor & Francis Ltd.
- Mair, J. (2001) 'Exploring air travellers' voluntary carbon-offsetting behaviour', *Journal of Sustainable Tourism*, 19(2): 231-246.
- Murphy, P. and Murphy, A. (2004) *Strategic Management for Tourism Communities: Bridging the Gaps*. Clevedon: Channel View.
- Murray, J. (2012) *Supreme Court rejects government's feed-in tariff solar appeal*. Online document. Available from: <http://www.businessgreen.com/bg/news/2163280/breaking-news-supreme-court-rejects-government-s-feed-tariff-solar-appeal> [Last accessed: 10/07/12].
- Parliamentary Office for Science and Technology (POST) (2006) *The transition to a low carbon economy*. Online document. Available from: www.parliament.uk/documents/post/postpn318.pdf [Last accessed: 10/07/12].
- Pforr, C. (2005) 'Three Lenses of Analysis for the Study of Tourism Public Policy: A Case from Northern Australia', *Current Issues in Tourism*, 8(4): 323-343.
- RegenSW (2010) *2010 Annual Survey. Renewable Electricity and Heat Projects in South West England*. Online document. Available from: http://www.regensw.co.uk/download/regen_2010_survey_single_pages_3c18f747d133c9cf.pdf [Last accessed: 13/09/11].
- Ryan, C. (1995) *Researching Tourist Satisfaction*. London: Routledge.
- Saarinen, J. and Tervo, K. (2006) 'Perceptions and adaptation strategies of the tourism industry to climate change: the case of Finnish nature-based tourism entrepreneurs', *International Journal of Innovation and Sustainable Development*, 1(3): 214-228.

- Scott, D. (2011) 'Why sustainable tourism must address climate change', *Journal of Sustainable Tourism* 19(1): 17-34.
- Scott, D. and S. Becken (2010) 'Adapting to climate change and climate policy: progress, problems and potentials', *Journal of Sustainable Tourism*, 18(3): 283-295.
- Scott, D., de Freitas, C.R. and Matzarakis, A. (2009), 'Adaptation in the Tourism and Recreation Sector', in Ebi, K.L., Burton, I., and McGregor, G.R. (eds.) *Biometeorology for Adaptation to Climate Variability and Change*. New York: Springer.
- Scott, D., Peeters, P. and Gössling, S. (2010) 'Can tourism deliver its "aspirational" greenhouse gas emission reduction targets?', *Journal of Sustainable Tourism*, 18(3): 393-408.
- Sempaio, A.R., Thomas, R. and Font, R. (2012a) 'Why are some engaged and not others? Explaining environmental engagement among small firms in tourism', *International Journal of Tourism Research*, 14: 235-249.
- Sempaio, A.R., Thomas, R. and Font, X. (2012b) 'Small business management and environmental engagement', *Journal of Sustainable Tourism*, 20(2): 179-193.
- Simpson, M.C., Gössling, S., Scott, D., Hall, C.M. and Gladin, E. (2008) *Climate Change Adaptation and Mitigation in the tourism Sector: Frameworks, Tools and Practices*. Paris: UNEP, University of Oxford, UNWTO, WMO.
- South East England Regional Assembly (SEERG) (2006) *Climate Change Mitigation and Adaptation Implementation Plan for the Draft South East Plan*. London: Collingwood Environmental Planning and Land Use Consultants.
- South West Climate Change Impact Partnership (SWCCIP) (2010) *Results of the SWCCIP Tourism Group's Tourism Business Survey 2010*. Exeter: Southwest Tourism

- South West Regional Assembly, South West Regional Development Agency, Natural England, Environment Agency and Government Office for the South West (2008) *The South West Climate Change Action Plan, 2008-2010*. Taunton: SWRA.
- Southwest Tourism (SWT) (2005) *Towards 2015. Shaping Tomorrow's Tourism*. Exeter: Southwest Tourism.
- Stern, N. (2007) *The Economics of Climate Change: the Stern Review*. Cambridge: Cambridge University Press.
- Stern, N. (2009) *A Blueprint for a Safer Planet. How to Manage Climate Change and Create a New Era of Progress and Prosperity*. London: The Bodley Head (Random House).
- Tabachnik, B.G. and Fidell, L.S. (2001) *Multivariate Statistical Analysis*. Harlow: Pearson (4th edition).
- Tribe, J., Font, X., Griffiths, N., Vickery, R. and Yale, K. (2000) *Environmental Management for Rural Tourism and Recreation*. London: Cassell.
- Tzschentke, N.A., Kirk, D. and Lynch, P.A. (2008) 'Going green: decisional factors in small hospitality operations', *International Journal of Hospitality Management*, 27: 126-133.
- United Nations World Tourism Organisation (UNWTO) (2007) *Climate Change and Tourism. Responding to Global Changes. Advanced Summary*. Madrid: UNWTO.
- Vaughan, A. (2009) *Smart energy meters in every UK home by 2020*. Online document. Available from: <http://www.guardian.co.uk/environment/2009/may/11/smart-meters-energy-efficiency> [Last accessed: 10/07/12]

Vernon, J. (2001) *Barriers to Sustainability in Tourism-related Businesses in South-East Cornwall.*

Results of In-depth Interviews with Tourism Business Owners. Plymouth, University of Plymouth Department of Geographical Sciences (Working Paper No.3 July 2001).

Vernon, J., Essex, S., Pinder, D. and Curry, K. (2003) 'The "greening" of tourism micro-businesses: outcomes of focus group investigations in South East Cornwall', *Business Strategy and the Environment*, 12(1): 49-69.

Weaver, D. (2011) 'Can sustainable tourism survive climate change', *Journal of Sustainable Tourism* 19(1): 5-16

Wheeler, D., Shaw, G. and Barr, S.W. (2004) *Statistical Techniques in Geographical Analysis.* London: David Fulton (3rd edition).

Whittlesea, E. and Owen, A. (2012) 'Towards a low carbon future – the development and application of REAP tourism, a destination footprint and scenario tool', *Journal of Sustainable Tourism*, 20(6): 845-865

Table 1: Selected recent policy interventions and instruments in the arena of climate change mitigation in the United Kingdom (before May 2010).

Intervention/Instrument	Main Features
The UK Carbon Levy	<ul style="list-style-type: none"> • Set up in 2001, a tax on use of energy in business and public sector, not domestic users • Liability assessed on supply of taxable commodities for lighting, heating and power. • Does not apply to very small firms with demand equivalent to energy used by a six-bedroom house. • All revenue raised recycled back to business via a cut in national insurance contributions and ring-fenced for support for energy efficiency and low carbon technologies.
Climate Change Act (2008)	<ul style="list-style-type: none"> • Sets out measures to improve carbon management and new targets to post-date Kyoto Protocol in 2012. • Commits UK to reduce CO₂ emissions by 80% by 2050 based on 1990 levels and 34% by 2020. • Carbon budgeting system established to cap emissions over a series of five year periods. • Strengthened institutional frameworks (e.g. by establishing the CCC); enhanced the UK's ability to adapt; and established an accountability framework to central and devolved government legislatures.
Carbon Reduction Commitment (CRC) Energy Efficiency Scheme (2010)	<ul style="list-style-type: none"> • Mandated by the CCA 2008, a new, mandatory energy saving and carbon emissions reduction scheme. • Financial incentive to large private and public sector organisations to generate cost savings through reduced energy bills. • Liability is determined by the level of annual energy use.

	<ul style="list-style-type: none"> Organisations monitor their emissions and purchase allowances to emit CO2 in proportion to emissions.
Renewables Obligation (2010)	<ul style="list-style-type: none"> UK target of 15% energy generation by renewable and low carbon energy sources by 2020. Established in 2002, aims to ensure electricity suppliers source an annually increasing proportion of supply from renewable sources, or face a penalty. In April 2009, banding system introduced with variable levels of support to different types of renewable energy production. In April 2010, current timeframe extended from 2027 to 2037 offering greater long-term security to investors in market.
Energy Act (2008)	<ul style="list-style-type: none"> Develops a series of measures intended to secure supplies in the future, including update of RO and the government introduced provision for a 'Feed-in Tariff' (FiT) and Renewable Heat Incentive (RHI). Both aim to stimulate demand and supply, especially among smaller-scale energy users (households and SMEs) for alternative sources of energy production and consumption.
Feed-in-Tariff (2010)	<ul style="list-style-type: none"> Started in April 2010, enables payment to private individuals and businesses for energy they produce from clean sources Assists licensed electricity suppliers to meet annually increasing obligations to source their supplies from renewable or low carbon sources. Guaranteed minimum payments made for all electricity generated by system, and additional contribution for any excess exported to national grid.
Renewable Heat Incentive	<ul style="list-style-type: none"> UK produces 1% of heat by renewable sources, and needs to increase to 12% to meet EU targets.

(2011)	<ul style="list-style-type: none">• Supports new, more efficient technologies in various contexts (i.e. households, businesses, offices etc).• Currently under consultation with a view to introduction in April 2011.• Tariff levels bridge financial gap between cost of conventional and renewable heat systems.• Additional compensation for certain technologies for element of non-financial cost• Plus, a rate of return of 12% on additional cost of renewables, with 6% for solar thermal.
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Sources: adapted from HMRC (2010), DECC (2010a, 2010b, 2010c, 2010d) and EA (2010)

Table 2: Selected Characteristics of Tourism Businesses in Survey

Business Attribute	Value
Average number of employees (full-time equivalents)	3.2
Average turnover in 2009 (£k)	60
% for whom turnover decreased in last 12 months	20.3
Average occupancy in 2009 (%)	53.4
Average number of bedspaces*	15.9
% Accommodation Graded 3-Star	21.3
% Accommodation Graded 4-Star	55.7
% Accommodation Graded 5-Star	10.1
Average date business established	1980
% of businesses operating before 1980	34.9
Average length of business in current ownership (years)	10.4
Average date premises first built (year)	1919
% of premises built after 1980	11.0
Average number of innovations made in last 10 years	8.2
Average number of planned innovation in next year	3.2
Average total investment over past 10 years (£k)*	12.6
Average proportion of costs as energy bills (%)	14.8
Average proportion of costs as water bills (%)	6.8

* In six typical areas of mitigation activity to reduce emissions within a business, including: roof insulation; wall insulation; efficient heating systems (water, central heating); renewable energy

technologies (solar, wind, water); deliberate purchasing of more efficient (i.e. A-rated) appliances; and double glazing). 5% trimmed mean calculated.

Source: authors' questionnaire survey

Table 3: Responses to statements on what motivates businesses to act and their action on climate change.

Statement	Type†	% Agree*
Our environmental management actions benefit our profitability	M	52.5
Managing our environmental impacts is morally the right thing to do	M	83.9
Our environmental measures offer us marketing advantages	M	45.9
We introduced more environmental measures because our customers expect them	M	33.3
We have seen what other businesses do to respond to climate change and imitate them	M	16.7
We manage our environmental impacts more closely because of soaring utility bills	M	61.0
We monitor our utilities bills primarily to reduce our bills, not to respond to messages on climate change	M	55.9
Utilities bills are a major feature in our future business planning	A	61.5
As one business, our actions make a difference to tackling climate change	A	55.3
Measures to tackle our contribution to climate change feature in our future investment plans	A	45.0
We have not suspended our investment in environmental measures to tackle climate change because of the recession	A	48.1
We are using innovative business practices to improve our environmental performance	A	22.5

Notes

† Scale interrogating about motivations (M) and action (A) – refers also to Table 5

* % who agreed or strongly agreed on five-point Likert Scale.

All wordings have been adjusted to ensure same direction of statements.

Source: authors' questionnaire survey

Table 4: Responses to statements on barriers to act and contingent facilitation i.e. what would make them do more to act.

Statement (n.b. for F, prefaced by 'We would do more to address climate change if....')	Type†	% Agree*
We lack information on how to respond to climate change	B	26.6
There is too much conflicting information about climate change and we don't know where to begin	B	45.2
Payback periods on new solutions to tackle climate change are too long	B	62.8
Our market demands something different	B	22.6
Our premises make it harder to implement measures to tackle climate change	B	67.4
Planning regulations make it harder to introduce measures to tackle climate change	B	55.7
Requirements of existing quality assurance schemes make it difficult for us	B	32.1
The economic case was clearly proven	F	61.3
There were greater business benefits to us	F	66.2
There were grants to help with monitoring	F	75.8
Messages in the media about climate change were more trustworthy	F	57.3
It were easier to understand our bills	F	42.0
We had dedicated equipment to monitor energy consumption	F	62.3
There was a clear one-stop shop for advice	F	62.1
Best practice examples were available for us to consult	F	64.9
We had dedicated equipment to monitor water consumption	F	50.7
Our trade association recommended it to us	F	22.4
Our main competitors did more than us	F	18.0
Our main competitors gained an advantage over us by doing more	F	37.1
We had more time	F	39.6
We were forced to by law	F	41.8
There was free access to training	F	44.0
We knew about how 'doing nothing' about environmental issues might threaten our business	F	46.2

Notes

† Scale interrogating about barriers (B) and contingent facilitation (F) – refers also to Table 5

* % who agreed or strongly agreed on five-point Likert Scale.

All wordings have been adjusted to ensure same direction of statements.

Source: authors' questionnaire survey

Table 5: Eight-Factor Solution from Exploratory Factor Analysis

Variable	Type/Number of variable	1	2	3	4	5	6	7	8	Communalities
1. Practical Facilitation (α 0.863)										
Best practice examples were available for us to consult.	F8	0.834								0.760
There was a clear one-stop shop for advice	F7	0.831								0.750
We had dedicated equipment to monitor energy consumption.	F6	0.825								0.715
We had dedicated equipment to monitor water consumption.	F9	0.772								0.646
It was easier to understand our bills.	F5	0.594								0.547
2. Proactive Business Case (α 0.807)										
Our environment measures offer us marketing advantages.	M3	0.792								0.740
We introduced more environmental measures because our customers expect them.	M4	0.772								0.652
Our environmental management actions benefit our profitability.	M1	0.680								0.575
We have seen what other businesses do to respond to climate change and imitate them.	M5	0.633								0.515
We are using innovative business practices to improve out environmental performance.	A5	0.584								0.466

3. Default Reasons for action (α 8.05)

Our main competitors gained an advantage over us by doing more.	F12	0.706	0.662
Our main competitors did more than us.	F11	0.691	0.676
We had more time.	F13	0.678	0.544
We were forced to by law.	F14	0.630	0.443
Our trade association recommended it to us.	F10	0.501	0.522
We knew about how 'doing nothing' about environmental issues might threaten our business.	F16	0.499	0.479

4. Passive Business Case (α 0.774)

The economic case was clearly proven.	F1	0.786	0.709
There were greater business benefits to us.	F2	0.785	0.749
There were grants to help with monitoring.	F3	0.639	

5. Individual Actions Make Little Difference (α 0.696)

Measures to tackle our contribution to climate change d not feature in our future investment plans.	A3	0.713	0.617
As one business, our actions make no difference to tackling climate change.	A2	0.664	0.570
Managing our environmental impacts is morally the right thing to do.	M2	0.574	0.507
We monitor our utilities bills primarily to reduce our bills, not to respond to messages on climate change.	M7	0.572	0.533

6. Barriers to Practical Implementation (α 0.682)

Planning regulations make it harder to introduce measures to tackle climate change.	B5	0.802	0.683
Our premises make it harder to implement measures to tackle climate change.	B4	0.737	0.624
Requirements of existing Quality Assurance Schemes make it difficult for us.	B6	0.669	0.522

7. Clarity of Information and Messages (α 0.744)

We lack information on how to respond to climate change.	A6	0.799	0.695
There is too much conflicting information about climate change and we don't know where to begin.	B1	0.759	0.748

8. Monitoring measurement and utility bills (α 0.568)

We manage our environmental impacts more closely because of soaring utility bills.	M6	0.784	0.687
Utilities bills are a major feature in our future business planning.	A1	0.689	0.587

Eigenvalue	6.669	4.950	2.087	1.835	1.585	1.450	1.230	1.065
% of common variance	19.054	14.144	5.964	5.242	4.528	4.143	3.514	3.044
% of cumulative variance	19.054	33.199	39.162	44.404	48.931	53.074	56.589	59.632

Factor Names

1 – Practical Facilitation

2 – Proactive Business Case

3 – Default Reasons

4 – Passive Business Case

5 – Individual Actions Make Little Difference

6 – Barriers to Practical Implementation

7 – Clarity of Information and Messages

8 – Monitoring, measurement and utility bills

Types of Variable

M = Motivations to act on climate change

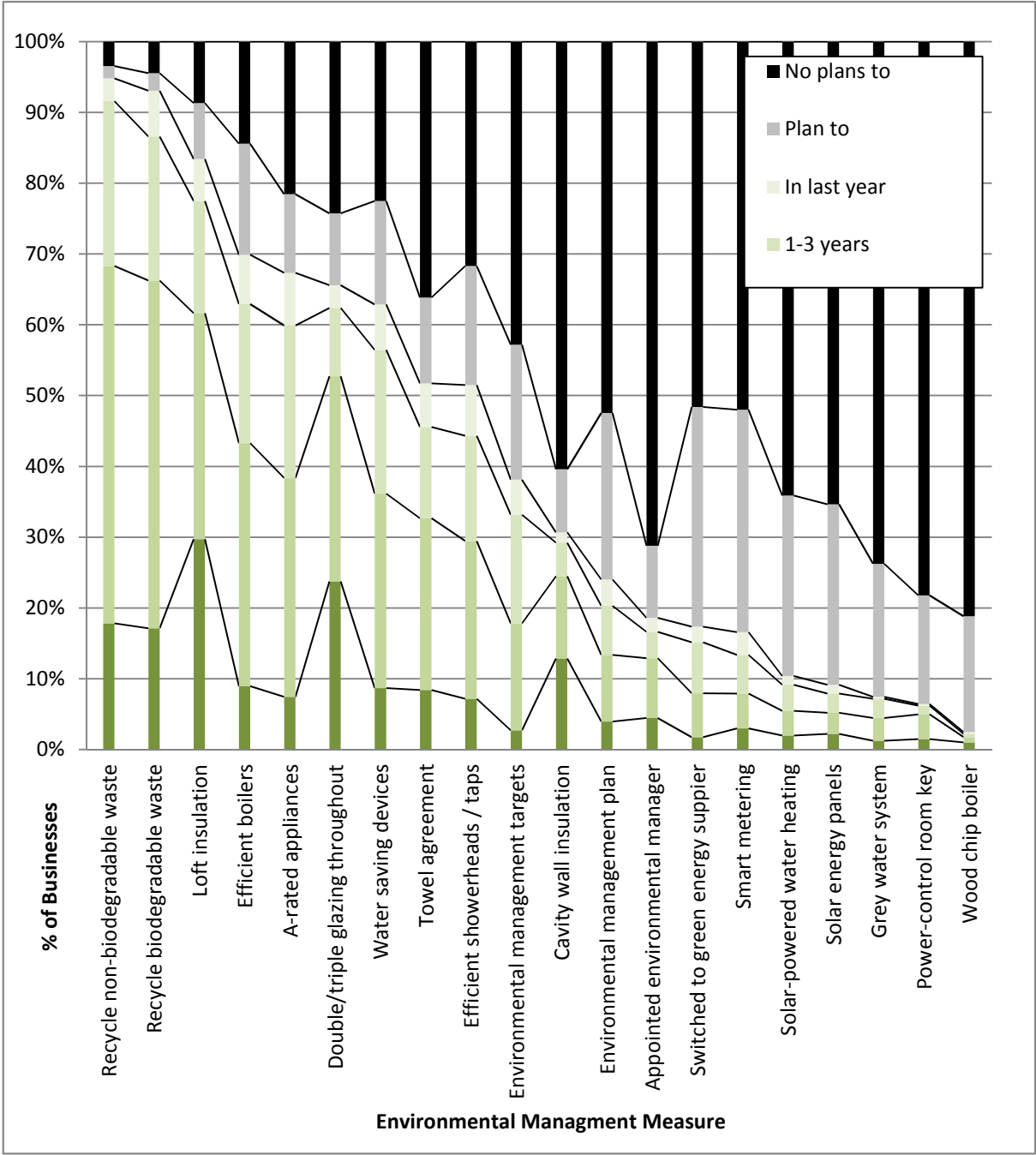
A = Action on climate change

B = Barriers to further action on climate change

F = Contingent facilitation (i.e. We would do more if....)

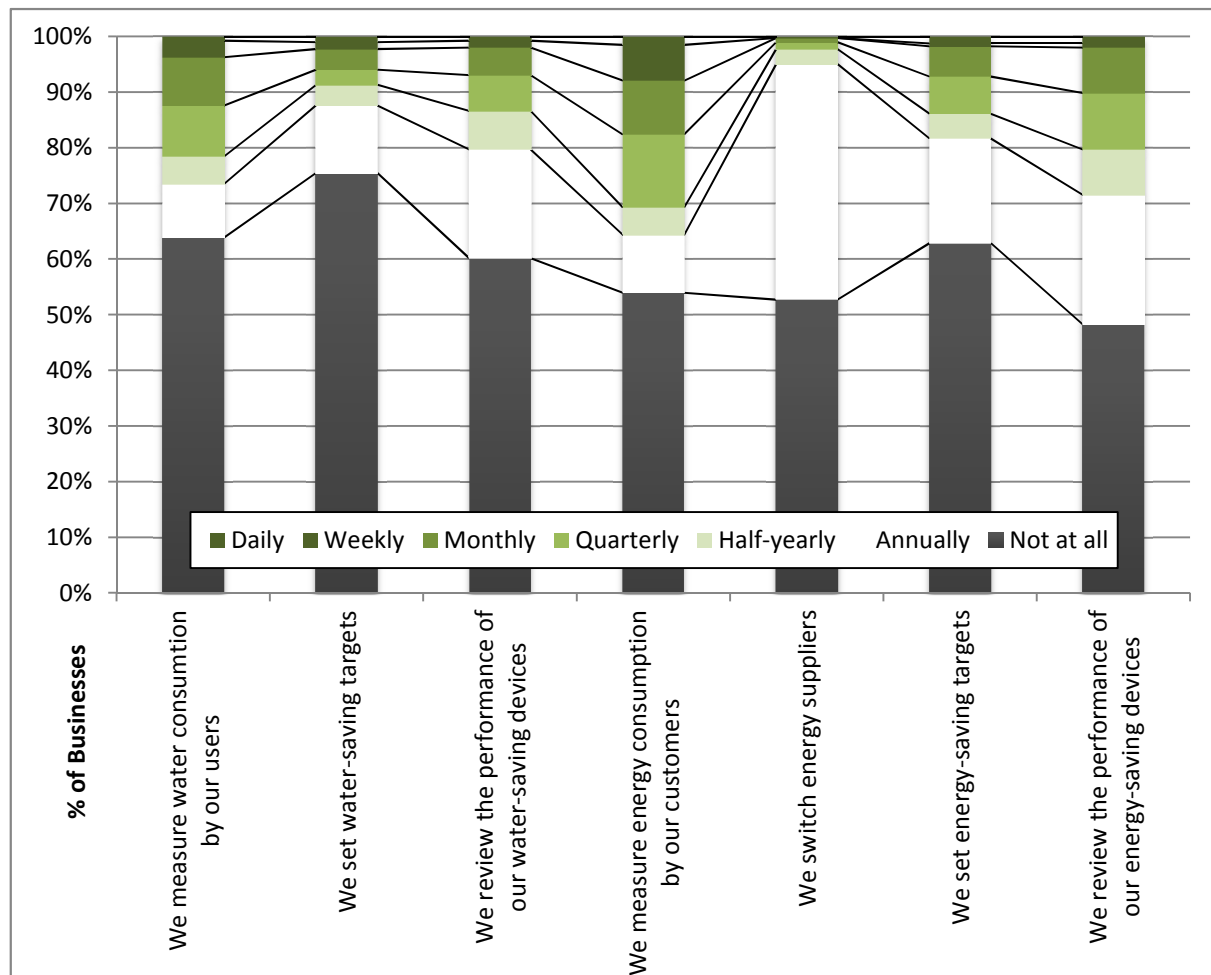
Source: authors' questionnaire survey

Figure 1: Specific environmental practices and their implementation by tourism businesses.



Source: authors' questionnaire survey

Figure 2: Approaches to managing water and energy



Source: authors' questionnaire survey